CHALLENGES TO OBTAINING NEUROPROTECTION IN PARKINSON'S DISEASE

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To date clinical trials designed to establish neuroprotection or disease modification in Parkinson's disease (PD) have been largely unsuccessful. The failure of these studies probably stems from multiple factors, not the least of which is that our understanding of the disease pathogenesis is inadequate and current animal models do not accurately reflect the slowly progressive natural history of the disease in humans. Multiple different contributing pathogenic mechanisms may require the use of combination therapies as in cancer, rather than single agents as have been studied to date. This approach may be especially necessary after the disease is well established as it is even in patients presenting with the earliest classical motor symptoms. This latter problem and our knowledge of the natural history of the disease mandates a re-evaluation of the diagnosis of PD and the need to define populations in “preclinical” or premotor phases of the disease for the evaluation of putative neuroprotective agents. This lecture will review the challenges to obtaining neuroprotection in PD and discuss approaches that will need to be considered in the future if our track record of past failures is to be improved.

FUTURE OF DBS IN NEUROLOGY AND PSYCHIATRY

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Since 25 years the observation of the inhibitory like effect of deep brain stimulation has revived functional neurosurgery. DBS at high frequency (DBS-HF) mimics the effect of electrolytic lesions in all neuronal targets so far used in different indications, and as previously known DBS at low-frequency induces an excitatory effect. This has allowed to replace the ablative neurosurgery by DBS-HF as a functional scalpel applied to an increasing number of targets, controlling the symptoms of an increasing number of diseases. Movement disorders have been the indications where the application was discovered and then established, to the extent of having DBS-HF as the first choice surgical procedure. The thalamus VIM is controlling tremor in Parkinson's disease (PD) as well as in essential tremor, the internal pallidum GPI is the best target to control levodopa induced dyskinesias as well as dystonias, particularly genetic, while the subthalamic nucleus (STN) is considered as the best target for the relief of dopaminergic symptoms in Parkinson's disease. In all of these indications the effects are immediate and immediately reversible, adaptable by adjusting the amplitude of the current, the adverse effects are mild, including the cognitive effects which are mostly multifactorial (including postoperative depression and suicide attempts). This has established DBS-HF as a universal scalpel, the low morbidity of which allowing to try to extend the method to new targets (particularly suggested by basic science results from experimental studies, such as for STN, or by clinical investigations such as for the posterior hypothalamic area for cluster headaches). Based on patho-physiological concepts, STN stimulation as well as the anterior nucleus of the thalamus have been used to treat certain forms of epilepsy, and the pedunculopontine nucleus has been used to treat by DBS at low frequency gait disturbances, based on basic experiments on monkeys. The study of the basal ganglia network and the recognition within the system of parallel networks organization similar to what was described for movement disorders has produced a general functional scheme providing a basis to understand mental disorders, and therefore to propose therapeutic approaches. This has led to surgical treatments of obsessive-compulsive disorders (OCD) by stimulation of the anterior capsule, of the nucleus accumbens, and of the STN, with very significant results. Similarly the subgenual cortex CG 25 has been proposed as a target for severe resistant depression and preliminary results coming from several teams have been reported. Recent data of improvement of anorexia mentosa as well as of drug addiction have been reported, needing confirmation by larger clinical trials. Other indications such as stimulation of the ventromedial hypothalamus for food disorders are being investigated. Stimulation of the intralaminar nuclei for minimally conscious states, and of the mammilo-thalamic tract for memory deficits have been reported to provide benefits including reversal of the metabolic activity pattern in the cortex in patients with Alzheimer's disease. There is definitely a large number of new directions, new targets, new indications, which are suggesting a very fruitful future for DBS. Careful surgical procedures must be performed, seriously planned clinical trials must be achieved before stating the validity of new targets, and ethical guidelines must be carefully observed.

MRI MAGNETIC FIELDS STIMULATE THE BRAIN

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Introduction: Vertigo in and around MRI machines has been noted for years. Several mechanisms have been suggested to explain these sensations, yet the cause is unknown.

Methods: Eye movements were recorded by infrared video in the absence of fixation as subjects were moved in, while in, and out of 3T and 7T MRI machines

Results: We found that *all* normal human subjects lying in the static magnetic field of a 7T MRI machine develop a robust nystagmus (as high as 20 deg/sec slow-phase velocity) induced by magnetic vestibular stimulation (MVS). Patients lacking labyrinthine function did not. Here we use the pattern of eye movements induced in the MRI to test hypotheses for MVS induced nystagmus. First, we showed that the response is *static* (continuous for at least as long as 24 minutes, proportional to static magnetic field strength (7T > 3T)) and requiring neither head movement nor a dynamic change in magnetic field strength which we manipulated by changing the speed the subject moved in and out of the bore. Thus, the response is *not* related to Faraday (electromagnetic induction) forces. Secondly the response was *directional* (sensitive to magnetic field polarity (the nystagmus changed direction depending upon whether the subject entered the bore head or feet first)). Thus the response is *not* related to diamagnetic properties. We also found that magnitude and direction of the horizontal SPV were related to static head pitch. With the chin pitched up, the SPV direction was leftward in all subjects. With increasingly downward static head pitch, the SPV decreased, reached a null (no horizontal nystagmus), and eventually reversed.

Conclusions: Taken together, our findings are best accounted for by *Lorentz forces* that arise from an interaction between the magnetic field vector and the naturally-occurring ionic currents in the endolymph of the inner ear. This force moves the fluid in the semicircular canal displacing the cupula, leading to nystagmus. Our results were well simulated in both amplitude and direction with a geometric model using best estimates of 1) the strength of ion currents in the endolymph generated over the utricle and ampulla of the lateral canal, 2) the numbers of hair cells in the utricle and the ampulla, 3) the pressure needed to move the cupula to induce nystagmus, and 4) the relative orientations of the utricle and the lateral semicircular canal. Several subjects who were also tested in different roll (ear to shoulder) positions showed vertical nystagmus that changed direction depending upon right ear down vs. left ear down. This finding is also accounted for by Lorenz forces in the vertical canals.

Implications: MVS induced nystagmus has important implications for interpretation of fMRI studies of many types of brain behavior as well as evaluating baseline resting-state activity. There are also potential applications to vestibular diagnosis and treatment.

EPIDEMIOLOGY AND BURDEN OF HEADACHE IN THE SOUTHERN HEMISPHERE

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Objective: To review the epidemiology and burden of headache particularly primary headache disorders (PHD) in the Southern hemisphere.

Methods: Several large databases were searched between 1990-2011. Only the countries south of the equator were included. Only population and community-based surveys with >500 participants (aged >15 years and above) were included. The diagnosis of PHD was assigned based on criteria proposed by the International Classification of Headache Disorders.

Results: Few epidemiological data were found on headache in Africa and Australasia: 1-year prevalence (1YP) of headache is lowest in Africa (22%) followed by South America (41%) and Australasia (50%). The 1YP of migraine is the following: Africa 4.6%, South America 11.3%, and Australia 13.1%. Data on acute tension-type of headache (TTH) are available for South America only (30.5%). Chronic daily headache (CDH) varies between 1.4% in Southeast Asia and 5.8% in South America. Migraine and CDH affects females twice as common as male and independent of the type of headache, the age category most commonly affected being 25-50 years. The available data reveal: *Australia*: 23% of migraineurs have >2 attacks/month and 79% take acute medication while only 8% take prophylactic therapy. *South America*: TTH and migraine correlate highly with higher education level. *Africa*: trigger factors are sun exposure and annoyance, with 1-4 attacks/month. In the Southern hemisphere, the impact of PHD on health care resource utilization, medication use, and productivity loss is currently unknown.

Conclusion: Headache is a significant and largely unaddressed burden of ill health and disability in the Southern hemisphere.

SELECTION OF ANTI-EPILEPTIC DRUGS: FROM GUIDELINES TO CLINICAL PRACTICE

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Introduction: The large choice of AEDs complicates the selection of the appropriate AED for every individual patient. Although the international guidelines on epilepsy management have been published, yet the clinical practice varies from country to country depending on the costs and availability of the AEDs

Objectives: To assess the effectiveness of the of the AED in control of seizures and the longest seizure free interval in 830 patients adults and children (520 partial onset seizures versus 310 with generalized seizures) with at least a follow up of 5 years

Results: The following were considered in analysis of the results: seizure type, age of onset, years of remission, monotherapy,polytherapy, dose , outcome of withdrawal of AEDs, pretreatment seizure frequency , predictors of intractability. The most commonly used AEDs were Carbamazepine,Valproate

Conclusion: We have found that seizure freedom is easier to achieve in generalized epilepsy compared to partial onset seizure. Valproate is still the most effective in idiopathic generalized epilepsy .Carbamazepine is the most widely prescribed AED in partial onset seizures.

EPILEPSY THROUGHOUT HISTORY

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Few medical conditions have attracted so much attention and generated so much controversy as epilepsy. Epilepsy has affected human beings since the dawn of our species and has been recognized since the earliest medical writings.

In this lecture we follow the development of concept of epilepsy through different historical eras over thousands of years, since epilepsy was considered an act of demons till the recent developments in therapy.

The first documented description of epilepsy was mentioned by the ancient Egyptians in the Ebers papyrus 1825 B.C., followed by the Babylions 3000 years ago, passing through the Greeks, Romans, eras of renaissance and enlightment.

We also discuss famous people and celebrities who suffered or thought to suffer from epilepsy.

ISCHEMIC STROKE IN MOROCCO - A RETROSPECTIVE STUDY OF 1328 CASES

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Introduction: Stroke is a real public health problem in Morocco. The prognosis depends on early diagnosis and the rapidity of an appropriate management.

Objectives: The aim of this retrospective study is to assess the effect of stroke unit in improving prognosis in our country.

Methods: We collected all of the case of ischemic stroke admitted in the emergency department of Hassan II university neurology department at the CHU Hassan II of Fez over a period of 24 months from 01/2009 to 12/2010. The epidemiological, clinical, radiological and management data have been collected.

Results: During 24 months, 1328 ischemic stroke patients were admitted in the emergency hospital. 43% of patients are admitted in the stroke unit. The mean age of onset was 65 years, sex ratio 1.18, the mean NIHSS at admission was 11 (0-29). The mean duration of hospitalization was 10 days. 15 patients had thrombolytic therapy. The etiologies are dominated by atherosclerosis and cardioembolism. Complications are mainly represented by pulmonary and urinary infections.

Discussion: Strokes are common in Morocco. The creation and multiplication of "Stroke Unit" is likely to improve the diagnosis management and therapy of this disease. The organization of networks and a strategy of awareness may increase the number of patients benefiting from thrombolysis.

TRENDS IN CHARACTERISTICS, ETIOLOGY AND OUTCOME OF ISCHEMIC STROKE IN A CHINESE HOSPITAL-BASED STROKE STUDY

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Objective: Using the Chengdu Stroke Registry, we aimed to determine trends in characteristics, etiology, functional outcome and case-fatality in hospitalized ischemic stroke patients.

Methods: For this study, first-ever ischemic stroke patients during the period of March, 2002 through December, 2008, were included. Temporal trends in ischemic stroke patient characteristics for the periods 2002-2005 and 2006-2008 were assessed.

Results: Of the 2683 patients included in this study, 1427 patients were for the 2002-2005 and 1256 for 2006-2008. Compared to patients in 2002-2005, patients in 2006-2008 were younger (63.27 vs. 64.49, p=0.021), more frequently male (60.5% vs. 56.6%, p=0.041), had a lower NIHSS score on admission (median, 4 vs. 5, p=0.011), more alcohol consumption (23% vs. 17.4%, p< 0.001) and more current smoking (33.2% vs. 24.9%, p< 0.001). There were no differences of hypertension, diabetes mellitus, hyperlipidemia, coronary heart disease, myocardial infarction, valvular disease and previous TIA between two groups. The ischemic stroke etiology of patients in 2006-2008 had more large-artery atherosclerosis (10.5% vs. 4.6%, p< 0.001) and less undetermined etiology (31.2% vs. 37%, p=0.002) than patients in 2002-2005. Moreover, patients in 2006-2008 had a lower proportion of disability in 3-month, 6-month and 1-year follow-ups (25%, 21.9% and 18.2% vs. 36.2%, 29.6% and 24.1% respectively, p≤0.002), but no differences in hospitalization, 3-month, 6-month and 1-year case-fatality.

Conclusions: With the improvement in stroke management and rehabilitation as well as the development in application of advanced diagnosis methods, ischemic stroke patients have a better functional outcome and etiology can be classified more precisely.

CHANGE IN STROKE INCIDENCE AND CASE-FATALITY IN PORTUGAL, FROM 1999 TO 2010: PRELIMINARY RESULTS

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Background: One decade ago stroke incidence in Portugal was high compared to that reported in others Western Europe countries. The incidence of stroke is predicted to rise based on ageing, however, over the last years the use of preventive strategies and new treatments may influence this trend. The objective of this study is the comparison of stroke incidence and case-fatality ten years apart.

Methods: Preliminary data from the second prospective community-based study are presented. All suspect first-ever-in-a-lifetime stroke occurring between October 2009 and September 2010 in 46775 rural residents and 193349 urban residents were entered into a stroke registry. Based on standard definitions, both hot and cold pursuit sources of information were used for case ascertainment. Patients were observed at onset and three months.

Results: During a 12-month period, 435 patients with a first-ever stroke were included, 101 in rural and 334 in urban areas. Comparing to the previous study, there was a decrease in the annual incidence rate of stroke, from 2.79/1000 (95%CI, 2.59-3.00) to 1.81/1000 (95%CI, 1.64-1.98), and 1.81/1000 vs. 1.12/1000 after standardization, respectively. Age-specific incidence decreased following similar patterns in rural and urban populations, more marked in rural populations aged 75-84 years. The overall 28 days case-fatality decreased from 16.1% (95%CI, 13.6-19.1) to 10.6% (95%CI, 8.0-13.8); from 16.9% to 8.7% in the urban area, and increased from 14.6% to 16.8% in rural area.

Discussion: The urban/rural contrast in incidence is fading away while case-fatality is decreasing in urban contrasting with rural areas.

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STROKE INCIDENCE IN MOROCCO: THE RABAT-CASABLANCA STUDY

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Good quality of stroke incidence studies are essential for evidence-based heath care planning and resource allocation in stroke and they are important for quantifying the burden of stroke.

It is well recognized that good quality population-based studies are the most reliable source of information about stroke incidence on a population level but identifying all new stroke events in a population is particularly challenging. However, those criteria may be not practical for stroke studies undertaken in developing countries, where most stroke occur and resources are limited.

In a door-to-door survey involving a total of 60031 individuals (29561 men and 30470 women), investigators identify through the use of specific questionnaire a possible stroke patients and also households where one person died of a possible stroke. In a second step neurologists confirmed the stroke in survivors patients and stroke death by using a specific verbal autopsy.

We identified 50 first-ever-stroke (27 men and 23 women) during one year. The incidence rate standardized to World Standard Population was 115/100 000 with 120/100 000 for men and 109/00 000 for women. The age-standardized incidence rate in people aged 45-84 years was 406/100 000 (347 in Rural and 517 in Urban area).

The method used to approximate the stroke incidence shows a similar results that those reported in the community studies (Sudlow and Warlow,1997). Incidence of stroke in Morocco was significantly high in persons aged between 45 and 84 years, especially in rural area.

PROTECTIVE AND ANTI-AGING EFFECTS OF 17B ESTRADIOL ON ALTERED AGE RELATED NEURONAL PARAMETERS IN FEMALE RAT BRAIN

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Background: During aging the brain experiences structural, molecular, and functional alterations. Aging in females and males is considered as the end of natural protection against age related diseases like osteoporosis, diabetes, Alzheimer's and Parkinson's disease. These changes increase during menopausal condition in females when the level of estradiol is decreased.

Objective: The aim of the present study was to investigate the anti-aging and neuroprotective potential of 17β estradiol (E2) treatment on activities of membrane linked ATPases (Na^+K^+ ATPase, Ca^{2+}ATPase), antioxidant enzymes (superoxide dismutases, glutathione-S-transferases), intrasynaptosomal calcium levels, membrane fluidity and neurolipofuscin in the brain of aging female rats of 3 months (young), 12 months (adult) and 24 months (old) age groups, and to see whether these changes are restored to normal levels after exogenous administration of 17β-estradiol (E2).

Methods: The aged rats (12 and 24 months old) were given subcutaneous injection of E2 (0.1µg/g body weight) daily for one month.

Results: The present work revealed that normal aging was associated with significant decrease in the activities of membrane linked ATPases, antioxidant enzymes and an increased in neurolipofuscin, intrasynaptosomal calcium levels in brain of aging female rats. The present study showed that E2 treatment reversal the changes to near normal levels.

Conclusions: It can therefore be concluded that E2´s beneficial effects seemed to arise from its antilipofuscin, antioxidant and antilipidperoxidative effects, implying an overall anti-aging action. The results of this study will be useful for pharmacological modification of the aging process and applying new strategies for control of age related disorders.

NEUROIMAGINGS IN TIA HERALD A CHANGE IN ITS DEFINITION

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Objective: To determine the proportion of patients diagnosed with Transient Ischemic Attack (TIA) who have actual neuroimaging findings, whether on MRI or CT scan. And to identify the clinical characteristics of patients diagnosed with TIA with and without neuroimaging findings.

Design: This study employed a retrospective analysis of data gathered through chart reviews.

Participants: One hundred twenty-five charts were reviewed of TIA patients from the ages of 21 and above who were admitted in Makati Medical Center from January 1, 2009 to July 31, 2010.

Research Instrument: A data sheet was used which included the patient's initials, age, sex, date of admission, cranial CT scan or MRI of the brain findings. Duration of symptoms, number of TIA events, symptoms of the events and risk factors were listed.

Result: Of the patients diagnosed with TIA, 34% had positive neuroimaging findings. Symptom duration of more than one hour and weakness were significant and independent factors associated with acute infarctions on neuroimaging.

Conclusion: By showing that a significant number of TIA diagnosed patients actually have acute infarctions on neuroimaging, our data provide additional support to the redefinition of TIA, which considers that all cases of transient deficit with characteristic neuroimaging abnormalities should be diagnosed as a stroke.

CEREBRAL VENOUS THROMBOSIS IN BEHÇET'S DISEASE - ABOUT 24 CASES

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Introduction: Cerebral venous thrombosis is the most common manifestation of angiobehçet that may be superficial and / or deep.

Materials and methods: We report a retrospective study of 24 cases of cerebral venous thrombosis secondary to Behcet´s disease, collected between 1991 and 2010 in the neurology department of Military Hospital Mohamed V. The aim of our study was to evaluate the epidemiological, Clinical, paraclinical, therapeutic and evolutionary aspects.

Results: Cerebral Venous thrombosis represents 19.2% of all neurological manifestations of Behçet's disease. Our series is individualized by the predominance of deeply located with 18 cases.

Clinical manifestations are polymorphic dominated by the motor deficit for deep locations and intracranial hypertension in superficial locations.

Discussion: Thanks to advances in imaging, in particular angiography and angio-MRI, diagnosis of cerebral venous thrombosis has become inescapable.

A therapy combining anticoagulation and Behçet´s disease treatment based on corticosteroids and immunosuppressive drugs has improved the prognosis but with persistence of sequelae dominated by the partial motor deficit and residual headache.

MULTIPLE HYPOINTENSE VESSELS ON SUSCEPTIBILITY-WEIGHTED IMAGING REPRESENT DIFFUSION-PERFUSION MISMATCH IN ACUTE ISCHEMIC STROKE

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Objective: Multiple hypointense vessels (MHV) on susceptibility-weighted imaging (SWI) are frequently observed in acute ischemic hemisphere, but the clinical significance of this sign have not yet been clearly defined. To elucidate the clinical implication of MHV on SWI, we evaluated the relationship of this sign to other MR imaging modalities in acute ischemic stroke.

Methods: Eighty-two patients with acute cerebral infarction due to internal (ICA) or middle cerebral artery (MCA) occlusion within 3 days were consecutively included. SWI, DWI, PWI and MR angiography were performed in all patients. MHV on SWI was defined as more numerous or larger hypointense vessels with greater signal loss which was compared with those of mirror hemisphere. Lesion volumes of DWI, TTP, CBF and CBV maps were measured in all patients. We assessed the relationship between MHV on SWI and findings of DWI/PWI.

Results: MHV on SWI were observed in 73 patients (89%). Forty patients (49%) showed extensive MHV throughout the ICA or MCA territory of the symptomatic hemisphere. The region of prominent MHV on SWI was excellent agreement with hypoperfused area on TTP map. All of 40 patients who had extensive MHV on SWI showed definite diffusion-perfusion mismatch.

Conclusion: MHV on SWI is associated with impaired perfusion of brain tissue in acute ischemic stroke. Extensive MHV on SWI are closely linked with diffusion-perfusion mismatch in acute ICA or MCA occlusion. This SWI sign could be a useful marker for detecting its nature of acute cerebral ischemia and chance for acute thrombolysis.

EFFECT OF ASPIRIN PLUS CILOSTAZOL VERSUS CLOPIDOGREL ON PLATELET AGGREGATION, BLEEDING TIME AND CEREBRAL BLOOD FLOW AFTER ACUTE ISCHEMIC STROKE

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Improving cerebral blood flow (CBF) is important in recovery after ischemic stroke. Cilostazol is a phosphodiesterase III inhibitor and has a vasodilatory effect as well as antiplatelet effect. We conducted a single center, prospective, randomised, open-label blinded-endpoint pilot study to investigate the effect of aspirin plus cilostazol versus clopidogrel on platelet aggregation, bleeding time and CBF in patients with acute ischemic stroke.

We enrolled consecutive 24 acute ischemic stroke patients who visited our clinic within 72 hours of symptom onset. Patients were randomly assigned to aspirin (100 mg/d) and cilostazol (200 mg/d) (n=11) or clopidogrel (75 mg/d, n=13) and treated for 12 weeks. Measurement of platelet aggregation, bleeding time and CBF were done at baseline (before taking study medication) and at 12 weeks. CBF was measured with 99mTc HMPAO SPECT and the results were analyzed by use of statistical parametric mapping 2 (SPM 2) with aid of MATLAB 6.1 software.

Baseline features of the patients in each treatment group were not different. Degree of platelet aggregation and bleeding time at baseline and 12 weeks were not significantly different between two groups. The change of CBF between baseline and at 12 weeks were significantly different and CBF were more increased in patients treated with aspirin and cilostazol compared to clopidogrel only. Two patients taking clopidogrel had serious adverse events; one with angina pectoris and the other duodenal ulcer.

In ischemic stroke patients, aspirin plus cilostazol increased CBF significantly more than clopidogrel only with similar effect on platelet aggregation and bleeding time.

METABOLIC SYNDROME IS STRONGLY ASSOCIATED WITH ISCHEMIC STROKE AND ASYMPTOMATIC CAROTID DISEASE IN NON-DIABETICS

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Background and aims: Insulin resistance (IR) with compensatory hyperinsulinemia plays a crucial role in the pathogenesis of atherosclerosis, but their role in ischemic stroke (IST) has not yet been elucidated. Study was aimed to analyze IR and plasma insulin (PI) levels, dyslipidemia pattern, abdominal obesity and plasminogen activator inhibitor-1 in 100 patients with atherothrombotic IST (group A), 100 patients with asymptomatic carotid stenosis (ACAS) ≥50% (group B), 100 patients with lacunar stroke (Group C) and 115 healthy controls (group D) all without diabetes mellitus.

Methods: IR was determined by Homeostasis Assessment Model, PI levels by Radioimmunoassay. Total-, LDL- and HDL-cholesterol and triglyceride levels were measured in all groups. Central obesity was determined by waist circumference and hypercoagulable state by plasminogen activator inhibitor (PAI-1) levels.

Results: IR was significantly higher in group A compared to group B, C and D (4.82±0.27 vs. 3.69±0.22, p< 0.05; 4.82±0.27 vs. 2.71±0.21, p< 0.01, 4.82±0.27 vs. 1.50±0.19, p< 0.01). PI levels were significantly higher in group A in comparison to group B, C and D (19.00±1.2 vs. 15.95±0.88, p< 0.05; 19.00±1.2 vs. 11.12±0.19, p< 0.01, 19.00±1.2 vs. 7.12±1.08). Different patterns of dyslipidemia were observed in ACAS and IST. PAI-1 levels, and waist circumference were significantly higher in group A, B, and C in comparison to controls (p< 0.01, respectively).

Conclusion: Our results indicate that all subtypes of ischemic stroke as well as ACAS are strongly associated with IR and increased PI and PAI-1 levels. Specific patterns of dyslipidemia in ACAS and IST were observed.

IMPACT OF FACTOR VIII AND VON WILLBRAND FACTOR PLASMA LEVELS CEREBRAL VENOUS AND SINUS THROMBOSIS: ARE INDEPENDED RISK FACTORS?

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Background: The aim of this study was to assess plasma levels of factor VIII (FVIII), von Willebrand factor (vWF) and their association in patients with cerebral venous and sinus thrombosis (CVST).

Methods: We prospectively included 25 CVST patients admitted to university hospital and 53 voluntary subjects for control group. FVIII and vWF were measured after 6 months when we stopped anticoagulant therapy.

Results: The mean FVIII and vWF levels were significantly higher in the CVST group compare to control group respectively (126.21 ± 54.69 IU/dl; 91.9± 48.8 IU/dl; p = 0. 012) (157.05 ±107.74 %; 94 ±84%; p = 0.01). Using analyses calculating the 95th percentile cut off values, we found high levels of FVIII in patients compare to controls (29.2%, 5%; p= 0.01) and odd ratio with 95% Confidence interval (CI) was 7.82 (1.46, 41.6). After adjustment for vWF levels, sex and age, the risk was remained significantly increased and odd ratio with 95% CI was 10.5(1.1,101.4) (p=0.41).

Conclusion: FVIII is one of the most prevalent risk factors of CVST and associated with approximately 10-fold increases in risk for developing CVST. This effect is independent of vWF levels. However, vWF is not independed risk factor of CVST.

THE ROLE OF COMPUTED TOMOGRAPHY ANGIOGRAPHY (CTA) VERSUS CT PERFUSION (CTP) IN PREDICTION OF OUTCOME AFTER IV RT-PA ADMINISTRATION

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Introduction: CTA alone is employed in acute ischemic stroke (AIS) patient evaluation for detection of large vessel occlusions (LVOs), which may aide in selecting patients for intra-arterial therapy and IV rt-PA therapy beyond 4.5hrs. CTA's relative utility compared with CTP is uncertain.

Objective: To determine the relative utility of 64-slice CTA versus CTP in predicting outcome of AIS patients post-IV rt-PA.

Design and methods: Retrospective study of IV rt-PA treated patients over 1 year with pretreatment CTA and CTP. Pre- and post-rt-PA CT, CTP, CTA, and MR images reviewed. Outcome determined by initial and discharge NIHSS. Safety evaluated by symptomatic ICH (sICH) rate. LVO defined as any anterior/posterior circulation, or branch occlusion.

Results: 124 IV rt-PA (9 had IA rt-PA) patients had pretreatment CTA, 117 had CTA/CTP. 35% demonstrated LVO (pre/post average NIHSS 11.6, 8.3); 65% no LVO (pre/post NIHSS 7.8, 4.7); post-rt-PA NIHSS significantly decreased in both groups ($p< 0.001$). 93% with LVO had perfusion mismatch on CTP; if no LVO, 28% demonstrated perfusion mismatch, 65% with normal CTP. 8 patients received rt-PA at >4.5h; 4/8 had LVO and 6/8 had mismatch. Overall, 2/124 patients had sICH (1.6%). 14 patients (11%) had follow-up CTA/MRA, 64% demonstrated recanalization.

Conclusions: Compared with CTP, CTA may be less useful in determining eligibility for IV rt-PA, as both presence and absence of LVO were associated with NIHSS improvement. Previous studies show a correlation between perfusion mismatch and improved outcome post-rt-PA, highlighting the importance of CTP in addition to CTA in advanced acute stroke imaging.

MECHANICAL THROMBECTOMY IN INTRACRANIAL VENOUS THROMBOSIS USING A NOVEL DEVICE

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Introduction: A 28 year old male patient presented with 3 days history of headache and one day history of vomiting, altered consciousness and generalized seizures with status epilepticus. On examination, he was in altered consciousness but was moving all four limbs. CT scan of the brain (unenhanced) showed features of superior saggital sinus thrombosis with hemorrhagic infarcts in both frontal lobes. Following admission, patient was treated with IV fluids, dexamethasone, mannitol and IV unfractionated heparin. He was intubated and was connected to ventilator. Despite these measures, he became progressively comatose and heart rate dropped to 30/min. In view of rapid worsening of clinical status and poor GCS, an interventional procedure was planned.

Materials and methods: DSA revealed occlusion of the anterior half of the SSS with occlusion of cortical veins. Using a trans femoral venous approach, the left Internal jugular vein was canulated and the SSS was accessed using a microwire. A thrombus aspiration catheter (Export) was advanced over the wire and thrombus aspiration was done. Following this, local instillation of tPA was done along the entire length of the SSS.

Results: Significant thrombus load was aspirated and good recanalization was noted on the post procedure venogram. Patient was transferred to the ICU where he was treated with heparin infusion.

Conclusions: Mechanical thrombectomy in SSS thrombosis is technically safe and may reduce the total dose of lytic needed. It may also be helpful to reduce the length of hospital stay in carefully selected patients.

DOES ANTITHROMBOTIC THERAPY INCREASE THE FREQUENCY OF HEMORRHAGE FROM CEREBRAL CAVERNOUS MALFORMATIONS?

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Background: Cerebral cavernous malformations (CCMs) are among the most frequently diagnosed vascular malformations in the brain. The presumed risk of future haemorrhage often precludes antithrombotic treatment in patients with concomitant cardiovascular disease, but no systematic study has been undertaken to evaluate the effect of blood-thinning therapy on the risk of CCM haemorrhage.

Subjects and methods: Overall, 78 consecutive patients (59% women, mean age 46 years, SD+/-18) have been followed at a tertiary referral center for brain vascular malformations. N=41 (53%) had a single lesion, 37 (47%) had multiple CCMs (leading to a total of 351 CCMs under observation or average 4.5 CCMs per patient). The diagnostic event was symptomatic haemorrhage in 12 (15 %) patients, epileptic seizure in 9 (12 %), focal neurological deficits unrelated to haemorrhage in 14 (18%), while 43 (55%) patients were asymptomatic at diagnosis.

Results: The mean follow-up was 4.7 years (SD+/-3.2) leading to 1638 CCM-years of observation. Overall, 9 (12 %) patients experienced symptomatic haemorrhage on follow-up (mean rate 2.5%/patient/year or 0.5 %/CCM/year). Haemorrhage occurred more frequently in patients with prior CCM haemorrhage (5.7 %/patient/year or 1.0 %/CCM/year) as compared to those without (1.9 %/patient/year or 0.4%/CCM/year). During follow-up, n=14 (18%) patients received ongoing antithrombotic (i.e., anticoagulant or antiplatelet) treatment, including 5 on oral anticoagulants. During 130 CCM-years of observation, no hemorrhagic complications were observed.

Conclusion: Overall, the risk of symptomatic CCM haemorrhage appears to be low, particularly in patients without haemorrhagic presentation. Antithrombotic treatment does not seem to increase the frequency of CCM-related haemorrhage.

OUTCOME OF PATIENTS WITH INTRACEREBRAL HEMORRHAGE IN BRAZZAVILLE

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The aim of this study is to evaluate the prognosis and outcome of patients after primary intracerebral hemorrhage in a department of neurology of sub-Saharan Africa Country.

Patients and method: A prospective study was conducted. Data were collected at admission and three months following the admission. Patients were hospitalized in neurology of Brazzaville´s University Hospital. Intracerebral hemorrhage confirmed by CT-scan during the study period wich covered January to August 2010. Age, sex, NIHSS, blood pressure and the temperature at admission, the localization of the hemorrhage, duration of stay, as well as the Rankin modified score in three months were analyzed using SPSS 11.0.

Results: Fifty two patients were identified including 27 men and 25 women with the mean age of 57 years. We recorded 13% of death during the first two weeks. The elder (p=0.003), higher NIHSS (p=0.007), deep localization and intraventricular (p=0.002) was associated whith de risk of death.

Conclusion: The outcome of intracerebral hemorrhage is function of initial severity and the localization of the hemorrhage, but the functional prognosis in the long-term is better.

SURGERY VERSUS CONSERVATIVE TREATMENT IN INTRACEREBRAL HEAMORRHAGE (ICH): A PROSPECTIVE COHORT STUDY

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Objective: To observe the effects of surgery compared with conservative treatment, on the long term functional outcome in Chinese ICH patients.

Methods: A hospital-based prospective cohort study consecutively registered cases of ICH in West China Hospital, between 2009/Jan/01 and 2010/Dec/01.Functional outcome of patients after surgery vs. conservative treatment was followed up at 1 months, 3 months and 6 months from onset. Logistic regression analysis was used to adjust for other prognostic factors.

Results: A total consecutive cases of 910 ICH patients were recruited, including 254 surgery patients (27.9%) and 656 non-surgery patients (72.1%). The unbalanced baseline information was age (56.5 years vs. 60.3 years), GCS score (10.3 vs. 11.8), hyperglycemia at admission (46.2% vs. 36.1%) and different bleeding sites. Median hospital stay was 6.0 (IQR 3.0~10.0) days. After adjusting baseline factors, significant difference was recorded between the two groups in case fatality at 6 month: 23.5% vs. 29.6% [adjusted OR 0.330 (CI 0.173~0.632), p=0.001], while rates of death/dependency were significantly higher in surgery group at 1, 3 months. Sub-analysis of sever ICH patients (GCS score 3~8, n=282) revealed significantly lower case fatality in surgery group at 6 months (40.4% vs. 78.6% [adjusted OR 0.243 (0.097~0.608), p< 0.001], with no significant difference in rate of death/dependency between groups.

Conclusion: The study illustrates that surgical patients showed higher survival rate than their conservatively treated counterparts, but were at increased risk of functional dependency . Sever ICH patients may benefit more from surgery. However this finding needs to be confirmed by well-designed RCTs.

INDIVIDUAL-FINGER-SYNCHRONIZED-ROBOT-ASSISTED HAND REHABILITATION IN SUB-ACUTE TO CHRONIC STROKE; A PROSPECTIVE RANDOMIZED CLINICAL TRIAL OF EFFICACY

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Object: To evaluate the effect of individual-finger-synchronized-robot-assisted hand rehabilitation in sub-acute to chronic stroke patients.

Methods: A prospective single-blind parallel group randomized controlled clinical trial took place from June to September 2010. Patients**,** >18 years old and >3 months after stroke, showed the minimum movement of index finger, variable weakness and modestly impaired hand function were recruited. Patients showed severe sensory loss, spasticity, apraxia, aphasia, disabling hand disease, impaired consciousness, or depression were excluded. The one group (FTI) received actively assisted intervention (20 daily sessions) and the other group (HTI) received early passive and latter actively assisted intervention (10 daily sessions). Multiple impairment- and functional-based scales were collected on 2, 4, 8 weeks.

Results: 9 patients were allocated to FTI and 8 patients to HTI. The significant improvement in Jensen Taylor test, wrist and hand subportion of arm motor Fugl-Mayer score, active movement of 2nd metacarpophalangeal joint, grasping, and pinching power were found in each patient after 20 daily sessions ($p < 0.05$). Those 5 tests showed significant variable x time interaction between both groups over 3 end points ($p < 0.05$). Each score at 3 end points showed substantial difference from the first value ($p < 0.05$) and each score in FTI showed significant difference from that in HTI ($p < 0.05$). The improvements in FTI were bigger than those in HTI on 4 weeks and were maintained by 8 weeks.

Conclusions: Individual-finger-synchronized-robot-assisted hand rehabilitation could improve, in dose-dependent manner, hand function in sub-acute to chronic stroke patient.

SUBCATEGORIZING THE MINIMALLY CONSCIOUS STATE BASED ON CEREBRAL METABOLISM PET STUDIES

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Patients in a minimally conscious state (MCS) show restricted signs of awareness but are unable to communicate. We assessed cerebral glucose metabolism in MCS patients and tested the hypothesis that this entity can be subcategorized in MCS+ (patients showing command following) and MCS- (patients only showing non-reflex behavior such as visual pursuit, localization of noxious stimulation and/or contingent behavior). [18F]-fluorodeoxyglucose-PET was studied in 39 healthy volunteers (aged 46±18 years) and 27 MCS patients of whom 14 were MCS+ (aged 43±19 years; 5 traumatic; 19±26 months post injury) and 13 MCS- (aged 49±19 years; 4 traumatic; 21±23 months post injury). Results were thresholded for significance at false discovery rate corrected $p< 0.05$.

We observed a metabolic impairment in a bilateral subcortical (thalamus and caudate) and cortical (fronto-temporo-parietal) network in nontraumatic and traumatic MCS patients. Compared to MCS-, patients in MCS+ showed higher cerebral metabolism in left sided cortical areas encompassing the language network, premotor, pre-supplementary motor and sensorimotor cortices. A functional connectivity study showed that Broca's region was disconnected from the rest of the language network, mesiofrontal and cerebellar areas in MCS- as compared to MCS+ patients. The proposed subcategorization of MCS based on the presence or absence of command following showed a different functional neuroanatomy. MCS is characterized by preserved right hemispheric cortical metabolism interpreted as evidence of residual sensory consciousness. MCS+ patients showed preserved metabolism and functional connectivity in language networks arguably reflecting some additional higher order or extended consciousness albeit devoid of clinical verbal or non-verbal expression.

STROKE PATIENTS AND ALTERNATIVE MEDICINE TREATMENTS IN INDIA (SPAM STUDY)

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Alternative medicines (AM) are commonly used by stroke patients in India. Our objectives were to study the pattern of AM use and also the factors that predict the use of AM in stroke patients.

Methods: This study was carried out in the Stroke Units of Christian Medical College, Ludhiana and Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram from June 2010 to December 2010. Patients were interviewed using a structured questionnaire (≥ 6 months post stroke). Outcome was assessed using modified Rankin scale (mRs).

Results: 315 stroke patients were interviewed, mean age was 57.4±12.9 years and 229 (72.9 %) were men. Out of 315 patients, 114 (36.2%) had used AM treatments. They are as follows; ayurvedic massage 70 (61.9%), intravenous fluids 21 (18.6%), herbal medicines 15 (13.3%), homeopathy 14 (12.4%), witchcraft 3 (2.7%), acupuncture 3 (2.7%), opium intake 10 (8.8%) and other non-conventional treatments 10 (8.8%). Patients with severe stroke (NIHSS 7.3±4.9, p< 0.0001), limb weakness (p< 0.0001), hypertension (p< 0.0001), subjects with ischemic stroke (p< 0.0001) and patients with poor outcome (mRs >2, p< 0.0001) often utilized AM treatments. Patients who received AM treatments were less likely to discontinue western medicine treatment as compared to patients who did not receive AM treatment (86.7% vs 40.8%, p< 0.0001).

Conclusion: One third of our patients opted for AM. Presence of limb weakness, hypertension, ischemic stroke, severe stroke and poor outcome predicted the use of AM. Patients who use AM tend to remain on secondary prevention strategies.

THE IMPACT OF ANEMIA FOLLOWING STROKE: CLINICAL, LABORATORY AND RADIOLOGICAL DATA FROM THE OBSERVATIONAL STUDY STRAIGHT

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Background and purpose: Although conceivably relevant for penumbra oxygenation, the optimal levels of hemoglobin (Hb) and hematocrit (Hct) in patients with acute ischemic stroke are unknown.

Methods: Patients with magnet resonance imaging (MRI) -based intravenous thrombolysis (IVT) were retrospectively analyzed. A favorable outcome at 3 months was defined as a modified Rankin Scale (mRS) ≤2 and poor outcome as mRS≥3. The dynamics of Hemoglobin (Hb), Hematocrit (Hct) and other relevant laboratory and radiological parameters as well as cardiovascular risk factors were retrospectively assessed and analyzed between these two groups.

Results: Of 217 patients, 114 had a favorable and 103 a poor outcome. In a multivariable regression model, anemia during hospital stay (OR 2.61, 95% CI 1.33-5.11, p=0.005), Hb nadir (OR 0.81, 95% CI 0.67-0.99, p=0.038) and Hct nadir (OR 0.93, 95% CI 0.87-0.99, p=0.038) remained independent predictors for poor outcome at 3 months. Mortality after 3 months was independently associated with Hb nadir (OR 0.80, 95% CI 0.65-0.98, p=0.028) and Hb decrease (OR 1.34, 95% CI 1.01-1.76, p=0.04) as well as Hct decrease (OR 1.12, 95% CI 1.01-1.23, p=0.027). In 150 patients with sufficient admission and follow-up imaging material, infarct growth is currently tested for association with Hb or Hkt after admission. These preliminary radiological results will also be presented.

Conclusion: Poor outcome and mortality after ischemic stroke is strongly associated with low and further decreasing Hb and Hct levels. This decrease of levels after admission might be more relevant and accessible to treatment than baseline levels.

ASSESSMENT OF THE HEMODIALYSIS IMPACT ON BRAIN TISSUE USING BOLD-FMRI

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Introduction: The oxidative stress is a known factor contributing to long-term complications of dialysis. Studies have shown the involvement of hemodialysis "HD" membrane in the genesis of oxidative stress (OS). Hence the goal of this study is to assess the impact of HD using BOLD-fMRI and serological approaches.

Materials and methods: 12 male volunteers following chronic HD for more than 6 months were recruited. Diabetic, smoking and patients with episodes of infection or treatment with iron or erythropoietin injection were excluded. The MDA marker of OS was assessed in the blood using TBARS method before and after HD sessions. Similarly, the BOLD-fMRI was performed using motor paradigm immediately before and after HD sessions; the fMRI data was processed using SPM8 package.

Results and conclusion: The biological results showed that HD increases the OS in these patients. [MDA before HD= 3,550 ± 0,580µM vs. MDA after HD =9,899± 8,367µM; p=0,002].

BOLD-fMRI revealed significant activation of the motor cortex, the BOLD signal in the activated site is inversely correlated with level of OS.

The HD seems to rise the inflammatory state of the brain tissue reflecting increased OS, while it was expected to decrease considering the removal of free radicals responsible of OS by HD procedure. Hence, particular care must be paid to HD patients considering the long term impact on general health and brain tissues in particular.

POSTERIOR REVERSIBLE ENCEPHALOPATHY SYNDROME IN PREGNANT WOMEN AND ITS DIFFERENTIATION ON MRI

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Posterior reversible encephalopathy syndrome (PRES) is often qualified as bilateral infarction in posterior cerebral artery (PCA) circulation. We observed 3 cases of PRES in patients with preeclampsia and eclampsia. All of them had impairment of consciousness (up to coma), motor deficits and moderate meningeal signs. Two of them experienced cortical blindness. There were seizures (tonico-clonic and myoclonic ones) in the onset of the disease in 2 cases. The symptoms developed against the background of raised BP. Initial MR imaging demonstrated areas of vasogenic edema, besides occipital and parietal lobes were affected in every case, in 2 cases frontal lobes were involved and 1 patient had lesions of cerebral peduncles, pons and basal ganglia. There were associated acute ischemic lesions in 1 case and hemorrhagic imbibition in the other one. The treatment was proper, so neuroimaging and clinical signs regressed in 1-3 weeks. Conventional MRI cannot differentiate PRES from posterior circulation infarcts. Authentic differentiation of cytotoxic edema, reflecting PCA stroke, from vasogenic edema, represented in PRES, is based on MR DWI and ADC map images. Acutely infracted areas are marked with hyperintensity on DWI and hypointensity on ADC maps, but regions of vasogenic edema are characterized by hypo- or isointensed signals on DWI and increased signals on ADC maps (foci of lesions seem bright). In contrast to infarction in PRES paramedian occipital cortex and calcarine fissure are usually noninvolved. Prompt differentiation of these conditions allows to choose correct tactics of treatment and consequently leads to laudable outcome for a patient.

ESTIMATED 10-YEAR PROBABILITY OF STROKE IN MEDICAL OUTPATIENTS IN SOUTH EAST NIGERIA - A CROSS SECTIONAL STUDY

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Background: Stroke is a growing noncommunicable disease in Africa and accounts for a substantial number of medical and neurological admissions in Nigerian hospitals. The prevalence of some risk factors for stroke such as hypertension, diabetes and smoking are high and growing among Africans.

Aim: To investigate the distribution of stroke risk factors and estimate the 10- year probability of stroke among patients attending the outpatient clinics in the two biggest hospitals in Enugu South East Nigeria.

Methods: Consecutive consenting patients attending outpatient clinics at University of Nigeria Teaching Hospital and Enugu state University of Science and Technology Teaching Hospital all in Enugu were enrolled. Risk factors for stroke were evaluated using a series of laboratory tests, medical history and physical examinations. The 10-year probability of stroke was determined by applying the Framingham stroke risk equation.

Results: A total of 165 patients were evaluated, 94 men and 71women. The commonest risk factors were left ventricular hypertrophy,116 (70.3%) and raised systolic blood pressure 87(52.7%). The mean age of patients was 66.13 ± 8.12 years. The mean 10-year probability of stroke was 18.09±14.56% (19.67±14.93% men, 14.51±14.56% women) and was higher in older age groups.

Conclusion: There is a high10-year probability of stroke in Nigerians attending medical outpatient clinic in SE Nigeria. Aggressive interventions are needed to reduce risk factors and the probability of stroke risks especially in men in S E Nigeria.

IS THERE ANY DIFFERENCE BETWEEN LEFT NEGLECT AND RIGHT NEGLECT?

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Introduction: Neglect has been widely known as a symptom of left neglect(LN) since Brain had reported, in 1941, patients with LN. Around 1970, in addition to LN, right neglect(RN) had been also recognized. Since then, it has been in argument that the difference of nature between LN and RN.

Aims: In order to elucidate the difference of nature between RN and LN, incidence of RN, LN and other cognitive impairments, were examined.

Methods: A series of 2842 stroke patients were examined, using a checklist of cognitive impairments. Patients were restricted in the pathology of cerebrovascular disorder(CVD). The cerebral lesion of the patients should be the first-ever onset and a single lesion. Cognitive symptoms were meticulously examined by clinical psychologists.

Results: As many as 57.1% of the patients with left brain damage(LBD) had aphasia, while 28.9% of the LBD patients manifested RN. As most of the patients with RN also manifested aphasia, RN of those patients were easily overlooked by influence of co-existed aphasia. Symptoms of inattention, pacing disorder, hastiness, unaware of illness, etc, were considered as so-called right hemisphere symptom, but these symptoms were also often recognized in LBD patients if you carefully examine them which are hidden behind aphasia. RN with so-called right hemisphere symptom can often be recognized in LBD patients. These cases are designated as RN of LN-mirror image, and are not uncommon.

Conclusions: Incidence of RN is lower than that of LN, but the nature of RN is essentially not different from that of LN.

PREVALENCE OF INTRACRANIAL ATHEROSCLEROTIC DISEASE COEXISTING WITH EXTRACRANIAL ATHEROSCLEROSIS IN THE NORTH INDIAN POPULATION

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Introduction: Coexistent intracranial and extracranial atherosclerotic disease has worse prognosis than either alone.

Objective:

1. To determine prevalence of intracranial atherosclerotic disease(IAD) in patients with extracranial atherosclerotic disease(EAD)

2. To study association of risk factors with the intracranial and extracranial atherosclerosis.

Design: Ischemic Strokes/TIAs ≥18 years age were prospectively recruited. Following confirmation of extracranial atherosclerotic disease by ultrasound duplex,Intracranial CT angiography (CTA) was done within 3 months of stroke.

Results: 60 patients were studied. Mean age was 64.65 years.78.33% were males.80% had anterior circulation symptoms. 13(21.67%) presented with TIAs. 78.33% were hypertensive,40% -diabetics,58.3% -dyslipidemic and 21.67% -smokers. 41.67% had significant extracranial disease. Prevalence of IAD on CTA was 88.33%. Males constituted 75.47%. 46.67% had anterior circulation disease alone, 5%posterior circulation and 36.6% -combined anterior and posterior circulation disease. 46.67% had significant IAD (≥50% stenosis). 20% had significant disease in anterior circulation, 20 % in posterior circulation and 6.66% combined disease.Among diseased segments, IAD was commonest in the carotid siphon (71.42%). Anterior and middle cerebral artery IAD was found in 2.5 and 3.1% segments. Significant combined EAD and IAD was present in 21.67% patients.15 patients had significant IAD without coexisting EAD. 30.78% with significant EAD had accompanying ipsilateral significant IAD in the carotid siphon or vertebral artery.Combined significant IAD and EAD was present in 11.67%.No risk factors reached significance on comparing EAD with combined IAD and EAD.

Conclusions:

1. IAD has a high prevalence in the North Indian population.

2. It is an important contributor to ischemic stroke etiology accounting for 20% of ischemic strokes.

PARADIGM SHIFT IN THE TREATMENT OF ANEURYSMS WITH FLOW DIVERTER AT 5 YEARS FOLLOW-UP

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Introduction: To confirm the shift of the paradigm using flow diverter (FD) devices in the treatment of complex cerebral aneurysms. This kind of device redirects blood flow away from the aneurysm, creating a stable clot within the aneurysm pouch, and allows the permeability of collateral branches.

Methods: Between March 2006 and March 2011, 335 patients with 395 cerebral aneurysms were treated; 65.4% female, age average 58 yo (range 6-82).

The major device used was Pipeline (PED) in 270 patients with 324 aneurysms.

Other devices used after the Ethical Committee approval like compassionate were Surpass, Cardiatis multilayer FD, Silk (Balt) and Sequent device.

Results: Anterior circulation, 337 aneurysms (85.3%); 69.4% were symptomatic; 51% were large and giant and 19% had been previously treated with coils, stents or clipping.

DSA was performed at 3, 6, 9 and 12 months in 78% of the patients; the occlusion rate after 12 month was 85.4%. Only patients treated with PED showed 100% of occlusion after 4 years.

Conclusions: We shifted from the endosaccular to intracerebral endovascular reconstruction with FD achieving 100% of total occlusion at 4 years FU with 6% of morbimortality. This change of paradigm shows the efficacy of the method, decreasing of retreatment procedures, and allows the treatment of this kind of disease, not possible till now.

INITIAL EXPERIENCE WITH SURPASS FLOW DIVERTER FOR INTRACRANIAL ANEURYSMS

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Introduction: We present our initial experience with Surpass (SP) device and early follow-up results. SP device is indicated for the treatment of saccular with wide neck or fusiform intracranial aneurysms arising from a parent vessel with a diameter of ≥2mm and ≤6mm.

Methods: Patients harboring aneurysms considered to have a high probability of failure or recurrence with conventional endovascular techniques were selected for treatment. All patients were pretreated with dual antiplatelet medication. Angiographic and clinical follow up were performed at 3, 6 and 9 months.

Results: 44 patients with 49 aneurysms, 34 female were treated with the SP device. 40 aneurysms were saccular, 7 fusiform and 2 blister like. A total of 54 SPs were used. 80% of the aneurysms were treated with a single SP. Complete angiographic occlusion was achieved in 20 of 25 aneurysms at 3 months, 3 of 3 at 6 months and 1 of 1 at nine months. At the 3 month angiographic follow up there was no occlusion of the visible side branches covered with SP. Two of 5 patients with compression syndromes have improved.

Two patients experienced thrombotic complications, only one symptomatic due to a trunk stroke. The patient died two months later encountering the only major complication of this serie. Four device-related complications were observed without clinical consequences.

Conclusion: Endovascular treatment of selected aneurysms with reconstruction of the segmental defect in the parent vessel may be safely achieved with the SP device.

THE ENERI INITIAL EXPERIENCE WITH WOVEN ENDOBRIDGE DEVICE (WEB)

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Introduction: Endoluminal reconstruction with flow diverter (FD) devices proved low rate of recanalization and higher rate of cure compared with coils in the treatment of aneurysms, although the need of antiagregation for acute ruptured aneurysms and bifurcation aneurysms where lateral branches can be jailed, are important limitations for this option.

The WEB endovascular device (Sequent Medical, Aliso Viejo, California) represents a new alternative for the treatment of terminal and bifurcation aneurysms without the disadvantage of antiagretation in acute ruptured aneurysms. The purpose is to show our initial experience with WEB.

Methods: Patients with ruptured or unruptured lateral and terminal aneurysms, between May 2009 and May 2010. Angiographic and clinical follow-up were performed until 22 month. All patients gave informed consent before treatment.

Results: Seven patients with eight aneurysms (4 female; 38-75 years, mean age 50 years), 7 aneurysms were incidental, 5 in patients with SAH due to another aneurysm; 5 were in anterior circulation, 8 had small size. Five aneurysms (62.5%) were successfully treated with Sequent device, 3 aneurysms achieved complete occlusion at 3 month follow-up. Two patients died due to secondary causes, not related to the procedure.

Conclusion: The WEB device proved to be an alternative for the treatment of bifurcation and terminal aneurysms, although more studies and long-term follow-up are needed to prove safety and evaluate recanalization.

CORONARY ARTERY DISEASE IN PATIENTS WITH STROKE - A PROSPECTIVE OBSERVATIONAL STUDY

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Introduction: Coronary artery disease (CAD) is a leading cause of death in both short and longterm after stroke. Detection of clinical and silent CAD may have an important bearing in reducing mortality.

Objectives: To study the prevalence of symptomatic and asymptomatic CAD in patients with stroke.

Methods: 89 patients were prospectively enrolled for the study. Two groups were identified after evaluation. Group1 consisted of patients with history or baseline investigations suggestive of CAD and Group 2 had patients with no suggestion of CAD. All asymptomatic patients underwent stress-rest gated technetium-99m(Tc99m) tetrofosmin myocardial perfusion single-photon emission CT (MPS).

Results: 36 patients did not consent for MPS. All these patients were asymptomatic for CAD. Among the remaining 53 patients, 13 (group1)were known cases of CAD. Based on our evaluation, 8 patients had clinical or lab suggestion of underlying CAD. Of these, seven underwent MPS of which two were found to have abnormal scans; one patient directly underwent coronary angiography and required coronary artery bypass grafting. Among the remaining 32 asymptomatic patients (group2), six (18.75%) were found to have abnormal MPS scans suggestive of CAD. Prevalence of CAD in this study was 41.5% (22/53). Prevalence of asymptomatic CAD was 18.75% (6/32).

Conclusions: As many as 41.5% of stroke patients may have associated coronary artery disease and over a fifth of stroke patients may harbor silent CAD, which may go undetected unless targeted efforts are directed to detect it. MPS is an easy and safe means to detect silent CAD in stroke patients.

EVOLUTION OF NEURO-COGNITIVE, NEURO-AFFECTIVE, AND SUBJECTIVE PERCEPTION OF FUNCTIONING FOLLOWING CAROTID ENDARTERECTOMY

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The presumed amelioration of neuropsychological condition following carotid endarterectomy is still controversial. A sum of methodological inconsistencies (including the lack of control for the practice effects or regression to mean, different control groups etc.) may account for this situation.

The present study tries to overcome some of these drawbacks by repeatedly examining (with alternative forms, when appropriate and available), twice pre-surgery (several days before angiography and several days before endarterectomy), and approximately one, six, twelve, and twenty four months post-surgery, equivalent (in respect to relevant psycho-demographical and clinical variables) groups of subjects: study subjects with symptomatic carotid artery disease of similar severity levels who received (n=17) or refused to receive (n=19) carotid endarterectomy, surgical control subjects who undergone percutaneous coronary stenting (n=20) or lumbar disc hernia surgery (n=19), and non-surgical controls (n=21). A comprehensive neuropsychological battery (investigating different cognitive and affective aspects), alongside with measures of fatigue, well-being, and quality of life have been employed.

No significant differences between groups could be noticed regarding any of the explored neuropsychological parameters, despite the fact that vascular intervention (carotid endarterectomy and coronary stenting) subjects consistently showed amelioration on some of them. However, all the intervention groups but not the non-intervention control groups (subjects who refused to receive surgery or non-surgical subjects) seem to improve early (at one and six months intervals) but not later after surgery (or initial evaluations) in respect of subjective well-being.

The results of the present study suggest that the neuropsychological ameliorative possibilities of carotid endarterectomy remain illusory.

THE NUMBER OF MICROEMBOLIC SIGNALS (MES) IS ASSOCIATED WITH ATHEROSCLEROTIC PLAQUE FEATURES ON MRI

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Aims: Identifying vulnerable atherosclerotic plaques can contribute to clinical decision making. It has been shown that asymptomatic cerebral micro emboli (ME), as detected with Transcranial Doppler (TCD), predicts the risk of stroke in patients with symptomatic carotid stenosis. Imaging techniques such as MRI can identify vulnerable plaque features as intraplaque hemorrhage (IPH), large lipid-rich necrotic core (LRNC), and thin/ruptured fibrous cap. Our main objective is to investigate whether ME are correlated with the presence of vulnerable plaque features.

Methods: 40 patients with a TIA or minor stroke in the carotid territory and moderate stenosis (30-69%) of the ipsilateral internal carotid artery, underwent a 1.5 T multi-sequence MRI protocol of this artery. ME were recorded for 1 hour in the ipsilateral MCA by use of TCD.

Results: In 18/40 patients, ME were detectable (mean of 4 ME, range 0 -36). Significantly ($p< 0.05$) more ME were detectable in patients whose plaques contained a large LRNC and/or IPH and had smaller luminal area. We found a decrease in the number of ME with respect to time from onset of symptoms when MRI showed a thin/ruptured fibrous cap. In patients with a thick fibrous cap, the number of ME was not related to time from onset of symptoms.

Conclusion: The results of the present study suggest that there is a positive association between vulnerable plaque features of the ICA and the number of ME in the ACM.

EFFECTIVENESS OF ORAL HYDROXOCOBALAMIN IN TREATMENT OF VITAMIN B12 DEFICIENCY WITH NEUROLOGICAL MANIFESTATIONS: PRELIMINARY RESULTS

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Introduction: Cobalamin deficiency, the most common cause of megaloblastic anemia, can lead to severe neurological manifestations. Cobalamin deficiency is treated by some authors with oral cyanocobalamin. In this study, authors will demonstrate the effectiveness of oral hydroxocobalamin, among patients suffering from cobalamin deficiency with neurological manifestations.

Patients and methods: This is a 90-day, single center, prospective, open-label study conducted at the Department of Neurology, Hassan II university hospital (Fez, Morocco) (from January 2011 to December 2013).

The eight first patients aged > 23 years, received 15000 µg oral hydroxocobalamin once daily for 10 days. After 10 days, treatments were administered monthly for three months.

Results: On days 10 and 90, all hematologic parameters changed significantly versus day 0. Haemoglobin levels increased; mean corpuscular volume decreased. The mean serum vitamin B12 (vit B12) concentration increased significantly from day 0 to 10 and normalized on day 90.

Neurologic improvement was detected in 4 patients: disappearance of ataxia in one patient and recovery of walking in three patients.

Conclusion: In this study of patients with neurological manifestations due to cobalamin deficiency, oral hydroxocobalamin treatment seems to be as effective as parenteral cobalamin.

DIAGNOSTIC APPROACH TO MITOCHONDRIOPATHIES IN TUNISIA

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Introduction: Mitochondrial diseases are a heterogeneous group of multisystemic disorders. Diagnosis of these diseases in Tunisia is very difficult because of non availability of electron transport complex (ECT) activity measurement and genetic study. The use of ultrastructurel for the diagnosis of mitocondriopathies is questioned.

Objective: The aim of our study is to evaluate the supply of ultrastructural study in diagnostic approach of “mitochondriopathies” in Tunisian paediatric population.

Methodology: We conducted a 2 years (2008-2010) prospective study including 25 patients suspected to have “mitochondriopathies” and followed at the Department of Child and Adolescent Neurology at the National Institute of Neurology of Tunis. Muscular biopsy was performed for each patient. Optic microscopy, electron microscopy and histoenzymology findings were analyzed.

Results: Diagnosis of mitochondriopathies was retained in 20 patients. Ultrastructural mitochondrial abnormalities with mitochondrial proliferation and shape abnormalities associated to lipid and glycogene storage accumulation were noted. Histoenzymology revealed COX reaction abnormalities in 46 % of cases and SDH in 53 % of cases. Lipidic overload on the Oil Red O coloration was noted in 53 % of cases. 5 cases (20%) were secondarily excluded because of additionnal clinical and paraclinical data. 2 of them diagnosed neuroaxonal dystrophy and familial dysautonomia had mitochondrial abnormalities on ultrastructural study not reported before.

Conclusion: We conclude that ultrastructural study on muscular biopsy could be a powerful tool in the diagnosis of mitochondriopathies mainly when clinical suspicion is high. However ultrastructural findings are non specific since that it was described in non mitochondrial diseases.

METAGENOMICS AT THE INTERFACE BETWEEN HEALTH AND NEURODEGENERATION

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Background: Manmade and/or natural toxins have been incriminated in the pathogenesis of a host of neurodegenerative diseases with limited knowledge on their exact mechanisms and hence, no option(s) for their prevention.

Method: We use a system biology approach to explore the (neuro)biological response to food (cassava) neurotoxicants or their analogs, and propose mechanisms of cassava-associated neurodegeneration among Africans.

Results: Epidemiological evidence suggests an association between dietary dependency on cyanophoric cassava, deficiency in sulfur amino acids (SAA), and the occurrence of motor system degeneration. Experimental studies yield controversial but interesting results. Ingestion of cyanogens under a SAA-restricted diet leads to an increased production of cyanate, a protein carbamoylating agent and motor system toxin, in laboratory animals. However, systemic administration of the main cassava cyanogenic glucoside i.e. linamarin or its analogs, by-passing the gut flora, is not accompanied by increased carbamoylation. However, the spinal cord proteome still displays a differential expression of protein involved in controlling cellular redox or folding mechanisms (e.g. peroxiredoxin 6 or protein disulfide isomerase, respectively), and maintaining the structural integrity of neurons (e.g. neurofilament proteins).

Conclusion: We suggest that the risk for cassava-associated neurodegeneration may be modulated through the gut flora metabolism of cyanogens and the capabilities for the cassava-consumers to balance redox and protein folding mechanisms. Metagenomics (sequencing and functional characterization of the gut microbiota) coupled to genome-wide-association studies may possibly unveil mechanisms associated with neurodegeneration among cassava-reliant populations. Such studies may help design novel approaches, e.g. probiotics, to prevent cassava-associated neurodegeneration.

TOXIC EXTRA PYRAMIDAL SYNDROMES IN SOUTH MOROCCO EPIDEMIOLOGICAL, CLINICAL, TOXICOLOGICAL AND HISTOLOGICAL STUDIES

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Introduction: Extrapyramidal syndromes (ES) syndromes are frequent in Marrakech and all over South Morocco (>20% of all our consultations), versus other Moroccan cities.

Many toxic origins are found, mainly due to heavy metals, like manganese. They are well known by the severity of the symptoms and the inefficacy of dopatherapy.

Aim: Confirm the presence of toxic ES (TES) in South Morocco, search for new exposition sites, precise exposure factors, study clinical aspects of TES, draw conclusions and recommendations for local and national authorities.

Patients and methods: Authors compared through a prospective study (2003 to 2010), four groups: G1 (exposed to heavy metals & Sick), G2 (exposed and healthy), G3 (Not exposed and sick); G4 (Controls). We analysed epidemiological, clinical and biochemical profiles to confirm and quantify TES in South Morocco, Samples were studied in blood and urine for heavy metal. Statistical analysis used Khi-2 test.

Results: Male gender (91,4%) and young age (20 to 40 years) were dominant. In G1, we found 82,7% of workers in mines vs 17,3% in neighboring residents.

Comparing profesions related to toxic factors, we found that G1 is the most dominant in miners, vs G2; Manganese is the first heavy metal implicated in the TES followed by Amalgam.

Tremor and akinetic presentation was dominant in the G3 (non exposed and sick group) vs G1.

Conclusion: Authors established the presence of TES, mainly due to heavy metals; they underline the relationship of Manganese with TES.

This study has many scientific, Social and economical impacts.

ADHESION MOLECULES AND GABA RECEPTORS ACTIVITY IN AN ANIMAL MODEL OF STURGE-WEBER SYNDROME

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We don't fully understand the mechanisms of epileptogenesis and hemiplegic migraine (HM) in Sturge-Weber syndrome (SWS). It was discovered previously that gamma-aminobutyric acid (GABA) excites neurons in SWS cortex, cuasing a various types of epilepsies. On the other hand, laminin, fibronectin, and adhesion molecules VCAM, ELAM and ICAM-1 (CD 54) also play a role in SWS pathogenesis. The aim of our research were the study of patch clump and field potential recordings in pediatric patients and SWS animal models. Patch-clamp and field potential recordings and dynamic biphoton imaging were used to analyze cortical tissue samples obtained from six 8- to 18-month-old pediatric SWS patients during surgery. Under our observation were 17 children with SWS from 6 to 12 years old. Control group was comprised by 34 of healthy donors by the same age. Experimental models of SWS were presented by 28 transgenic mice with RASA-1 genetic mutation. The concentrations of VCAM, ELAM and CD54 were studied by Western blot analysis both in all patients, donors and experimental models. After study of patch-clamp and field potential recordings it was found expression of time- and voltage-dependent transmembrane currents, which is typical for ´complex´ glia, although only 35% of satellite cells, especially marked with GABA increase in the serum of 11 SWS patients and 27 experimental mice. The levels of VCAM and CD54 were increased in 15 patients, 29 donors and 25 experimental animals. The present data show some correlation between GABA determined excitability and some adhesion molecules involvement in SWS pathogenesis.

IDENTIFICATION OF FUS/TLS GENE MUTATIONS OF AMYOTROPHIC LATERAL SCLEROSIS WITHIN A CHINESE COHORT

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Objective: Mutations in the FUS gene have been identified to account for approximately 6% of all familial amyotrophic lateral sclerosis (FALS) cases and less than 1% of sporadic amyotrophic lateral sclerosis (SALS) patients. FUS mutations in Chinese ALS patients were detected only in a few FALS pedigrees, and no data of the FUS mutations in SALS cases has been reported to date. In the current study we screened in a Chinese ALS cohort for FUS mutations.

Methods: Exon 6, 14 and 15 of the FUS gene were screened in 142 SALS patients, 10 FALS index cases and their family members, as well as 151 healthy controls.

Results: A c.1562G>T (p.R521L) missence mutation was identified in one index FALS case and her asymptomatic daughter. In addition, two synonymous mutations (c.C648T and c.C1464T) and a variant in the 3'UTR (c.*14C>T) were detected in our SALS cohort.

Conclusions: The percentage of FUS mutations in our FALS cohort was 10%, which is similar to prior studies from Asia, highlighting the importance of screening Chinese FALS patients for *FUS* mutations. In addition, our findings suggest that FUS mutations are probably an uncommon cause of Chinese SALS patients.

COMBINATION OF POSITIONAL CLONING AND NEW GENERATION SEQUENCING IDENTIFIES 3 NOVEL AND FUNCTIONALLY RELATED GENES IN SPASTIC PARAPLEGIA

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Hereditary spastic paraplegias, which encompass a wide range of phenotypes, are clinically and genetically very heterogeneous neurological disorders. Autosomal dominant and recessive as well as X-linked forms have been described, and known genes account for the majority of dominant cases, but for less than 40% of the recessive forms. The combination of classical positional cloning and next generation sequencing in 3 consanguineous families with an autosomal recessive form of these conditions proved very powerful to identify causative mutations. The first two families, from North-Africa, were linked to SPG28 and SPG46 and the disease was shown to segregate with a splice site mutation and a missense mutation affecting a conserved amino-acid, respectively. The third family was linked to a new locus on chromosome 4 (SPG47). The missense mutation found in this family was also identified in 2 other families of the same origin, Saudi Arabia, while a frameshift mutation was identified in the same gene in a fourth kindred from Egypt. All mutations were absent in large series of matched controls. The 3 new genes were involved in close metabolic pathways related to lipids, paving the way for a better understanding of the mechanisms involved in these diseases. Our study underlies the power of next generation sequencing combined with linkage data in rare and genetically heterogeneous disorders.

CLINICAL COMPARISON BETWEEN AVED PATIENTS WITH 744 DELA MUTATION AND FRIEDREICH ATAXIA WITH GAA EXPANSION IN 44 MOROCCAN FAMILIES

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Introduction: Autosomal recessive cerebellar ataxias are a heterogeneous group of rare neurological disorders involving both the central and the peripheral nervous systems. Friedreich's ataxia is the most common hereditary ataxia; the ataxia with vitamin E deficiency is a phenotype clinically similar to Friedreich's ataxia, with low serum concentrations of vitamin E.

Aim of study: Compare clinical features of the friedreich's ataxia and AVED patients in 44 Moroccan families.

Patients and methods: 72 patients with phenotype resembling Friedreich's ataxia were studied after admission to the department of Neurology,Hôpital des Spécialités, Rabat, Morocco, over a period of 1987 and 2009. All patients had a clinical and ophtalmological examinations, 30 patients underwent electromyography. CT scan was performed in 29 patients. GAA repeats in the frataxin gene were analyzed and direct detection of the 744 delA mutation was performed.

Results: Eleven families (17 patients: **24%** of cases) had the 744 delA mutation in the alpha-tocopherol transfer protein (a-TTP) gene, characteristic of ataxia with vitamin E deficiency (AVED). The Thirty three families (55 patients: **76%** of cases) had GAA expansions in the first intron of the frataxin gene. The clinical differences between the two groups differed. AVED caused by the 744 delA is a clinically distinguishable by high frequency of head titubation, decreased visual acuity and slower disease progression then Friedreich's ataxia ($p< 0.05$).

Conclusion: Our study represents the largest series in the literature, it suggests the clinical differences between AVED and Friedreich's ataxia and AVED patients have a better prognosis after alpha-tocopherol treatment.

LIMB-GIRDLE MUSCULAR DYSTROPHY TYPE 1F: NEW PATHOGENETIC MECHANISM

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Objective: Clinical muscle, histopathological, ultrastructural and genetic features of a large Italian-Spanish family with autosomal dominant LGMD, previously mapped to 7q32.2-32.2 (LGMD1F) were investigated by molecular morphometric and ultrastructural analysis.

Method: We collected the DNA and clinical history in 19 of 60 patients; muscle biopsies histopathology was investigated in one pair of affected patients (in the daughter two consecutive biopsies at 9 and 28 years and in the mother at 48 yrs were done).

Results: In the affected cases we observed that the age of onset varied from 2 to 35 years, and occurred either in upper or in lower girdle; in 14 cases there was hypotrophy both in proximal upper and in lower extremities in calf muscles. Muscle MRI showed hyperintensity in proximal limb muscles. The severity was not increased in successive generations. We noticed a progression in muscle biopsy involvement: the daughter has a more severe clinical course and atrophy was more evident in the second biopsy at 28 years, the mother has a more compromised muscle histopathology and many small muscle fibers, and autophagic changes by acid phosphatase stain. Ultrastructural analysis revealed myofibrillar disarray, vacuolar changes, granular material and dense subsarcolemmal bodies deriving either from actin or cytoskeleton-myofibrillar proteins.

Conclusions: A filamentous protein accumulation is likely in muscle, epigenetic factors could play a key role in determining both the age and the phenotype at onset but the progression and severity of the disease seems to be related to a progressive fiber atrophy and disruption of myofibrils.

HUMAN SPINAL MUSCULAR ATROPHY-INDUCED PLURIPOTENT STEM CELLS, FREE OF VECTOR AND TRANSGENIC SEQUENCES AS A MODEL AND FOR THERAPY

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Introduction: Spinal muscular atrophy (SMA) is among the most common genetic neurological diseases that cause infant mortality. Reprogramming adult human cells to induced pluripotent stem cells (iPSCs) allows generating patient-specific cells for disease modeling and therapeutic tools.

Aims: To describe the generation of human spinal muscular atrophy (SMA)-induced pluripotent stem cells (iPSCs) and motoneurons using non-integrating episomal vectors.

Material and methods: Fibroblasts from a SMA-I patient and his father were transfected with oriP/EBNA1 vectors encoding six reprogramming factors. We differentiated iPSCs using a protocol to promote motoneuron fate. The phenotype of these cells was analyzed by morphological, gene expression (including microarray), and protein analysis. Finally, iPSC-purified motoneurons were transplanted into the spinal cords of SMA mice.

Results: We found significant differences between SMA and WT iPSC derived motoneurons, including reductions in cell number, cell size, and axon length. We undertook a detailed assessment of transcriptional and splicing changes in MNs with microarray. We observed a relatively restricted number of genes, related to axon growth and motor neuron development, that presented a different splicing profile between SMA and WT cells. We performed in vivo analysis evaluating whether and how iPSC-derived motoneurons integrated into the SMA spinal cord. Quantification data demonstrated that SMA motoneurons presented a reduced number of engrafted cells compared with WT. Motoneuron ransplantation extends lifespan and ameliorates the phenotype of SMA mice.

Conclusions: These results offer a proof of concept for the generation of patient-specific iPSCs and motor neurons free of exogenous elements.

ALTERATIONS OF MOTOR AND SOMATOSENSORY PATHWAYS FUNCTION IN THE PRESYMPTOMATIC SPINOCEREBELLAR ATAXIA TYPE 1 GENE CARRIERS

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Background: Spinocerebellar ataxias type 1 (SCA1) is a neurodegenerative, inherited disease caused by the expansion of CAG repeats.

Aim: To evaluated the functional alterations of motor and somatosensory pathways in the presymptomatic SCA1 gene carriers.

Patients and methods: In 23 SCA1 gene carries and 26 healthy volunteers the somatosensory evoked potentials (SEPs) to median and tibial nerves stimulation for central spinal conduction times (SCT) assessment were performed. Transcranial magnetic stimulation (TMS) was carried out to evaluate cortical excitability (MT), silent period (SP), central motor conduction time (CMCT) and motor evoked potentials amplitude (MEPs). Presence of ataxia was excluded by the Scale for Assessment and Rating of Ataxia.

Results: Age at study entry of SCA1 gene carriers was 25.6 ±4.7, among healthy volunteers 26.2 ±5.3. In 43% of SCA1 cases MT was elevated for lower limbs, accompanied by MEPs amplitude decrease in 35% of cases. SP was significantly longer ($p < 0.01$) from upper and lower limbs. CMCT was prolonged in 56% of subjects to the lumbar spinal cord segments. SCT of the posterior spinocerebral pathways from the lower thoracic segments to the medial lemniscus was prolonged only in a 39% of cases. The amplitude of cervical somatosensory potentials was decreased in 26% of subjects.

Conclusions: In the presymptomatic SCA1 gene carriers before the onset of overt clinical symptoms the motor cortex and corticospinal pathways are more affected, while somatosensory afferents are involved to the lesser degree. TMS and SEPs can be serve as an objective measure of disease progression.

CYTOREGULATORY THERAPY OF BRAIN GLIAL TUMORS

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Introduction: Failure of conventional therapies of glial tumors of brain (GTB) is conditioned by their strategy to eliminate cancer cells (CC) and cancer stem cells (CSC). We propose alternative therapy named cytoregulatory therapy (CRT) to control tumor growth and regulate CC and CSC number.

Objective: To demonstrate in vitro and in vivo control and regulation of tumor growth through apoptosis induced neural stem cells (NSC) and hematopoietic stem cells (HSC).

Material and methods: NSC and HSC ingested apoptosis inductors (AI) nanocapsules endocytotically or alternatively were processed with AI. For *in vitro* modeling C6 glioma was cocultured with induced HSC (iHSC) and NSC (iNSC). To model CRT *in vivo* C6 glioma cells were stereotaxically implanted into Wistar rats' brain and after a week iNSC and iHSC were transplanted into tumor. C6 glioma was used for control #1; native NSC stereotaxically implanted into rat GTB- control #2 and HSC - control #3.

Results: Coculturing of iHSC with C6 glioma led to 50% reduction of CC in vitro vs. control #1. Coculturing of iNSC with glioma showed similar result. CRT involves phenomena of pathotropism, cell adhesion and by-stander effect. In vivo iHSC and iNSC transplantation into 14 days GTB reduced tumor tissue by 35.2% and then tumor increased by 40.1% as compared to all controls. Apoptosis induced HSC and NSC demonstrate different effector functions in different conditions.

Conclusion: CRT through iHSC and iNSC can be an alternative to available antitumor therapies promising neurologists an instrument to treat many disorders including incurable ones.

AUTOIMMUNE PARANEOPLASTIC NEUROLOGICAL SYNDROMES - REVIEW OF PATIENTS ´COHORT FOCUSING ON RARE ATYPICAL CASES

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Aim: To review a patients ´cohort of autoimmune paraneoplastic neurological syndromes (PNS) focusing on rare atypical cases possesing diagnostic difficulties.

Methods: The diagnoses were based on "Recommended diagnostic criteria for paraneoplastic neurological syndromes" published in J Neurol Neurosurg Psychiatry 2004.Onconeural antibodies were detected using immunoblot (Ravo Diagnostics,Germany).The cohort of 26 patients (n-26) with paraneoplastic syndromes was diagnosed in the period of 2005-2011.

Results: We diagnosed 13 patients(n-13) positive for onconeural antibody anti-Hu;9 patients (n-9) for anti-Yo and 1 patient (n-1) for anti-Ri. Anti - Hu positive patients had predominantly clinically diagnosed sensory neuronopathy(n-6),brainstem encephalitis(n-2), encephalomyelitis (n-2), cerebellar syndrome(n-2) and limbic encephalitis(n-1). Anti -Yo positive patients had uniformally cerebellar syndrome(n-9). Anti-Ri positive patient (n-1) had brainstem encephalitis. Another one patient had limbic encephalitis without onconeural antibodies including anti-potassium voltage gated channel antibodies but concomittant chronic lymphatic leukemia (CLL).One anti-Hu positive patient has a progressive predominantly brainstem encephalitis and cerebellar syndrome without diagnosed tumour in spite of extensive and repeated diagnostical work-up for more than 11 years. Another patient had anti -Ma2 positivity, abnormalities on brain MR and lung CT scans suspected for sarcoidosis.

Conclusion: We reviewed patients´cohort of PNS in the Czech Republic emphasizing rare atypical cases concerning unusual long-term course of anti-Hu positivity, still not described association of limbic encephalitis and CLL and emerging association of anti-Ma2 antibodies with neurosarcoidosis. We conclude that these cases enlarge diagnostical spectrum of PNS.

BRAIN METASTASES FROM A LUNG CANCER PRIMARY: EPIDEMIOLOGY AND MANAGEMENT PRACTICES AT A MAJOR CANCER CENTER

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Objective: We review the epidemiology of brain metastases (BM) from a lung primary and describe management practices at a major referral cancer center.

Methods: Patients were identified from the Tumor Registry at M.D. Anderson Cancer Center. The patients' hospital records were reviewed. Basic descriptive analyses were performed. The research was approved by the institutional review board.

Results: Of patients reviewed to date, 54% were symptomatic at presentation and half had systemic metastases (36% bone; 21% liver; 17% adrenal). There was no case of metastasis to the colon, and < 1% of rectal, breast, and renal. Whole brain radiation was offered to 48% of patients with a single BM, 76% of those with two BM, and 81% of those with three. It was performed in 40%, 66%, and 70% of those, respectively. Surgical resection was offered to 36% of patients with a single BM, 16% of those with two BM, and 5% of those with three BM. It was performed in 35%, 16%, and 5%, respectively. Stereotactic radiosurgery was offered to 11% of patients with a single BM, 6% of those with two BM, and 5% of those with three BM. It was performed in 12%, 5%, and 5%, respectively. Twelve percent of patients opted out of BM treatment. The median time from primary to BM diagnosis was 1.2 months. We assessed patient and tumor factors leading to specific treatment choices.

Conclusions: This initial review provides valuable information on the epidemiology of brain metastases from lung cancer, and management approaches followed.

BRAIN RADIONECROSIS AFTER IRRADIATION FOR NASOPHARYNGEAL CARCINOMA

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Introduction: Brain radionecrosis is infrequent following radiotherapy and may simulate tumor recurrence on MRI.

Aim of study: The aim is to study the clinical, radiological, therapeutic and outcome features of cerebral radionecrosis after treatment for UCNT (undifferentiated carcinoma of the nasopharynx).

Material and methods: Fifteen patients registred between 2007 and 2011 were treated for nasopharyngeal carcinoma and developed cerebral radionecrosis. All patients were treated with radical radiotherapy. The mean total dose given was 70 Gy. Dose per fraction was 2 to 2.5 Gy, one fraction per day. Thirteen patients also received chemotherapy.

Results: There were 11 males and 4 females. The mean age was 48.6 years (age extremities were 39 and 64 years). The clinical symptoms were various (cerebellar syndrome, seizures, hemiparesis…). The neurological signs appeared after a mean time of 20.5 months (11 to 40 months). Brain radionecrosis was confirmed by brain imaging (MRI with spectrometry). The localization was cerebral (temporal and temporo-occipital) in eight cases and on the posterior fossa in seven cases. After a mean follow-up period of 24.2 months (3 - 40 months), the clinical outcome was favorable in 7 cases on medical treatment (corticosteroids, antiepileptic drugs, aspirin). Seven patients remained stable and one patient didn't receive any therapy.

Conclusions: Brain radionecrosis is a late complication occurring rarely in patients irradiated for nasopharyngeal carcinoma. Imaging technics (MRI with spectrometry) are the most important tools for the diagnosis. Corticotherapy can result in a positive response.

FLUORESCENCE GUIDED RESECTION OF CNS TUMORS AND EX VIVO QUANTIFICATION OF GADOLINIUM AND THE FLUORESCENT MARKER PROTOPORPHYRIN IX

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Gliomas are diffusely infiltrating and highly heterogeneous tumors. Achieving maximal tumor removal is a major goal in resection of gliomas. The use of 5-aminolevulinic acid (ALA) to induce protoporphyrinIX (PpIX) for fluorescence-guided resection (FGR) is gaining clinical interest for resection of gliomas and other neoplasms. Previous studies have shown a correlation between levels of contrast-enhancement on MR imaging in gliomas and intraoperative, qualitative PpIX fluorescence. In this study we evaluated whether highly sensitive and quantitative ex vivo tissue measurements of PpIX concentrations identify regions of blood-brain barrier (BBB) breakdown in low- and high-grade gliomas beyond the capabilities of current fluorescence imaging in patients undergoing FGR. Specimens were collected and processed for ex vivo neuropathological analysis, PpIX fluorimetry to measure PpIX concentrations (CPpIX), and for inductively coupled plasma mass spectrometry (ICP-MS) to quantify gadolinium concentrations (CGd). CGd serves as a quantitative surrogate marker of BBB breakdown, which as expected, was found to correlate with the degree of tissue malignancy in gliomas. Intraoperative qualitative levels of fluorescence showed significantly higher levels of CPpIX and CGd. We observed a strong correlation between BBB breakdown (i.e., using CGd as a biomarker) and CPpIX. There were also high correlations of microvascular density (as assessed by blinded CD31 immunohistochemistry counts) with CGd. Previous studies have shown a correlation between contrast-enhancement on MRI (i.e., BBB break-down) and qualitative levels of PpIX fluorescence. To date, no study has performed a quantitative assessment associating BBB breakdown and correlated with PpIX/Gd tissue levels, MRI contrast enhancement, and histopathology.

EVALUATION OF NEUROCOGNITIVE CHANGES FOLLOWING WHOLE BRAIN RADIOTHERAPY IN PATIENTS WITH BRAIN METASTASES

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Introduction: Whole brain radiotherapy is the standard treatment for brain metastases. Impairment of cognition is attributed to several causes.

Objective: To evaluate neurocognitive changes after WBRT and to evaluate time to neurocognitive failure using different mini-mental state examination cutoff points.

Patients and methods: 24 patients with brain metastases, received 30 Gy WBRT. OAS was evaluated. MMSE done before, immediately and 2 months after WBRT to evaluate neurocognitive progression. Time to neurocognitive failure was evaluated using 2 cutoff score points.

Results: The median survival time was 4.5 months. The OAS was 45%, 25% and 8.3% at 0.5,1 and 1.5 years. The OAS for patients < 65 was insignificantly better than that for patients ≥65 year-old (p=0.18). 79.2% developed deterioration, 12.5% showed stable and 4.2% only developed improvement of cognitive function at the end of the study. There was mild deterioration of basal MMSE value immediately after WBRT (p=0.047), while there was marked deterioration 2 months after completing WBRT (p< 0.001). Applying the MMSE cutoff point of age/educational level, 62.5%, 70.8%, and 79.2% of patients developed neurocognitive failure before, immediately and 2 month after WBRT, compared to 41.7%, 66.7%, 75%, on applying MMSE cutoff point < 23. The cumulative incidence of neurocognitive failure among patients applying MMSE cutoff ≤ age/educational level was insignificantly higher than that when applying MMSE cutoff < 23 (p=0.46).

Conclusion: Compliant patients < 65 years of age had a better MST.WBRT is associated with a steadily progressive deterioration of cognitive function. It doesn´t differ whether using any of the MMSE cutoff points.

NEOPLASMS IN THE CLINICAL MATERIAL OF NEUROLOGY CLINIC, CLINICAL CENTER OF SARAJEVO UNIVERSITY, IN THE PERIOD 1990-2009

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The aim is to register neoplastic processes of the central nervous system in patients of the Neurology Clinic, Clinical Center of Sarajevo University during twenty years period (January 1st 1990 - December 31st 2009).

Within the observed time period there were 28067 patients hospitalized at the Neurology Clinic. Among them with CNS tumors there were 413 (1.47%) patients. Patients were observed in three time periods: 1990-1999, 2000-2005, and 2006-2009. During the first period there were 2.7% patients with CNS tumors (279 cases); during second period 1.1% (101), and during the third 0.46% (33). Within baseline there was 58% male and 42% female patients, with average age of 61.2 years. Diagnosis of brain tumor was made by CT (100%) and MRI (87%). Primary tumors of the CNS had unchanged incidence, while secondary tumors (metastases) are significantly increasing during the period the 2000-2009.

We can conclude that CNS neoplasms in patients of Neurology Clinic, Clinical Center of Sarajevo University are present in twenty years period with 1.47%, with increase in the number of secondary tumor process in the period from 2000 - 2009.

DEMOGRAPHIC CHARACTERISTICS, DIAGNOSIS AND MANAGEMENT OF PATIENTS WITH INTRACRANIAL EPENDYMOMA: ABOUT 28 CASES

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Introduction: Intracranial ependymoma is a brain tumor of glial origin, which represents only 2-5% of tumors of the central nervous system; it is more common in children and young individuals.

Objectives:

- present the epidemiological, clinical, radiological and therapeutic modalities at these tumors, through an analysis of individual cases of our series and a literature review
- assess our results by comparing them with those of the literature and identify the main prognostic factors at these tumors.

Materials and methods: Our work consisted of a retrospective study of 28 cases of intracranial ependymomas collected in the Department of Neurosurgery CHU Sahloul on a 18-year period from January 1992 to December 2009.

Results: Intracranial ependymomas represent 5% of brain tumors.The average age of our patients is 22 yearsThey are more common in men with a sex ratio at 2.1.The initial clinical picture is dominated by signs of intracranial hypertension followed by movement disorders and epilepsy in supratentorial ependymomas and cerebellar and cranial nerve for posteriorfossa ependymomas. Any location combined, intracranial ependymomas are more common in infratentorial (57%). A complete resection was achieved in 78.6% of our patients with a postoperative mortality of 21.4%. Infiltration of the floor of the fourth ventricle is a limiting factor for the excision in our work.15 patients had ependymoma grade II,12 patients were anaplastic ependymomas. In our study, postoperative radiotherapy was performed for 32.1% of our patients and chemotherapy in 4 cases.In our series, over all survival at 5 years was 72% and 68.2% for 10 years.

GENOMIC CHARACTERIZATION OF DIFFUSE LOW-GRADE GLIOMAS IN ADULTS

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Diffuse low-grade gliomas (LGG) represent a heterogeneous group of glial tumors including World Health Organization (W.H.O.) grade II astrocytoma (A), oligodendroglioma (O) and oligoastrocytoma (OA). LGG affect mainly young adults and account for ~15% of adult primary brain tumors.

In a cohort of 142 LGG (72 O, 55 OA, 15 A), we have conducted a tumor comprehensive molecular characterization including :

(i) whole-genomic profiling using 1 megabase-resolution BAC-comparative genomic hybridization array,

(ii) *TP53*, *IDH1* and *IDH2* mutational screen and

(iii) *MGMT* promoter methylation analysis. A non-supervised clustering was performed to identify homogeneous genetic subgroups. Clinico-molecular correlations were conducted using chi square test, Pearson's correlation test and log-rank test (in patients with a survival>3 months). All tests were bilateral and $p< 0.05$ was considered significant.

Seven homogeneous genomic signatures were observed in our cohort of LGG.:

(i) 1p19q codeletion combined with chromosomes (chr) 1 and 19 centromeric breakpoints,

(ii) chr 19 monosomy;

(iii) chr 19q deletion without 1p19q codeletion pattern, (iv) chr 19 trisomy, (v) chr 11p loss, (vi) chr 9p deletion and (vii) none of the aforementioned aberrations.

As expected, 1p/19q codeleted tumors have the best outcome. Interestingly, tumors with chr 19 monosomy have oligodendroglial phenotype and *IDH* mutation (90%). Unexpectedly, they have a poor prognosis similar to non *IDH1* or *IDH2* mutated tumors. Finally, the vast majority (~90%) of the tumors exhibiting chr 11p have astrocytic phenotype ($p< 0.001$).

In conclusion, our study participates to clinico-molecular dissection of LGG identifying new molecular signatures with clinical relevance.

FIRST-LINE CCNU ALONE AS AN ALTERNATIVE OF PCV CHEMOTHERAPY IN THE TREATMENT OF PROGRESSIVE LOW-GRADE GLIOMAS

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Aim: PCV chemotherapy has proved efficient in treating low-grade glioma (LGG). However, this therapy cannot be used for a prolonged period because of the cumulative toxicity. The aim of our study was to evaluate the response rate and toxicity of first-line CCNU based chemotherapy in patients with recurrent or progressive LGG.

Methods: We retrospectively reviewed our neuro-oncological database and retrieved all adult patients with histologically confirmed progressive LGG who received up to six 42-day-cycles of CCNU. The patient was followed until progression. Responses were evaluated by clinical assessment and T2-weighted magnetic resonance image (MRI) scans in accordance with the modified Macdonald's criteria.

Results: 14 men and 9 women with a mean age of 38 years at pathological diagnosis were studied. The resection was quasi total in 7 patients (30%), 16 patients (79%) had a partial one. None of them had initial gadolinium enhancement. Nine out of 23 patients had a partial response, 4 patients had minor response; 7 had a stable disease, and the rest progressed after a median of 2 cycles (1-2). No toxicity was noticed. With a median follow-up of 22 months (8 - 62 months), the median PFS was not reached (12 month PFS was 81%).

Conclusion: CCNU alone is a good treatment for patients with symptomatic LGG, producing tumor regressions in a significant proportion of them. With no toxicity related, these results suggest that CCNU is an interesting alternative of PCV protocol for progressive symptomatic low-grade gliomas. Further studies are needed to establish its role.

TRAUMATIC PERSISTENT VEGETABLE STATE (PVS) BEING TREATED WITH SPINAL CORD ELECTROSTIMULATION (SCS) - A REPORT OF TWO CASES

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Purpose: To investigate the curative effect of Spinal cord Electrostimulation (SCS) for traumatic Persistent Vegetable State (PVS).

Methods: The clinical diagnostic standards of traumatic PVS were applied, combined with CT, MRI, EEG, BAEP, SEP, brain perfusion imaging, TCD, and other imaging or electrophysiological technologies. Two patients were less than 3 years old and accepted the emergent craniotomy. The continuous coma times of these two patients were three and ten months respectively. They were operated via the center back of neck approach, the plate-shape stimulating electrode with four contacters made by Medtonic Co. was inserted in Epidura dorso-spinal cord of C2-C5, and the impulsator was set subcutaneously. The impulsator was switched on and program control was conducted. The stimulating parameters were 3.0-3.8 millivolts of voltage, 210-240 microseconds of pulse wide, 31 Hz of frequency.

Results: According to the score standards of PVS curative effect, one patient was healed in three months after operation, the other was immediately improved and healed in half a year after continuous treatments.

Conclusions: The operation indication for the SCS should be strict. BAEP should show V wave and the N20 of SEP of the two-side cortex should exist. The operation time should be within three months or half a year. The patients' age should be less than 60 years old. The stimulating parameter should be from the low to the high. According to the individual adaptive ability, the maximum values can be chosen. The SCS is one of the safe and effective methods for treating PVS.

A NOVEL ENDOTHELIN-RECEPTOR A ANTAGONIST IMPROVES OUTCOME FOLLOWING TRAUMATIC BRAIN INJURY

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Traumatic brain injury results in multiple pathologies, including a significant reduction in cerebral blood flow. Our combined laboratories have shown that endothelin-1 plays a major role in the induction of hypoperfusion. Therefore, using a rodent model of diffuse traumatic brain injury, we sought to test the effects of IV administration of various selective and non-selective endothelin receptor antagonists on CBF (as measured using arterial spin labeling MRI), cellular injury (as measured using Fluoro-Jade labeling), and behavioral outcome (as measured using a radial arm maze-spatial learning task) following TBI. Our results indicate that ETrA antagonism causes a decrease both in hypoperfusion and cellular injury, and improves behavioral outcome. Conversely, ETrB antagonism did not improve any measure of outcome at any dose given. Furthermore, mixed ETrA/B antagonism did not improve outcome. These data suggest that specific ETrA antagonists may be effective in ameliorating the deleterious effects of TBI.

MEMORY DISORDERS IN PATIENTS AFTER TRAUMATIC BRAIN INJURY

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Aim: Memory disturbances studying in patients with the cerebral defeats of traumatic nature.

Materials and methods: We have inspected 48 patients after traumatic brain injury (TBI), which were treated in the Emergency Unitl Hospital. In 20 patients the damaged center was located in the left hemisphere (LH), in 18 patients - in the right hemisphere (RH) and in 10 people were observed double-sided frontal defeats. Also there were inspected 25 almost healthy people. For all patients were used clinical- neurologic, neuro-physiological (EEG, EP), neuropsychological (subs-test of Wexler, Luria's procedure) investigations, CT and MRT of the brain. All data were statistically processed.

Results: Patients complained on headache (91,6%), vertigo (35,4%), general weakness (83,3%), worsening in memory (87,4%), in attention (75,0%); reduction in sight (77,1%), rumor (64,6%), convulsive assaults (37,5%), apathy and sleepiness (22,9%). Accordantly to the neuropsychological investigation, the total volume of reproduction in patients with after TBI was lower than in the control group ($p< 0,05$). Worse fulfillment of tests was obtained with the defeats of antero-posterior divisions of RH (contraction of the volume of reproduction, the growth of the difference between the represented and total number of produced elements). The difficulties of restructuring predominated with the double-sided frontal defeats and the defeats of frontal divisions of RH. Neuropsychological symptoms were exceeded the area of the defeats localization of the defeats, verified instrumental.

Conclusions: Traumatic brain injury occurs the disturbance of all forms of memory, which predominance depends on localization of stricken area.

CLINICAL SIGNIFICANCE OF RARE CNVS IN EPILEPSY: A CASE-CONTROL ARRAY CGH-BASED SURVEY

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Objective: To perform an extensive search for genomic rearrangements by microarray-based comparative genomic hybridization (array-CGH) in patients with epilepsy of unknown etiology.

Design: Prospective cohort study.

Patients and methods: Two-hundred seventy-nine patients with unexplained epilepsy, 265 individuals with no-syndromic mental retardation but no epilepsy, and 246 controls were screened by array-CGH.

Results: Rare CNVs occurred in twenty-six (9.3%) patients and in sixteen (6.5%) controls (*p=0.26*). CNVs identified in patients were larger (*p=0.027*) and showed higher gene content (*p=0.021*) than controls. CNVs sized >1Mb (*p=0.002*) and including >10 genes (*p=0.005*) occurred more frequently in patients than controls. Conversely, the two groups did not differ for CNVs smaller than 1Mb (*p=0.051*) and involving 10 or less genes (*p=0.547*). Nine (34.6%) patients among those harboring rare CNVs showed rearrangements associated with known microdeletion/microduplication syndromes. Mental retardation and neuropsychiatric features were associated with rare CNVs (*p=0.004*). Two out 26 CNV identified in epilepsy patients were identified in mental retardation cohort. Significant enrichment of genes involved in ion transport was observed within CNVs identified in epilepsy patients.

Conclusions: Patients with epilepsy show a significantly increased burden of large, rare, gene-rich CNVs, particularly when associated to mental retardation or other neuropsychiatric features. The involvement of specific genes such as ion channel genes, indicate a specific association between the identified CNVs and epilepsy. CNVs screening should be performed for diagnostic purposes preferentially in patients featuring epilepsy in association with mental retardation or other neuropsychiatric features.

EARLY CONSCIOUS DISTURBANCE IN PATIENTS WITH HYPERACUTE ISCHEMIC STROKE：CLINICAL FEATURES AND THROMBOLYTIC THERAPY

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Objective: The prospective cohort study aimed to explore the clinical features of patients with hyperacute ischemic stroke whom suffering from conscious disturbance on admission and the influence of conscious disturbance on the choice of thrombolytic therapy.

Methods: Data on hyperacute ischemic stroke patients admitted within 6 hours form symptoms onset were consecutive collected from Jan.1, 2009 to Dec.31, 2010. Conscious states on admission were evaluated as Normal, Somnolence, Stupor, Coma and Confusion (Delirium) and measured by GCS score at baseline. NIH score and early and delayed imaging as well as other data of patients with different conscious states were recorded.

Results: Of the 143 enrolled patients, accounting for 9.5% of the overall registered patients (1506) in Chengdu Stroke Registry , early conscious disturbance occured in 52 patients (36.4%) admitted within 6 hours from stroke onset (totally 143 patients), and in 29 patients (35.8%) admitted within 4.5 hours from stroke onset(totally 81 patients) respectively. Although selected according to the new guideline in China, early conscious disturbance still occured in 1/4~1/3 of patients indicated to thrombolysis (31.1% within 6 hours from stroke onset and 29.6% within 4.5 hours) and was associated with poor outcome when administering conventional therapy .Considering NIHSS score and early imaging of noncontrast CT on admission, most coma patients was not suitable for thrombolytic therapy, but those without coma still couldn't be excluded even if they have conscious disturbance.

Conclusion: Further studies are need to determine if early conscious disturbance except coma a exclusive criteria when considering thrombolytic therapy.

EPILEPSY AMONG ELDERLY SUDANESE PATIENTS

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Seizure disorders become increasingly common after the age of 60 years and can have a significant impact on the functional status of the patient.

Objective: The aim of this study was to evaluate the clinical presentation and characteristics of elderly Sudanese patients with epilepsy.

Methodology: This a prospective study, it was conducted at ElShaab Teaching Hospital and Sheik Mohammad Kheir Neurological clinic -from Feb. 2002 to Jun 2009. The study population included 240 elderly epileptic patients (age 60 years or above).

Results: Out of 240 epileptic patients 120 had no cause (50%). Cerebrovascular accident was found to be the most common cause of secondary epilepsy (31%). Generalize epilepsy was seen in 120 (50%) of our patients. Fifty percent of our patients showed abnormal EEG. Half of the patients with partial epilepsy had abnormal CT brain, while only 10% of those with generalized epilepsy had abnormal CT brain. Side effects of the drugs were detected among 30% of the patients.

Conclusion: The pattern of clinical presentation of epilepsy among elderly Sudanese epileptic patients is similar to what was mentioned in the literature except that the percentage of epilepsy following infections was more among our studied group (6%) and the postictal confusion was more severe.

REACHING OUT TO EVERYONE THE EPILEPSY CLINICS

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Epilepsy is one of the leading brain disorders in Africa. It is estimated that 80% of people suffering from the disease are not treated. Long delay before treatment, unavailability and financial inaccessibility to anti-epileptic drugs, limited resources for epilepsy and cultural beliefs contribute to this treatment gap. To fight against this fact, health professionals may get out the capital cities and reach the people by any mean. An initiative named “Caravan for Epilepsy” has been created for that purpose. It is the most important aspect of “Neurocaravans” dedicated to train health professionals, freely consult patients (with a support of portable EEG) and communicate about epilepsy, during 3 days spent in provinces far from capital cities where are concentrated specialists and diagnostic and treatment facilities. From March 2005 to March 2011, 12 “Neuro-Caravans” and “Caravans for Epilepsy" have been organized by the Senegalese League against epilepsy. They benefited from the support of donors, Army (for transportation to far provinces), Sanofi-Aventis for accommodation, meals and materiel assistance and Ministry of Health for logisctics. 2813 patients have been consulted ; among them 1749 people with epilepsy. 207 MDs and 193 paramedics have been trained. This Neuro-public health action could be shared with many developing countries implicated in the 'Global Campaign Against Epilepsy' aims at pulling “*Epilepsy Out of the Shadows*” and reduce medical, social and economic burdens of neurological illnesses in areas with limited resources, dispel stigma and enhace prevention by better communication.

PREVALENCE AND CLINICAL PROFILE OF EPILEPSY IN KANPUR DISTRICT OF UTTAR PRADESH, INDIA

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Purpose: The aim of the study was to evaluate prevalence and clinical profile of epilepsy in Kanpur district of Uttar Pradesh.

Method: Our study included 12,50,460 people of varying age group from 1yr- 90 yrs coming to LLR Hospitals medicine OPD between year 2002 to year 2010. They underwent screening procedure for epilepsy questionnaire then through clinical examination, EEG, CT Head and MRI brain wherever feasible for making the diagnosis of epilepsy. Then their prevalence rate and clinical profile analyzed including etiology, types of epilepsy, EEG, CT Head findings. Data was compiled and analyzed by using SPSS version 16.0. Later chi 2 test was used to analyze association between dependent and independent variables.

Key findings: The prevalence rate of epilepsy in our study was found to be 5.79/1000 (95% CI 5.61-5.79) in males and 3.75/1000 (95% CI 3.60-3.90) in females. Focal epilepsy was most common type of epilepsy in our study constituting 60.16 % of cases. Most common cause of epilepsy in our study was found to be Idiopathic 47.9% followed by Neurocysticercosis constituting 17.08% of total cases. Most common CT head finding was NCC and most common EEG finding came out to be Focal slow wave in 23.11% of patients.

Significance: Our study stands unique in terms as it included largest number of epilepsy patients in single series in the world till date. It included patients coming from both rural and urban areas. The second most common cause of epilepsy found to NCC which is a treatable condition.

THE USE AND COMPARISON OF PROLONGED EEG RECORDINGS IN THE DIAGNOSIS AND CLINICAL MANAGEMENT OF EPILEPSY

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Introduction: The diagnosis of epilepsy is crucial, but may be incorrect in up to 40% of cases. Routine EEG has a sensitivity of 50-60%. Prolonged EEG techniques with video increase this sensitivity, but the quantitative impact on clinical management is currently uncertain.

Aim: To compare and assess the impact of prolonged EEGs (ambulatory EEG or video telemetry) on the diagnosis and clinical management of patients with suspected epilepsy.

Methods: 104 consecutive patients, referred from 13 hospitals, had prolonged EEG at the Neurophysiology department between November 2009 and February 2011. Clinical records were assessed retrospectively for changes in either diagnosis or clinical management.

Results: Of 81/104 patients (57 females), mean age of 38±13 years with sufficient data for analysis; 44% had a change in diagnosis; 26% had EEG support for non-epileptic attack disorder (NEAD); and in 30% of patients, diagnosis was unchanged. Video telemetry was less likely to lead to a change in diagnosis than ambulatory EEG, but more likely to provide support for a diagnosis of NEAD ($p < 0.0001$). 72 patients had reassessment of treatment, and 47% had a change in medication. The proportion of patients with a clinical episode during prolonged EEG compared to routine EEG was significantly higher ($p < 0.0001$).

Conclusion: The use of prolonged EEG recordings has a high impact on either change in diagnosis or clinical management of epilepsy. This study highlights the influence of the ambulatory EEG in patient management, and the role of video telemetry in diagnosis of NEAD.

CLINICAL ASYMMETRIES AND FOCAL EEG ABNORMALITIES IN PATIENTS WITH JUVENILE MYOCLONIC EPILEPSY

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Purpose: The study was done in order to identify the prevalence and factors associated with occurrence of asymmetry in seizures and focal EEG features in patients with juvenile myoclonic epilepsy (JME).

Materials and methods: Sixty patients with JME have entered the study. Detailed anamnesis, standard and sleep deprived EEG, as well as magnetic nuclear resonance imaging and Wisconsin card sorting test for evaluation of frontal cognitive functions were done.

Results: All patients had myoclonic jerks, 57 (95%) had generalized tonic-clonic seizures and absences were registered in 43% of the patients. Myoclonic jerks were bilateral and symmetrical in most of the patients, but 22% of patients reported unilateral domination. Asymmetry, regional accentuation and focal abnormalities (in frontal and temporal regions) occurred in at least one of EEGs in 32% of patients. There was not statistically significant association of occurrence of focal EEG abnormalities with age, sex, familiar history of epilepsy or frontal cognitive impairment. EEG asymmetries were only associated with unilateral dominance of seizures ($p< 0, 01$).

Conclusion: It is very important to stress the occurrence of focal findings on EEG and asymmetry of seizures in patients with JME, because they could lead to misdiagnosis of syndrome, choice of inappropriate medication and poor seizure control and quality of life of affected individuals.

SYNDROME OF CONTINUOUS SPIKE-WAVE SLEEP: CLINICAL AND PARACLINICAL EVOLUTIVE ASPECTS

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The syndrome of continuous spike-wave sleep is a rare epileptic syndrome and some cases are in African publications. We report a series of Senegalese children regularly monitored from July 2003 to June 2010, as part of a consultation of Pediatric Epilepsy at the CHUN FANN. They were 10 children aged from 3 to 10 years. 5 of them had delayed psychomotor acquisitions associated with partial motor seizures, 2 others had partial motor seizures and 1 patient had only generalized tonic and clonic seizures. One child had learning disabilities only. The sleep EEG abnormalities reported diffuse type of continuous spike-wave sleep with an index of spike wave in sleep ≥ 85% for every child. Brain imaging was normal in 7 cases and in 1 case reported a subcortical left hemispheric atrophy. This syndrome was cryptogenic in 6 patients. In 2 cases, neonatal asphyxia, 1purulent meningitis was identified, with corticosteroids 7 children had a good electro-clinical. Among them one reissued only valproate and no corticosterone and had good Improvement also improvement.

ANTIEPILEPTIC DRUG WITHDRAWAL IN CHILDREN WITH EPILEPSY AND CEREBRAL PALSY

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Introduction: Selecting patients with cerebral palsy (CP) and epilepsy, for whom antiepileptic drugs (AED) can be withdrawn successfully is difficult.

Aim of the study: To determine risk for epileptic seizure reappearence after AED withdrawal in children wih CP and focal symptomatic epilepsy after three years seizure free period.

Material and methods: 76 children with CP and focal symptomatic epilepsy were studied for median perid of 7 years (range 2,4-17,6years). After AED withdrawal in 42 children, 13 children with, and 29 without epileptic seizure reapearment (as their control group), were studied.

Results: After AED withdrawal at the median time 13 months (rate 1-38 months), 25% children with seizure control achiewed using one AED, 25% using two, and 42,86% using three or more AED had seizure relapses, as well as 26,92% usin one AED, 33,33% usin two AED and 50% usin three or more AED at start of AED withdrawal. The age of onset of seizures, seizure type, time necessary for reaching seizure control, neonatal seizures, febrile seizures and status epilepticus, mental retardation, MRI CNS patology, and epileptiform EEG discharges present at the time of AED withdrawal starting, age at AED withdrawal starting did not have prognostic value.

Conclusion: Polytherapy necessary for reaching stable epileptic seizure control (RR 1,39), and polytherapy at the time of starting AED withdrawal (RR 1,62) are factor that significantly increases the risk of relapse after discontinuation of AED in children with cerebral palsy nad focal symptomatic epilepsy.

LENNOX-GASTAUT SYNDROME AROUND 27 CASES

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Introduction: The Lennox-Gastaut syndrome SLG is a severe epileptic encephalopathy of childhood. It represents 1-2% of all childhood epilepsies.

Aims of study: to identify the clinical, electroencephalographic, etiological and therapeutical aspects of this disease and to determine its outcomes.

Patients and methods: We report 27 cases of children with the SLG compiled in neuro-pediatric unit of Paediatrics IIA, Children´s Hospital of Rabat Morocco, over 9 years 5 months (January 2003 - May 2011) .

Results: The average age was 6 years old, 81% were male. The clinical manifestations detected: atypical absences 30%, tonic seizures 23%, tonic-clonic seizures 23%, atonic seizures 13% and myoclonus 10%. Mental retardation, autistic features and behavioral problems were noted in all patients. The cryptogenic forms represented 47% while symptomatic forms represented 53% and were associated with preexisting brain damage such as perinatal asphyxia (8cases), tuberous sclerosis (1case), meningoencephalitis sequelea (2cases) and cortical dysplasia (2cases). The diagnosis was based on clinical and electroencephalographic specific criteria of SLG. The most commonly used drug combination in our study was based on sodium valproate - clobazam - lamotrigine. 26% of patients were treated with monotherapy, and 74% were treated with combination therapy. 56% of patients responded to treatment with relative stabilization of seizures, while 44% remained refractory to anti-epileptics with severe mental retardation. An electrical stimulation of the vagus nerve is expected for these children.

Conclusion: The SLG is a severe epileptic encephalopathy requiring early diagnosis and appropriate management to improve its prognosis.

PREVALENCE AND PREDICTIVE FACTORS OF NON-ADHERENCE TO ANTIEPILEPTIC TREATMENT IN DAKAR-SENEGAL

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Many studies have identified factors that influence adherence to antiepileptic treatment (AET) grouped into five categories: socioeconomic; health care team/health system; condition; treatment and patient-related factors. African studies have so far referred to adherence as part of the overall management of epilepsy.

The objective was to estimate the global and specific prevalence of non-adherence to AET and to determine factors affecting this adherence. It was a cross-sectional study conducted from November 2009 to June 2011. It included all 15 and above years old PWE on AET for at least 3 months consulting at Pikine and Fann Hospital. The sample size was 763. The prevalence of non-adherence was 65.5% with 95% CI [60.8 to 70.1]. Multivariate regression model showed that patient who has either primary education or undergraduate, works in the tertiary sector, in whom the duration since the first seizure is between 1 and 3 years, presents either a memory disorder, a fatigue or subjected to light stimulation, whether engaged in stimulating drinks or if he is afraid of becoming dependent AE drug (AED), so it will not adhere to AET. On the other side, having the follow up visit every six months, find easily his AED, consider epilepsy as a cerebral disorder by relatives of PWE or to expect that seizure will stop if the treatment is well monitoring are the major asset of adherence.

Adherence to AET is multifactorial. Those factors should be taken into account whenever the diagnosis of epilepsy was made and treatment planned.

NON-COMPLIANCE TO ANTI-EPILEPTIC TREATMENT IN A SENEGALESE EPILEPTIC POPULATION: PREVALENCE AND RISK FACTORS

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Background: Non-compliance to anti-epileptic treatment is still high worldwide and risk factors have been identified. Most of the studies on compliance were done in developed world. The objective of this study was to estimate the prevalence of non-compliance to anti-epileptic treatment and identify the risk factors in a Senegalese population of epileptic patients followed at the Department of Neurology, Fann National and Teaching Hospital, Dakar-Senegal.

Methodology: 411 epileptic patients 15 years+ were interviewed during a cross-sectional study conducted from November 2009 to June 2010. Data on sociodemographic characteristics, medical history, information on the type of seizure and treatment received, were collected using a questionnaire. Uni, bi and multivariate analysis were computed and results expressed with a confidence interval of 95%.

Results: The patients were mostly male, no-married, literate, jobless, living in sub-urban areas with generalized seizure (67.6%) as the most important clinical manifestation. The family was the main financial support to pay for treatment. 83.9% of the patients were on monotherapy and 95.9% were informed on the way to take the anti-epileptic treatment. Doctor's confidence was high (92.5%). However, the prevalence of non-compliance to anti-epileptic treatment was 69.8%. In the multivariate analysis, the occurrence of memory problem during treatment (OR=1.83; 95% CI: 1.15-2.93), stress (OR=2.83; 95% IC: 1.34-5.98), light stimulation (OR=1.91; 95% CI: 1.1-3.33) and relying on treatment efficacy (OR=0.33; 95% CI: 0.19-0.57) were independently associated with non-compliance.

Conclusion: These results confirm the high frequency of non-compliance on anti-epileptic treatment and allows a better understanding of the predictive factors.

RATIONALE FOR POLYTHERAPY IN THE TREATMENT OF STATUS EPILEPTICUS

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Introduction: Monotherapy is widely accepted for epilepsy, but there is scant evidence supporting its superiority in the treatment of status epilepticus (SE), an acute, life-threatening situation where the complications of life-long polypharmacy do not apply. Recent studies suggested that SE causes both a reduction of GABAergic inhibition and an increase in glutamatergic excitation, and that combination therapy is needed to correct both changes.

Methods: We used a model of severe, pharmacoresistant SE induced by high-dose lithium/pilocarpine, Outcome measures were termination of SE, severity of hippocampal neuronal injury 24 hours after SE and frequency of spontaneous recurrent seizures 6 weeks after SE. Treatment combined a GABA agonist, an NMDA antagonist, and a drug which enhanced inhibition at a non-GABA site, since GABA agonists can only partially restore GABA inhibition in this model.

Results: Benzodiazepine monotherapy reduced mortality but did not stop seizures even at a coma-inducing dose (diazepam 20 mg/kg). The number of post-treatment seizures was 76 ±12 in controls, 100±8 after 20 mg/kg DZ (N.S.). High-dose monotherapy with ketamine (K), brivaracetam (BRV) and other antiepileptic drugs also failed to stop SE. Combinations of low-dose DZ + K + BRV stopped SE in over 80% of animals without abolishing the righting reflex. The number of post-treatment seizures was 8±4 after DZ 1 mg/kg + K 10 mg/kg + BRV 10 mg/kg. Synergism between drugs was strongly suggested by isobolograms.

Conclusion: These results suggest that polytherapy can be more effective and less toxic than monotherapy in the treatment of SE.

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USE OF INTRAVENOUS LACOSAMIDE IN STATUS EPILEPTICUS AND CLUSTER SEIZURES

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Introduction: Some antiepileptic drugs (AEDs) used in status epilepticus (SE) are associated with potential respiratory and cardiovascular complications. Lacosamide (LCM), a new AED, has an intravenous formulation with a potential role in the treatment of SE.

Objective: To test the efficacy and safety of the intravenous drug formulation in SE and cluster seizures.

Patients and methods: 11 patients with symptomatic epilepsy (6 female and 5 male; mean age 66 (23-90); 8 with SE and 3 with cluster seizures), was treated, after failure of other AEDs, with simultaneous administration of intravenous and oral LCM for two days (200 mg intravenous + 50 mg oral LCM twice daily), then switched to oral LCM (400 mg daily).

Results: EEG improvement occured in the first 24 hours after the beginning of LCM therapy. All patients were responsive with no serious adverse event, except two old patients who died for severe comorbidities.

Conclusions: LCM could be efficacious and safe in the treatment of SE.

EPILEPSY TREATMENT IN RURAL TANZANIA: A LOW TREATMENT GAP DOES NOT CORRESPOND TO HIGH LEVELS OF SEIZURE CONTROL

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Introduction: Over 70% of people with epilepsy (PWE) who are treated witth anti-epileptic drugs (AEDs) achieve seizure-freedom, usually within 5 years of diagnosis. The epilepsy treatment gap (TG), defined as the proportion of PWE requiring treatment but not receiving it, is consistently estimated to be over 80% in sub-Saharan African (SSA) countries, including Tanzania.

Background: A large community-based study of epilepsy in adults in a rural northern Tanzanian population identified 291 PWE. Data were collected on access to medical services, prior diagnosis, prior or current AED use and seizure frequency.

Results: 86.6% of cases had previously sought medical help, with 69.0% of these remaining under follow-up. 48.4% had presented more than two years after seizure onset (median time to presentation 7 years). 40.1% of cases under follow-up recalled receiving a diagnosis of epilepsy, compared to 20.5% of cases no longer under follow-up (p=0.002). 173/174 cases under follow-up said they were receiving AEDs (59.5% of all cases). Seizure freedom was reported by 11.6% of cases using AEDs (7.2% of cases overall). 57.8% of cases using AEDs reported seizures on at least a monthly basis (63.9% of cases overall).

Conclusion: A TG of 40.5% based on current AED use is low compared to other estimates from SSA. This did not correspond to high levels of seizure control, suggesting inadequate treatment. A meaningful assessment of TG in any population should include detailed assessment of diagnostic and management practice locally. Such an approach can inform targetted educaton of healthcare workers, patients and families.

HOMOCYSTEINE EFFECT ON COGNITIVE FUNCTION AND DEPRESSION IN PATIENTS WITH EPILEPSY TREATED WITH CARBAMIZEPINE OR VALPROIC ACID

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Objectives: Epilepsy and its treatment can have deleterious cognitive and depressive consequences. Antiepileptic drugs (AEDs) may cause vitamin B6, B12 or folate deficiency and therefore influence on homocysteine (p-tHcy) levels . Hiperhomocysteinemia has been identified as a risk factor for cognitive deterioration and depression.

The aim of the study was to investigate the influence of vitamin B supplementation on p-tHcy, s-FA, s-B12 status and clinical state of patients with epilepsy treated with carbamizepine (CBZ) or valproic acid (VPA) regarding occurrence of depressive mood and cognitive decline.

Methods: 50 patients with chronic epilepsy (G1) were compared to 31 patients with newly diagnosed epilepsy (G2). In both groups levels of p-tHcy, vitamin B12 and folate, Beck Depression Inventory (BDI) score were tested and the battery of neuropsychological tests was performed at baseline (G1, G2) and after 1 year supplementation (G1). In G2 measurements were carried before and after 1 year of VPA or CBZ therapy.

Results: There was a significant decrease in BDI score in G1 after 1 year supplementation and a significant increase in VPA group of G2 patients after 1 year AED therapy. We also found a significant decrease in cognitive functions in G1 patients compared with G2 group, especially in patients treated with CBZ.

Conclusions: Vitamin supplementation reduces p-tHcy level, improves BDI scores and cognitive functions in patients with chronic epilepsy. Adding folate and vitamin B12 to AED therapy could be a way of reducing the risk of hyperhomocysteinemia and may prevent depressive symptoms and decrease cognitive deterioration.

EPO PREVENTS APOPTOSIS VIA JAK2/STAT5 IN EXPERIMENTAL EPILEPSY

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Objective: To investigate the protective effects of recombinant human erythropoietin (rhEPO) and carbamylated EPO (CEPO) against myocardial cell apoptosis in epilepsy and to explore potential mechanisms involved.

Methods: Rats were given an KA to induce epilepsy. Groups of rats were treated with rhEPO or CEPO before induction of epilepsy, while additional rats were given a caudal vein injection of AG490 ,a selective inhibitor of Janus kinase 2 (JAK2). At 0, 2, 6, 12 and 24 hours after onset of seizures, epileptic rats were killed for detection of myocardial cell apoptosis by TUNEL assay, the expression of JAK2 and STAT5 mRNAs by in situ hybridization, and the expression of caspase-3, JAK2, and STAT5 proteins by immunohistochemistry and Western blot.

Results: Induction of epilepsy significantly enhanced myocardial cell apoptosis and up-regulated the expression of caspase-3 and JAK2 and STAT5a at both the mRNA and protein levels. Pretreatment with either rhEPO or CEPO reduced the number of apoptotic cells, down-regulated caspase-3 expression in the myocardium of epileptic rats. The expression of JAK2 and STAT5a mRNAs and proteins in the myocardium of epileptic rats was up-regulated in response to rhEPO, but not to CEPO pretreatment. Moreover, AG490 treatment increased apoptotic rate, up-regulated caspase-3 protein expression in the myocardium of epileptic rats.

Conclusion: Myocardial cell apoptosis may contribute to myocardial injury in epilepsy. EPO protects myocardial cells from apoptosis via the JAK2/STAT5 pathway in rats with experimentally induced epilepsy, whereas CEPO exerts an anti-apoptotic action perhaps via a pathway independent of JAK2/STAT5 signaling.

QUALITY OF ANTIEPILEPTIC DRUGS IN PHARMACIES OF HIGH MATSIATRA, MADAGASCAR

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Objective: To determine the quality of antiepileptic drugs (AEDs) found in the pharmacies of the district of Fianarantsoa I.

Methods: A sample of 10 units of each available AED was collected. The active molecule was then quantified by reversed-phase high-performance liquid chromatography with photodiode-array UV detection. The quality of the AED was considered good if the quantity of active molecule was found in the range ± 10% of the theoretical content.

Results and discussion: In the district where 194,542 people live in an area of 138.69km², 8 pharmacies were identified. The 3 main AEDs found were: diazepam, 35%; carbamazepin, 26%, and phenobarbital, 23%. 81% of these AEDs were generic drugs. Their origin was China, 50.0%; India, 19.2%; France, 15.5%; Madagascar, 7.7%; Italy, 3.8%, and unknown 3.8%. The other 2 drugs found were valproate, 10%, and phenytoin, 6%. Only the first 3 AEDs were analyzed. For diazepam, 12 tablets over 110 (10.9%) were not satisfactory; for carbamazepin, the proportion was 11/80 (13.8%) and for phenobarbital, 8/70 (11.4%). So 11.9% of the whole AEDs were judged not to be of good quality. The percentage of unsatisfactory tablets from China was 7.7%; from India, 16.0%; from France, 10.0%; from Madagascar, 30.0%; from Italy, 10.0% and, for the unknown origin, 20.0%.

Conclusion: Our study confirmed what was known about the low quality of drugs in developing countries. However compared with our prior study conducted in Asia, the AEDs collected in Madagascar seemed to be better quality: 88% versus 65% in Vietnam.

ACCESSIBILITY OF ANTIEPILEPTIC TREATMENTS IN THE DISTRICT OF FIANARANTSOA I, HIGH MATSIATRA, MADAGASCAR

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Objective: The epilepsy treatment gap in Madagascar was estimated at 92% so our objective was to determine within a district the elements limiting accessibility to Antiepileptic drugs (AEDs).

Methods: Cross-sectional descriptive study and interviews.

Results and discussion: There were: 1 University Hospital, 10 primary and secondary level health care centers, 1 preventive medicine center, 16 private centers, 2 traditional healers associations, 3 religious camps, 10 AEDs stores. All were geographically accessible, and AEDs (73% generics) were available. According to the interviews of 34 doctors, 3 traditional healers, 6 workers of the camps, 66 people with epilepsy (PWE) or family members (44), 9 drug delivering people: the PWE (mean age: 29 years) first consult traditional healers, paid between 1000 to 3000Ar and used mostly plants. In the camps, the treatment (prayers and exorcisms) was free. The PWE did not feel they are sick but believed they are “possessed” (as said by healers), or even possessed by the devil (interpretation in religious camps). They consulted doctors (fees: 5000Ar) only immediately after seizures, following traditional healer recommendations. The most prescribed AED was phenobarbital, costing between 100 to 365Ar the unit of 100mg. The purchase of a full treatment was difficult for 77% of PWE and as a result, 39% had no treatment.

Conclusion: The main limiting elements were the lack of knowledge of PWE that epilepsy is a disease and the low affordability of traditional treatments. One solution could be the installation of a center more specialized in neurology, delivering low cost-AEDs.

MIDDLE SHORT GYRUS OF THE INSULA IMPLICATED IN SPEECH PRODUCTION: INTRACEREBRAL STIMULATION OF PATIENTS WITH EPILEPSY (AN OBLIQUE APPROACH)

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Objectives: The data of this study suggests the involvement of the upper middle short gyrus in speech production.

Materials and methods: 25 patients suffering from severe drug refractory partial epilepsy were investigated by stereo-electroencephalography. At least one electrode was used to explore the insular cortex by an oblique approach using a robotized arm. 313 stimulations were performed in 27 insula. 83 responses induced by insular electrical stimulation, eight (9.6%) were reported by five patients as speech arrest and a lowering of voice intensity. The stereotactic approach allows us to identify the stimulation sites within the insular cortex in terms of its gyri and sulci. Also, the stimulation sites were anatomically localized via image fusion between pre-implantation 3D MRI and post-implantation 3D CT scans.

Results: 8 responses were reported as speech disturbances. 7 among them were evoked by stimulation in the middle short gyrus. The site of the 8th response was in the post-central insular gyrus in the same insular region where the oropharyngeal responses induced by other ES (pharyngeal construction) in this study.

The data suggest the involvement of the middle short gyrus of the insula in the procedures of language. These responses were evoked in the non-dominant side four times out of five.

Conclusion: The results of this study are the first to report language disorders in humans evoked by electrical stimulation of the insular cortex during SEEG explorations by electrodes implanted by oblique approach in terms of gyral and sulcal anatomy.

SURGERY OF TEMPORAL EPILEPSY (302 CASES) CORRELATION BETWEEN INTERICTAL EEG DATA BEFORE AND AFTER ANTIEPILEPTIC DRUG DECREASE AND SURGERY OUTCOME

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Purpose: Successful surgical outcome in patients with temporal lobe epilepsy has been correlated with lateralized MRI, interictal and ictal EEG findings. Here we compare the post-operative value of prolonged interictal EEG data (IED) before and after decreasing antiepileptic drugs (AEDs).

Methods: Since 2005, prolonged (1-3 weeks) Video-EEG monitoring has been performed in 302 patients. On the basis of lateralized anatomical and electro-clinical data, 51 of them underwent temporal lobectomy (follow-up 1-5 years). For each patient, we analyzed the IED (no, regionalized, lateralized or bilateral abnormalities) within 2 phases, before and after AEDs decrease. Data were then correlated to the surgery outcome.

Results: 42 patients were seizures free (82%, Engel's class I), 4 patients still experience the aura, 5 were classified in class II (3 cases) and III (2 cases). Our IED analysis showed that the worse outcome was noticed in 50% of patients who had bilateral abnormalities (5 out of 10 patients) before decreasing AEDs, especially when it was associated with secondary generalized seizures (4 patients). However, good outcome was obtained in all 16 patients (63%) who had bitemporal abnormalities only after reducing AEDs, either with or without secondary generalized seizures.

Conclusion: Our results show that prolonged intecictal EEG, collected before reducing AEDs keep a high value in predicting the outcome. Bilateralized abnormalities associated with secondary generalized seizures were, in our series, related to the long duration of epilepsy and/or delayed treatment. The related poor outcome in these cases may indicate a creation of secondary epileptogenesis focus.

PRE-SURGICAL EVALUATION: IS COUNTING THE NUMBER OF SEIZURES LEADING UP TO THE ICTAL SPECT RELEVANT?

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Objective: To study the influence of number of pre-Ictal SPECT seizures on results of Ictal SPECT.

Methods: Patients with intractable epilepsy (IE) undergoing ictal SPECT for pre-surgical evaluation were prospectively recruited. IE was defined as ≥1 seizure per month during a follow up of ≥1 year with an adequate trial of ≥2 AEDs. Patients with seizures that were difficult to count: subtle, brief or poorly characterized; were excluded. Patients with no localization on either MRI or VEEG and in whom ictal SPECT injection time exceeded 1 minute (TLE) or 30 seconds (extra-temporal epilepsy) were also excluded.

Results: 40 patients with median epilepsy duration of 8 (2-40) years were enrolled during the 1.5 year study period. Median age was 16.5 (5-52) years, with 18 (49%) females. Localization of seizure focus was temporal in 13 , extra-temporal in 27 and it was based on both MRI and VEEG data in 29 and on either of the two in 11. Ictal SPECT was concordant with MRI and/or VEEG localization in 32 (80%) and discordant in 8(20%). There was a significant correlation between ictal SPECT-MRI and/or VEEG concordance and number of seizures occurring in the 48 hours preceding ictal SPECT (p 0.023); with increasing number of seizures reducing the ictal SPECT concordance. A similar but statistically insignificant trend was also seen for number of seizures in the preceding 12 and 24 hours.

Conclusion: Ictal SPECT is likely to be more reliable in patients who have fewer seizures in the 48 hours preceding ictal SPECT.

LATENCY OF TREATMENT PREDICTS CLINICAL AND PSYCHOSOCIAL OUTCOME IN EPILEPSY

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Objectives: To determine the effect of treatment delay on the clinical and psychosocial outcome of epilepsy.

Methods: Sociodemographic and clinical data were obtained from 72 adults with confirmed diagnosis of epilepsy. The interval between the disease onset and commencement of treatment (Treatment Latency) was calculated and they were categorized into Treatment Latency (TL) groups of ≤ 1year, >1- ≤ 5years and ≥ 5years. They were stratified into four seizure-specific frequency groups (seizure-free, low, moderate and high). A 3-item epilepsy stigma scale and 31-item quality of life in epilepsy (QOLIE-31) inventory were also completed.

Results: Twenty seven (37.5%) of the subjects commenced treatment within 1 year of the onset of their seizure, 13 (18.1%) between 1 year and 5 years while 32 (44.4%) did after 5 years. The three TL groups had comparable background clinical and sociodemographic characteristics except for a lower employment rate among TL subjects of ≥ 5years (p = 0.028). Long treatment latency predicted higher seizure frequencies (p = 0.005) and higher perceived stigma score (p = 0.012). Post hoc analysis revealed a significantly higher mean seizure frequency (p = .008) and perceived stigma scores (p = .006) for subjects with TL of ≥ 5years compared with those of ≤ 1year and higher perceived stigma scores compared with those of >1- ≤ 5years (p = 0.017). There was no significant relationship between treatment latency and health-related quality of life (p = .495).

Conclusions: Treatment delay is predictive of both poor clinical and psychosocial outcomes in epilepsy.

CIRCADIAN RHYTHM OF EPILEPTIC SEIZURES RELATES WITH STIGMA PERCEPTION

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Objective: To study the relationship between seizure circadian rhythm and perceived stigma among Nigerian-Africans living with epilepsy.

Method: Ninety-nine adults (58 males, 41 females) with confirmed diagnosis of epilepsy filled out a 3-item stigma scale while 93 indicated the circadian pattern of their seizures. Sociodemographic and illness data were also obtained.

Results: Thirteen (13.1%) of the subjects reported a low level of perceived stigma while 10 (10.1%) and 28 (28.3%) reported moderate and high levels respectively. Twenty-one (22.6%) and 24 (25.8%) of the subjects had exclusively night time and day time seizures respectively while 48 (51.6%) had no diurnal seizure rhythm. The three seizure rhythm groups had no significant clinical or sociodemographic differences. There was significant difference in mean stigma score between the 3 groups ($F = 9.214$, $p = 0.001$). Post hoc analysis revealed that subjects with no circadian seizure rhythm had a higher mean stigma score than the daytime group ($p < 0.001$) and the nocturnal seizures ($p = 0.010$). There was no significant difference between the daytime and nocturnal seizure groups ($p = .486$).

Conclusion: Unpredictability of seizure timing predicts perception of stigma among Nigerian epilepsy patients. Patients with defined seizure circadian pattern are less likely to report perception of stigma.

ANXIETY, DEPRESSION AND PERSONALITY IN TEMPORAL LOBE EPILEPSY PATIENTS BEFORE AND AFTER SURGICAL TREATMENT

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Purpose: We investigated anxiety, depression and personality in temporal lobe epilepsy (TLE) patients before and after surgery

Methods: Pre- and postoperative examination of N=120 TLE-Patients (focus: speech-dominant (domTLE) N=52, non-speech-dominant N=68) using standardised psychometric inventories (BDI, STAI, FPI, EPI).

Results: TLE patients showed significantly higher depression (p=.01) and anxiety rates (p=.00) than the general population, satisfaction with life, effort orientation and extraversion was lower (p< .01) and inhibition, physical discomfort and emotional lability were elevated (p< .05).

Patients improved after surgery, depression and anxiety rates were significantly lowered and a change for the better was seen in neurotizism, emotional lability (each p< .01), satisfaction with life and level of stress perception (each p< .05).

Seizure outcome, focus laterality and sex proofed to be significant interacting factors. In seizure free patients only, anxiety and emotional lability was significantly lowered, whereat domTLE patients gained more than non-domTLE. Contrary, non seizure free domTLE patients changed for the worse (significant threefold interaction pre-post x seizure outcome x focus side: p < =0.006). Depression was postoperative significantly lowered, independent of seizure outcome or focus lateralisation (p = 0.007). On distinct personality dimensions (inhibition, extraversion, emotional lability and neuroticism men scored significantly worse than women (p< =.05)). After surgery womens anxiety levels were significantly lower: 10% of women but 39% of men showed postsurgical clinical relevant anxiety scores.

Conclusion: TLE patients benefit from epilepsy surgery in mental health. Seizure outcome is the important factor; the second is hemispheric lateralization, indicating the validity of the valence hypothesis.

PARKINSON'S DISEASE IN GHANA: OBJECTIVES, CLINICAL AND GENETICS FINDINGS FROM A 2-YEAR EXPERIENCE

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Background: Parkinson's disease (PD) may be underrecognized and undertreated in sub-Saharan Africa (SSA).

Objectives:

(1) to provide free and long-term levodopa treatment to all PD cases identified;

(2) *direct* (every 4-6 months) and *indirect* (e-mailing) clinical follow up in collaboration with local physicians;

(3) to improve the skills of local physicians/nurses/health officers in managing PD by means of educational courses held throughout the country;

(4) to get insights into PD features and pathophysiology.

Methods: Clinical work-up included complete UPDRS assessment and acute levodopa challenge with videos; chronic levodopa treatment was started and follow-up visits were regularly performed. DNA analysis was performed from saliva sampling.

Results: Fifty-four subjects with probable PD (33M/21F; age at onset =59.5±12ys) have been identified from December2008 to March2011 from three major hospitals throughout Ghana. Several cases have never been treated before. Mean disease duration was 6.1±3.6ys; baseline UPDRS III=36±15; H&Y stage=2.4±0.7; mean improvement after acute levodopa challenge was 35.2±16.5% of baseline UPDRS III score. Six cases had additional dementia, one had PSP, six had secondary parkinsonism. Very early motor fluctuations and dyskinesias have been recorded in some PD cases never treated before. Screening of LRRK2 gene mutations was negative in all probands.

Conclusions and future perspectives: Diagnosis and treatment of PD may be improved in SSA. The recently developed 'sub-Saharan African Interest group' within the Movement Disorders Society is a large international Task Force that aims to increase diagnostic skills along with sustained treatment of PD individuals, especially in rural and more indigent SSA regions.

PREVALENCE AND ITS IMPLICATION OF RAPID EYE MOVEMENT SLEEP DISORDER IN PARKINSON´S DISEASE

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Background: Prevalence and its implication of REM sleep behavior disorder (RBD) is not fully elucidated in Parkinson's disease (PD).

Methods: PD patients were screened for presence or absence of RBD based on ICSD revised criteria. Timing of onset of RBD relative to that of motor symptoms of PD (TRPD) was inquired and several clinical features of PD were compared between positive RBD (RBD+) and negative RBD (RBD-) patients.

Results: RBD was present in 75 of 170 (44%, male 31/64, female 44/106) PD patients (age at onset (AO) 64.1±9.5 years old, disease duration (DD) 6.8±5.1 years, treatment duration (TD) 5.3±4.8 years, modified Hoehn & Yahr stage (mHY) 2.8±0.9), which was overwhelmingly prevalent than in Alzheimer disese patients (8/120=6.7%, male 5/42, female 3/78, *p=0.001*). TRPD was years before in 27, around in 21, and after treatment initiation in 27 patients. RBD+ group had longer DD (*p=0.020*), longer TD (*p=0.026*) and advanced mHY (*p=.0019*). In comparison per sex, only mHY in female reached statistical significance (more advanced in RBD+, *p=0.0012*). In female, blindly taken ^{123}I-MIBG cardiac scintigraphy showed lower heart/mediastinum ratio in RBD+ group (n=13) than RBD- group (n=20) in both early (*p=0.020*) and delayed (*p=0.013*) images. No statistical difference was obtained between RBD+ and RBD- group about initial motor manifestation of PD (tremor vs. tremor plus or nontremor).

Conclusions: More than a quarter (48/170=28%) of PD patients revealed RBD until apperance of its motor symptoms. Advanced mHY stage in female RBD+ patients suggests RBD´s sexually differentiated effects on evoution of PD pathology.

THE ROLE OF MITOCHONDRIAL DYSFUNCTION IN THE PATHOGENESIS OF FRIEDREICH´S ATAXIA

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Background: Friedreich´s ataxia is a neurodegenerative disease caused by GAA expansion in a gene coding for a mitochondrial protein; frataxin.

Objectives: To study the role of mitochondrial complexes dysfunctions and increased oxidative stress in the pathogenesis of FRDA and their relation to disease severity.

Methods: Blood samples were obtained from 20 Friedreich´s ataxia patients and 10 ages matched healthy control subjects. Mitochondrial complexes activities were calibrated spectrophotometrically and the levels of each of serum and lymphocyte glutathione were examined by reverse phase liquid chromatography.

Results: There are decreased activities of all mitochondrial complexes (I, II, III & IV) in FRDA patients if compared with normal control. Also, there are decreased level of each of serum and lymphocyte glutathione in FRDA patients.

Conclusions: FRDA is a mitochondrial disorder as evidenced by the decrease in activities of mitochondrial complexes in FRDA patients. There is increased oxidative stress in FRDA patients both intra- and extra cellular.

TRANSCRANIAL BRAIN PARENCHYMA SONOGRAPHY IS USEFUL IN DIFFERENTIATION BETWEEN HEPATIC AND NEUROLOGIC FORMS OF WILSON'S DISEASE

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Objective: To determine usefulness of the transcranial sonography (TCS) in detection of potentially patterned finding in Wilson disease (WD) with and without neurological involvement and its correlation with disease duration and severity.

Methods: 54 patients with WD (33 with neurologic, 16 with hepatic, 5 with mixed form) and 60 age-and sex matched subjects without any psychiatric or neurodegenerative disease were investigated. TCS was carried out with 2.5-MHz transducer (Aloka, Alpha 10, Japan) by one investigator who was not aware of the group of the subject. Echogenicity of substantia nigra (SN), thalami, the lenticular nuclei (LN), and the heads of the caudate nuclei was investigated and classified as hyperechogenic when it was more intense than the surrounding white matter. The hyperechogenic areas were calculated planimetrically and given in cm^2.

The diameter of the ventricular system was measured on diencephalic plane.

Results: Compared with controls, WD patients had significantly increased SN- ($p = 0.007$) and LN-echogenicity ($p = 0.001$). Patients with neurologic form had significantly increased SN echogenicity ($p = 0.025$) and the third ventricle diameter ($p = 0.002$) compared with hepatic form. Disease severity correlated with SN and LN

echogenicity ($r = 0.303$; $p = 0.029$, respectively) and with the third ventricle diameter ($r = 0.351$; $p = 0.011$), while there were no correlation between disease duration and any of the brain structures studied.

Conclusion: TCS differentiate WD from healthy individuals, but also neurologic- from hepatic-form of WD. It allows correlation between disease severity and hiperechogenicity of certain basal ganglia structures.

OPSOCLONUS- MYOCLONUS SYNDROME AS THE INITIAL CLINICAL MANIFESTATION OF HIV INFECTION

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Introduction: Opsoclonus- myoclonus syndrome (OMS) is a rare neurological disorder which presents with abnomal chaotic eye movements and myoclonus. Some patients present ataxia and behavioural disturbances. The etiology of OMS is varied, and includes paraneoplastic, parainfectious, toxic- metabolic, and idiopathic causes. In this report we describe one HIV- infected patient with OMS as the initial clinical manifestation.

Case report: A 46 year- old female presented with 2 days history of behavioural disturbances, visual and auditory hallucinations which need psychiatric evaluation.

Neurological examination showed opsoclonus, myoclonus of the face, trunk and limbs and cerebellar syndrome including gait ataxia, tremor and dysdiadochokinesia. We will show a patient´s video. General examination was unremarkable. She tested positive for HIV-infection (HIV ELISA and Western blot), with a CD4 count of 151 cell/ml (11.4%), CD8 1003 cell/ml (75.7%) and a viral load of 118.312 (5.07 log). Cerebrospinal fluid was normal. TB, syphilis, fungal, CMV, EBV and HS infections were excluded. Chemistry, thyroid function, blood count, vitamin B12 and folato levels were normal. Screens for malignancy and immune diseases were negative. Brain MRI was normal.

Conclusion: HIV infection can be associated with both inflammatory and autoimmune conditions. Seven previous cases of OMS associated with HIV- infection have been reported, some of them related with seroconversion and immune reconstitution syndrome. Although the exact pathophysiology of the OMS is uncertain, a dysfunction at the pontine paramedian reticular formation and the cerebellum secondary to a dysregulation of the humoral and cell mediated immune mechanisms is postulated.

HEMIFACIAL SPASM: CLINICAL CHARACTERISTICS OF 321 INDIAN PATIENTS

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Introduction: Hemifacial spasm (HFS) is a common condition characterized by involuntary tonic and clonic contractions of the muscles innervated by the facial nerve.

Study objectives: To elucidate demographic features, common antecedents, association with hypertension, triggers and relieving factors in Indian HFS patients and to compare clinical features of primary and secondary cases of HFS.

Methods: This was a retrospective study, data regarding demographic profile, and details of HFS symptoms from consecutive HFS patients attending movement disorders clinic of a tertiary teaching hospital in India were recorded on a predesigned and pre-tested format at the first attendance and analysed.

Results: Of a total of 8151 patients registered at the movement disorders clinic HFS constituted (n=582)7.14% of all cases. Complete data was available for 321 patients. Females constituted 49.22% (n=158). The mean ±SD age the patients was 46.02 ±11.82 years, Clicking in the ipsilateral ear was observed in 22.74% cases. The most common trigger was stress (44.86%) while the most common relieving factor was sleep (44.24%). 252 patients (78.5%) had primary HFS and 69 (21.5%) had secondary. The severityof spasm correlated significantly with disease duration in months ($p< 0.001$) and weakness of facial muscles ($p< 0.001$). We found no correlation between side affected with hypertension. MRI brain, showed an abnormal vascular loop in 13 primary (15.85%) and 3 secondary HFS cases (23.7%).

Conclusion: This is the first and largest study on HFS in Asia. Interesting observations of this study are absence of female preponderance, presence of clicking in ipsilateral ear and facial weakness.

RECENT ADVANCES IN THE NEUROCHEMISTRY OF DOPA-RESPONSIVE DYSTONIA

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Dopa-responsive dystonia (DRD) is a clinical syndrome characterized by childhood-onset dystonia and a dramatic and sustained response to low doses of levodopa. There are two known types of DRD: autosomal dominant DRD (GTP cyclohydrolase I [GTPCH]-deficient DRD) and autosomal recessive DRD (tyrosine hydroxylase [TH]-deficient DRD) [Furukawa, Adv Neurol 2004]. The enzyme GTPCH catalyzes the rate-limiting step in the biosynthesis of tetrahydrobiopterin (the essential cofactor for TH). Many patients with DRD have shown dominantly inherited mutations in the *GCH1* gene coding for GTPCH. However, there have been no reports of GTPCH protein levels in the brain of human subjects, including patients with DRD, and the actual status of striatal GTPCH in DRD is unknown. We measured GTPCH protein levels by quantitative Western blot analysis in the autopsied striatum of two patients with autosomal dominant DRD (19 and 68 years old) and of seven young and six elderly normal control subjects, whose age and postmortem time were matched to the two patients. In the putamen, concentrations of GTPCH protein were substantially decreased in the DRD patients (mean: -76%) compared with those in the young and elderly control subjects, respectively. These neurochemical data are compatible with biopterin loss in the putamen of the DRD patients (-84%) reported previously [Furukawa et al., Neurology 1999, Ann Neurol 2002]. More than 50% reduction in striatal GTPCH protein content observed in GTPCH-deficient DRD suggests a dominant-negative mechanism at the transcriptional or translational level in this autosomal dominant metabolic disorder.

TREATMENT OF FOCAL DYSTONIA WITH BOTULINUM TOXIN, EXPERIENCE OF THE NEUROLOGY DEPARTMENT, SIDI BELABBES HOSPITAL, ALGERIA

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Neurology, Djilali El Yabes, Sidi Bel Abbes, Algeria

Botulinum toxin was introduced in Sidi Belabbes hospital early 2009 ,since, 57 patients were injected.

Diseases were injected are: cervical dystonia, hemifacial spasm, blepharospasm, Meige syndrome, writer´s cramp, upper limbdystonia, oromandibular dystonia.

The evaluation of patients was 1 month and 3 months after injection.

The results were very satisfactory for cervical dystonia. satisfactory for hemifacial spasm, blepharospasm, Meige syndrome. Medium or no result for the others.

We expose our experience in this presentation and some videos of the main dystonias before and after treatment.

LTD-LIKE PLASTICITY OF THE TRIGEMINAL BLINK REFLEX FOR THE TREATMENT OF BLEPHAROSPASM

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Background: Our prior work has shown a beneficial therapeutic effect on benign essential blepharospasm (BEB) with long term depression-like (LTD) - rTMS. High frequency supraorbital electrical stimulation (HFS) asynchronous with the R2 of the blink reflex was seen to induce LTD-like effects on the blink reflex circuit in healthy subjects.

Methods: This is a randomized, sham-controlled, observer-blinded prospective study. In 14 patients with BEB, we evaluated the effects of high frequency supraorbital electrical stimulation (HFS) on three separated treatment days: we applied 28 trains of 9 stimuli, 400Hz, either BEFORE or AFTER the R2 component of the blink reflex or used SHAM stimulation. Primary outcome was the clinical effects on BEB (blink rate, number of spasms rated by a blinded physician and patient rating before, immediately after and one hour after stimulation during rest, reading and talking); secondary outcome was the blink reflex recovery curve (BRR).

Results: HFS-BEFORE and HFS-AFTER showed the same improvement on BEB as HFS-SHAM in physician rating but patients found a significant improvement in the BEFORE condition immediately after stimulation. Similarly, improved recovery of the BRR was seen only in the BEFORE condition immediately after stimulation. Clinical symptoms differed in the three baseline conditions (rest, reading, talking).

Conclusions: HFS in the BEFORE condition reduces enhanced LTP-like plasticity of trigeminal blink reflex circuits in BEB toward normal values but does not show a clear improvement on clinical symptoms. Modulation of other brain regions like cortical areas seems to be essential to normalize blink patterns in BEB.

STRUCTURAL FRONTAL ABNORMALITIES IN IDIOPATHIC DYSTONIA USING DIFFUSION TENSOR IMAGING

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Background: Pure functional concept of idiopathic dystonia has been challenged by different recent diffusion tensor imaging and voxel-based morphometry studies, with variable detected anatomical structural abnormalities. The aim of this study is to explore several anatomical regions especially frontal regions and connections.

Method: Using fraction anisotropy and apparent diffusion coefficient, nine Egyptian patients with idiopathic dystonia were compared with nine age-sex matched healthy controls.

Results: Patients with idiopathic dystonia were associated with significant increase of apparent diffusion coefficient values in right and left sensorimotor cortex, and right and left pre-supplementary motor cortex and significant increase of fraction anisotropy value of left prefrontal region in patients with idiopathic dystonia compared with healthy controls.

Conclusion: These findings confirm structural disruption of frontal lobe networks in patients with idiopathic dystonia and highlight the frontal contribution to the pathophysiology of idiopathic dystonia.

THE PREVALENCE OF DEMENTIA IN RURAL TANZANIA - A CROSS SECTIONAL POPULATION BASED STUDY

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Background: Few prevalence studies of dementia have been conducted in sub-Saharan Africa. We investigated the prevalence of dementia in rural Tanzania using the 10/66 research group protocol, designed and validated for use in developing country settings, alongside clinical diagnostic criteria for dementia.

Methods: This was a two phase cross-sectional survey. Using census data, 1198 individuals aged seventy and over from six rural villages were screened with the Community Screening Instrument for Dementia (CSI-D). We aimed to interview all those screened as 'probable dementia', 50% of those screened as 'possible dementia' and 5% of those with 'no dementia' using the 10/66 interview protocol.This protocol included the Geriatric Mental State (GMS), neurological examination and an informant interview. Diagnosis of dementia was made using both the 10/66 dementia diagnostic algorithm and computerised Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) diagnostic criteria. Clinical DSM-IV based diagnoses were also made by a research doctor and externally validated.

Results: For all cases, age standardised prevalence of DSM-IV dementia was 7.9% (95% CI 6.4-9.4) and prevalence of 10/66 dementia was 23% (95% CI 20.7-25.5). Prevalence was over three times higher in females (12.4% female versus 3.9% male) using the DSM-IV computerised criteria.

Conclusions: The prevalence of dementia in this study was higher than reported in other developing country settings, and strikingly higher in females. The broader 10/66 dementia criteria included many false positives on clinical examination in this setting, and reasons for this should be explored further.

A STUDY ON SEASONAL PATTERNS OF GUILLAIN-BARRE SYNDROME AMONG CHILDREN IN SRI LANKA

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Objectives: A seasonal variation of incidence of Guillain-Barre Syndrome(GBS) had been reported in many studies. We have observed clustering of GBS cases following high rainfall in Sri Lanka. The study aimed at finding out possible association between GBS in children in Sri Lanka and rainfall in the country.

Methodology: A retrospective study was performed. Incidence of GBS in patients below 15 years of age for each month and the average monthly and annual rain fall data were collected from the records available in the Epidemiology Unit, Ministry of Health and the Meteorological Department in Sri Lanka from year 2005 to 2010 .

Results: In general, we observed two peaks of clustering of GBS cases in each year occurring from January to February and May to June showing a bimodal distribution of the incidence. We also observed two peaks of high rain fall one from March to May and the other one from October to January. Thus, it seems that the incidence of GBS has some relationship with rainfall data that high incidence of GBS seems to occur after one to three months of high rainfall.

Conclusion: Our data indicate that there is a bimodal distribution of cases of GBS in each year. High incidence of GBS seems to be preceded by high rain fall. This phenomenon may be related to the higher incidence of respiratory tract and gastro intestinal infections which are known associations of GBS.

A PARADIGM SHIFT IN STROKE IMAGING INVESTIGATION UPON EMERGENCE OF NEURO-INTERVENTIONAL THERAPY

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Background: Intra-arterial thrombolysis and angioplasty for high-grade cranio-cervical stenosis emerge as promising treatment options for acute stroke patients. The emergence of endovascular therapy may increase the demand for peri-operative imaging investigations and thus impact on resource allocation.

Methods: In a university teaching hospital in Asia, neuro-interventional service (i.e. angioplasty for symptomatic extra- and intracranial stenosis and intra-arterial thrombolysis for acute ischemic stroke) was implemented in February 2006. The frequency of imaging tests (transcranial Doppler ultrasound, carotid duplex scanning, cranial CT scan, cranial MRI scan, cerebral CT/ MR angiography) and subsequent endovascular procedures for patients admitted to acute stroke unit between February 2006 and January 2010 was compared to a retrospective cohort of stroke patients admitted between February 2004 and January 2006. We analyzed the requests of peri-operative imaging investigations before and after the availability of endovascular treatment.

Results: The number of stroke patients admitted annually and their baseline characteristics including stroke mechanism were comparable in both groups. In parallel with a significant increase in endovascular procedures, the demand for screening transcranial Doppler ultrasound, carotid duplex scanning and CT angiography had significantly increased when endovascular service became available ($p< 0.005$). However, the demand for cranial MR and MR angiography did not significantly increase.

Conclusions: The emergence of neuro-intervention for stroke significantly augments the demand for screening imaging tests especially carotid duplex scanning and CT angiography. This may impact on resource allocation in terms of expertise training and radiology infrastructure planning.

THE VALIDITY OF A SCREENING TOOL FOR MEASURING THE PREVALENCE OF NEUROLOGIC MORBIDITY IN RESOURCE-POOR COMMUNITIES

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Background: There have been no recent population-based studies on all-cause adult neurological morbidity in Sub Saharan Africa. We have developed a screening survey to improve the feasibility in performing these studies. We report our results on the validity of our survey as pilot tested in two diverse sub Saharan African communities.

Methods: Our screening instrument contains both history questions and examination items. We pilot tested this instrument in the Hai District, Tanzania, and Butajira, Ethiopia using trained individuals from the local communities. To measure sensitivity, we applied the instrument blindly to 25 previously-identified subjects with Parkinson's disease, stroke or epilepsy. To measure specificity, we examined 42 randomly selected previously screened subjects. To measure negative predictive value (NPV), we examined 78 randomly selected screen-negative subjects. To measure positive predictive value (PPV), we examined 134 screen-positive subjects. We compared the validity of the entire instrument to the history-only section.

Results: 674 adult subjects were screened in both communities (150 screen-positives, and 524 screen-negatives). The sensitivity of the instrument was 100%. The NPV of the instrument was 94.9%. The specificity of the instrument was 89.5 %. The sensitivity, NPV and specificity of the history-only section remained unchanged. The PPV of the instrument was 74.7%, which improved to 78.8% if restricting the instrument to the history-only section (p=0.52).

Conclusions: We have created a valid tool to screen adults for neurologic morbidity in resource-poor communities. The history-only section of the instrument was as equally valid as the overall instrument. This should improve feasability further.

ASSOCIATION OF HLA- DRß1* WITH THE SUSCEPTIBILITY AND THE PATTERN OF PROGRESSION OF MULTIPLE SCLEROSIS IN ALGERIAN PATIENTS

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Introduction: The multiple sclerosis is chronic inflammatory demyelinating disease of the central nervous system. The genetic studies made at this day reveal that the HLA system, and more particularly the HLA II locus, is probably one of the major factor determining the susceptibility to this disease.

We report in this work, the results of the first study, made in Algeria, looking for an association between the HLA II alleles (DRß1* and DQß1*),) and the MS susceptibility in Algerian patients.

Patients and methods: The study have concerned 70 patients from the North of Algeria affected by multiple sclerosis and 110 healthy subjects making up the control group.

The generic typing of HLA Class II (DRß1* and DQß1*), as well as the allelic typing of DRß1*15 were realized, by PCR-SSP method.

Results: The comparison of the phenotype frequencies of DRß1*and DQß1* of the patients with regard to healthy subjects showed:

· A significant increase of the frequency of HLA DRß1*15 (pc = 0,0026, OR = 3,57), HLA DRß1*1501(pc = 0,00013, OR = 4,15). the patients with regard to healthy subjects, suggesting that theses alleles are markers of susceptibility to MS in the Algerian population.

· A significant increase of the frequency of the HLA DRß1*15 allele (pc = 00023, OR = 3,94) at the patients having a remittent course (RR) with regard to healthy subjects.

Conclusion: The results of this first study made in Algeria showed that the HLA DRß1*1501 allele is strongly associated with MS in North Algerian patients.

SEVERITY ASSESSMENT WITH MSSS IN MULTICENTRIC MOROCCAN COHORT OF MULTIPLE SCLEROSIS

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Knowledge concerning the severity of multiple sclerosis(MS) in Maghreb countries are conflicting, and mostly single-center study.

Objectives: Evaluate severity of Moroccan forms of MS through a Moroccan multicenter study based on Progression Index(PI) and MSSS score (Multiple Sclerosis Severity Score). MSSS has Recently Been Proposed for Comparing disease progression using single data.

A descriptive study was conducted in 3neurology departments of university hospitals of Casablanca, Fes and Marrakech between 1998and2011. MS cases were selected on the revised McDonald criteria, the data Have Been Collected in the European Database for Multiple Sclerosis(EDMUS) for Casablanca cases. For each patient were specified the EDSS free-of-relapses, MS-duration at the time of evaluation. The PI and MSSS were calculated. Patients with disease duration less than one year were excluded.

Four hundred and sixty patients were enrolled in this study. The sex ratio was2.1. The mean age of onset was 30.2 years+/-10.3 and 37.3 at the time of evaluation[10-90years]. The mean follow-up was 88 months. The mean EDSS score was 4.09+/-2.43. The median MSSS was 6.30. The mean PI was 0.97. The benign forms(PI< 0.2) accounted for 15.8% and malignant forms(PI>1.4) 19.5%. Based on MSSS, severe forms(MSSS> 7.5) accounted for 39.4% and fast progressor(MSSS>5) 62.6%. The time to reach EDSS=6 was 18 years[16.5-19.5].

The authors emphasize through this first multicenter Moroccan cohort the North African severity of MS. Various parameters of severity were represented and compared with data from different cohort. This is the first North-African cohort examining the severity of MS by the MSSS.

VENOUS OUTFLOW OF INTERNAL JUGULAR VEINS IN PATIENTS WITH RELAPSING-REMITTING MULTIPLE SCLEROSIS IS NOT INFERIOR TO THOSE OF CONTROL SUBJECTS

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Objectives: The pathogenic role of cerebral venous insufficiency in multiple sclerosis (MS) has been proposed. Our goal was to determine if venous hemodynamic parameters differ in patients and controls.

Methods: The internal jugular veins (IJV) of 122 MS patients and 56 age-matched controls were examined by duplex ultrasound.

Results: Cross-sectional areas of IJV in proximal part: 0,37 and 0,33 cm2 (right and left) in patients and 0,33 and 0,38 cm2 in controls. Distal part: 0,99 and 0,76 cm2 in patients and 0,99 and 0,85 cm2 in controls. Volume flow (VF) in proximal part: 329 and 304 ml/min in patients and 254 and 357 ml/min in controls. Distal part: 728 and 635 ml/min in patients and 450 and 383 ml/min in controls. Reflux was not observed proximally. Distally the mean reflux times (Tr) were 125 and 95 ms in patients, and 312 and 319 ms in controls.

Conclusion: Reflux appeared in the presence of normal VF; it was not observed proximally just distally, where lumen area is substantially larger and venous valves are found, suggesting that the turbulence due to lumen dilation and valve movements is the real cause of the reflux, not a venous outflow insufficiency. We have not found hemodynamically significant stenosis or any significant difference in hemodynamics that might support the idea of CCSVI in MS patients. Based on these results catheter-dilatation does not seem to be a rational and acceptable approach in the treatment of MS.

THE CONTRIBUTION OF THE SELF POLYQ LOAD IN THE CNS TO THE ONSET, DISEASE DURATION AND PROGRESSION RATE OF SCA2

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Background: SCA2 show strong relationship among CAG and the onset of ataxia. Other factors might accounts for the onset and other phenotypic features. The best modifier might be intrinsically depending/causing of the unstable nature of the CAG.

Objective:

1) To compare the somatic mosaicism of the expanded CAG of SCA2 gene in CNS.

2) To determine the influence of somatic mosaicism on SCA2 phenotype and its relationship with CAG size and architecture and haplotype.

3) To gain insights about the dynamic of the CAG expansion in CNS of SCA2.

Methods: We have analyzed CAG expansions in 12 different sites of SCA2 deceased patients with discordant phenotypes and somatic mosaicism indices, peaks number, CAG range and skewness of the CAG in each region was determined. Also, detailed clinical data using rating scales trough life with follow-up using neurophysiology biomarkers were used to generate phenotypic profiles.

Results: Regions of the brain with greatest level of somatic mosaicism were motor cortex, occipital grey matter, olive, pons, and globus pallidus. While those regions more compromised in SCA2, like cerebellar cortex showed lesser somatic mosaicism. Early onset was associated with wide ranges of CAG in the CNS (with differences up to 10-17 CAG units respecting the major CAG) in contrast to delayed onsets. Sequence and STR haplotype altogether with phenotypic data are also presented.

Conclusions: Our results bring data about the role of the somatic mosaicism as the major modifier of the SCA2 phenotype.

T-HELPER (TH)22 AND TH17 LYMPHOCYTE SUBSETS CHANGE IN THE PERIPHERAL BLOOD (PB) BEFORE AND DURING MS RELAPSES - A LONGITUDINAL STUDY

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Background: Th17 and Th1/17 cross more easily than Th1 the blood brain barrier(BBB). IL-17 and IL-22 are cytokines probably crucial to BBB crossing. Th22 is a lymphocyte subset selectively producing IL-22.

Objective: Phenotypic and functional analysis of Th17 and Th22 with antigen specificity and IFNbeta sensitivity to study the relationships between the changes in PB of these subset and clinical or MRI signs of disease activity.

Methods: Prospective longitudinal multicenter (7 centers participated) follow-up of 50 patients after the first (MRI-confirmed) demyelinating event (the so called CIS). Polyclonally-stimulated PB or CSF lymphocytes have been analyzed by four color cytofluorometry for surface receptors and for the intracellular cytokines. Antigen specificity or IFNbeta sensitivity assessed by FACS staining of the CD4+ cells producing IL-17 or IL-22 after culture with anti MBP or with or without 100 IU/ml of IFN beta.

Results: Th17 and Th22 of MS patients during disease activity mainly express CCR6, a chemokine receptor crucial for the penetration in the brain and proliferate in presence of MBP. These results are disease-specific, compared with Th from psoriatic patients. Differently from Th17, Th22 are not inhibited by IFN beta. Th17 significantly increased at the time of a relapse; Th22 increased mainly in the 3 months before. Survival analysis showed that the patients with an increased Th22/Th17 ratio have a 5-fold increased probability of relapsing.

Conclusions: The high number of Th22 before a relapse can react with CNS endothelial cells via the CCR6 receptor starting the Th17 recruitment crucial to damage the BBB.

ASSOCIATION OF FAS AND MIF WITH DISEASE PROGRESSION IN MS: PROSPECTIVE CLINICAL AND MRI FOLLOW-UP STUDY

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Objective: To identify biomarkers in multiple sclerosis (MS), we analyzed the serum profiles of cytokines, chemokines and apoptotic molecules and correlated their levels with clinical and volumetric MRI (T1, FLAIR) measurements.

Methodology: The study was a 3-year prospective follow-up study that comprised 111 patients including 24 CIS, 37 RRMS, 19 SPMS, 21 PPMS and 10 controls who underwent annual neurological and MRI examination. At the baseline, serum levels of 14 candidate inflammatory biomarkers were measured and correlated with the clinical and MRI parameters. Thereafter, the molecules that had significant association were analyzed annually for 2yrs.

Results: At baseline, PPMS patients showed increased levels of MIF and sFas in comparison to controls and RRMS group ($p < 0.01$). In patients with worsening EDSS score and an accumulation of hypointense lesions, the levels of sFas and MIF were upregulated compared to stable patients. Follow-up analyses of PPMS patients showed similar pattern of increase in the levels of sFas and MIF. Both sFas and MIF seem to correlate with clinical and MRI parameters in different subgroups of patients reflecting their association with disease worsening.

Conclusion: According to our data, sFas and MIF are associated with disease worsening and progression in MS which suggest them as candidate biomarkers of MS disease progression.

INCREASED SECRETED LEVELS OF BONE MORPHOGENIC PROTEINS 2, 4 AND 5 BY IMMUNE CELLS OF RELAPSING REMITTING MULTIPLE SCLEROSIS PATIENTS

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Background: Bone morphogenic proteins (BMPs) are involved in blocking neuronal and oligodendroglial differentiation of NSCs which are found in MS lesions . We examined the potential of immune cells to affect neurogenesis/oligodendrogenesis by studing the PBMCs expression and secretion of BMP-2,4,5,7 in RR-MS patients.

Methods: BMP-2,4,5,7 mRNA were detected in PBMCs of 19 untreated, 27 IFN-β-treated patients and 27 matched healthy controls (HC) by rt-PCR (standardized vs. GAPDH-mRNA). BMPs were detected in 24h-PBMCs supernatants by ELISA. Cellular analysis of BMPs expression was performed in purified CD3+ ,CD14+, CD3-CD14- cells using MACS. Effects of CD3/CD28-stimulation and cytokines on BMPs-mRNA expression were studied after 2h incubation.

Results: mRNA levels of BMP-2,4,5 were higher in PBMCs of untreated patients (39.6±15.4, 83.1±31.7, 17.6±4.9, respectively) vs. HC (3.8±1.0, 5.4±1.7, 1.7±0.4, p=0.03, p=0.03, p=0.004, respectively). Protein levels of BMP-2,4,5 were elevated in the supernatants of untreated patients (52.7±10.6, 143.8±32.2, 327.5±106.3 pg/ml, respectively) vs. HC (21.4±3.5, 40.1±12.9, 71.1±17.3 pg/ml, p=0.01, p=0.01, p=0.03, respectively). No differences were found between untreated and IFN-β treated patients. No induction of BMP-7 were observed in all groups. Increased levels of BMP-2,4,5 were primerily in T cells. CD3/CD28 stimulation induced BMP-2,4,5 mRNA levels only in PBMCs of untreated patients. Stimulation with TNFα, IFNγ or IL-17, significantly induced BMP-2,4-mRNA levels only in untreated patients.

Discussion: Elevated levels of BMP-2,4,5 may be related to the reported expression of BMPs in MS lesions, contributing to both anti-neurogenic and anti-oligodendrogenic environment. This may be resulted from the deviated immunity of T cells in MS.

LOWER SECRETED LEVELS OF LEUKEMIA INHIBITORY FACTOR BY STIMULATED T CELLS IN PATIENTS WITH RR-MS

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Background: Leukemia inhibitory factor (LIF) potentiate the differentiation and survival of oligodendrocyte precursors. Therapy with LIF ameliorated EAE severity and prevented oligodendrocyte death. We studied LIF production and regulation by immune cells of patients with RR-MS.

Methods: PBMCs of 14 untreated and 24 IFN-β-treated-RR-MS patients and 21 matched healthy controls (HC) were cultured for 24h with anti-CD3/CD28 stimulating antibodies or LPS or without stimulator LIF levels in supernatants studied by ELISA. The LIF levels were also examined in separated $CD3^+$cells and $CD14^+$cells using MACS.

Results: LIF were significantly lower in PBMCs from HC (6.2±1.105 pg/ml) vs. untreated (15.1±3.6 pg/ml) and IFN-β-RR-MS patients (18.5±3.6 pg/ml), $p< 0.05$ and $p< 0.005$, respectively. No significant difference was found between untreated and IFN-β-treated-patients. Stimulation via CD3/CD28 increased LIF levelsin HC and RR-MS patients. However, after this stimulation LIF was significantly lower in untreated (97.0±23.7 pg/ml) and IFN-β-RR-MS patients (91.3±14.3 pg/ml) vs. HC (178.0±16.1 pg/ml, $p< 0.001$). Stimulation of PBMCs with LPS did not affect LIF levels. LIF was found to be secreted mainly by $CD3^+$cells and $CD3^-CD14^-$ cells (non-T cells and non-monocytes) both in patients ($CD3^+$=31.6±8.5 , $CD14^+$= 4.3±1.1, $CD3^-CD14^-$=30.6±3.8 pg/ml) and in HC ($CD3^+$=8.8±1.7, $CD14^+$= 2.1±0.8, $CD3^-CD14^-$=11.9±3.9 pg/ml).

Discussion: We report here about a new aspect of dysregulated immunity in RR-MS which may be related to regeneration of oligodendrocyte; the low secreted levels of LIF from stimulated T cells. Increasing the secretion of LIF from patients-immune cells may assist to establish of a more oligodendrogenetic environments in the affected tissue of MS.

AN HYPOTHESIS-DRIVEN & LOW-THROUGHPUT SCREENING APPROACH TO ACCELERATE THE DEVELOPMENT OF INNOVATIVE DRUG TREATMENTS FOR SPINAL CORD-INJURED PATIENTS

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The number of approved new molecular entities has recently decreased worldwide (53 in 1996 and only 21 in 2008 in the U.S.). To circumvent this problem, we have developed a technological platform that can accelerate the identification and development of potent and safe leads and candidates in the field of spinal cord disease or trauma (Guertin, *Current Medicinal Chemistry,* **16**, 2009). It is based essentially upon the identification of novel and synergistic effects between existing 'old drugs' (*off-patent* molecular entities) for either new therapeutic indications and/or largely unmet medical needs. A comparable approach has been used successfully in the field of cancer and HIV (e.g., Atripla). We thus believe that, as with the latters, neurological diseases such as Spinal Cord Injury and Multiple Sclerosis should be considered as enough complex to also benefit from drug treatments that act simultaneously upon several pathways.

USING NEUTRALIZING ACTIVITY AND ANTIBODIES BINDING SHOWS DIFFERENCES BETWEEN INTERFERONS BETA-1A AND -1B

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Introduction: MS on IFNBeta develop antibodies. We have explored binding affinity and neutralizing activity.

Methods: Luciferase assay measured NABs (Lam et al. JImmMethods. 2008;336:113-8.) and Plasmon resonance with Biacore measured binding and dissociation rates (Gibbs E, Oger J. JIFNCytokineRes. 2008;(12):713-23).

Results: Beta-1a in assays overestimates NABs titers. Higher titers were obtained using IFN-beta-1a as antigen than using Beta-1b. This was for both -1b and -1a treated patients. Titers using -1a were 130 ± 8.9% of titers using -1b as antigen when measuring serum of -1b treated patients. Titers using -1a as antigen were 178 ± 8.7% of titers using -1b as antigen when measuring in -1a treated patients. Beta-1a-treated patients generate higher titers than IFN-beta-1b treated patients: From 07/2007 to 06/2011, 1520 sera were assayed. The median titer for IFN-beta-1a injected patients was 807±467 n=249 and 209±294 n=155 for beta-1b patients. Plasmon resonance: Antibodies in IFNb-1a-patients had higher binding and lower dissociation rates than antibodies in IFNb-1b-patients, whether IFNb-1a or IFNb-1b antigen was used. Regardless of treatment, antibodies bound with significantly greater affinity to IFNb1a than to IFNb-1b *($p< 0.0001$).* This correlated with NAb titres *($p< 0.0001$).* We compared EC50 of bio-similars using Luciferase and showed that: Cinnovex® is very similar if not identical to IFN-beta-1a (Rebif® or Avonex®) and that Extavia® is very similar if not identical to IFN-beta-1b (Betaseron® or Betaferon®).

Conclusions: These results should help laboratories determine which Interferon to use in assays and clinicians to better interpret the findings to fine tune Interferon treatments.

TREATMENT OF PATIENTS WITH A FIRST CLINICAL DEMYELINATING EVENT: LESSONS FROM TRIALS OF INTERFERON B AND GLATIRAMER ACETATE

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Background: Interferon (IFN) β-1a, IFN β-1b and glatiramer acetate (GA) delay multiple sclerosis (MS) when initiated after a first clinical demyelinating event (FCDE).

Objective/methods: To review methodologies, baseline patient characteristics and primary outcomes in the CHAMPS (intramuscular IFN β-1a, 30 µg once weekly [qw]), ETOMS (subcutaneous [sc] IFN β-1a, 22 µg qw), BENEFIT (sc IFN β-1b, 250 µg every other day), PreCISe (sc GA, 20 mg daily), and REFLEX (sc IFN β-1a, 44 µg three times weekly [tiw] or qw) studies.

Results: Entry requirements were similar across studies. Time between FCDE and study start: BENEFIT, REFLEX: ≤60 days; CHAMPS, ≤27 days; PreCISe ≤90 days; ETOMS ≤3 months. Presentation: CHAMPS, PreCISe: monofocal; BENEFIT, ETOMS, REFLEX: monofocal or multifocal. Primary analyses: BENEFIT, ETOMS and REFLEX, 2 years; PreCISe, 3 years; CHAMPS, stopped at 18 months. All studies showed a significant delay of CDMS; cumulative probabilities at 2 years (active treatment vs placebo): CHAMPS: 20% vs 38%, p< 0.001; ETOMS: 34% vs 45%, p=0.034; BENEFIT: 28% vs 45%, p< 0.001; PreCISe: 25% vs 43%, p< 0.001; REFLEX: 21% vs 22% vs 38% (tiw: p< 0.001; qw: p=0.002). Cumulative probability of McDonald MS 2005 at 2 years in REFLEX (sc IFN β-1a tiw vs qw vs placebo) was 62% vs 76% vs 86% (tiw: p< 0.001; qw: p=0.008).

Conclusion: These findings have led to earlier treatment of patients with an FCDE suggestive of MS. Comparisons between trials should take into account differences in recruitment environment, inclusion criteria and study design.

ASSESSMENT OF BASELINE TREATMENT HISTORY AND POSTBASELINE RELAPSES AND SERIOUS ADVERSE EVENTS IN NATALIZUMAB-TREATED PATIENTS WITH MULTIPLE SCLEROSIS

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Objectives: To evaluate associations between baseline treatment history and postbaseline annualized relapse rate (ARR) and serious adverse events (SAEs) in natalizumab-treated relapsing-remitting MS patients in Europe, Australia, and Canada participating in the ongoing Natalizumab (TYSABRI®) Observational Program (TOP).

Methods: As of December 2010, 2943 TOP patients were enrolled. Poisson regression assessed associations between baseline disease-modifying therapy (DMT) and postbaseline ARR among 5 patient groups: therapy naïve (n=295), interferon (IFN) only (n=1362), glatiramer acetate (GA) only (n=222), switched between IFN and GA (in either order) (n=482), or immunosuppressant (IS) use (n=394). Pearson chi-square or Fisher exact tests assessed associations between baseline DMT and postbaseline SAEs among 3 groups: therapy naïve (n=295), ≥1 prior DMT (n=2254), and prior IS use (n=394).

Results: Across the 5 groups, mean baseline ARRs were similar (range 1.96 to 2.35; P=0.993), while postbaseline ARRs differed significantly (P=0.001): 0.17, therapy naïve; 0.21, prior IFN; 0.25, prior GA; 0.29, prior IFN and GA; 0.36, prior IS. There were no significant differences across groups (therapy naïve, ≥1 DMT, prior IS) in incidence of SAEs (2.7%, 4.9%, 5.8%; P=0.150) or infection-related SAEs (0.3%, 0.9%, 1.3%; P=0.421). Five PML cases occurred as of March 8, 2011, after 26, 24, 24, 28, and 35 natalizumab infusions, respectively.

Conclusion: Postbaseline ARR was lowest in therapy-naïve patients and highest in patients with prior IS use. Risk of SAEs did not differ among groups. Consistent with previous reports, PML risk appears to increase in patients with longer duration of natalizumab exposure and prior IS use.

COGNITIVE FUNCTION AND EVENT-RELATED POTENTIALS IN PATIENTS WITH MULTIPLE SCLEROSIS

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Introduction: MS is frequently associated with cognitive impairment and a decline in quality of life. Although inflammatory demyelination is the main disease process, axonal damage may occur early in the disease. Cognitive deficits can occur independently of physical disability or abnormalities in MRI, which complicates their recognition.

Objective: To identify brain dysfunction in MS patients with mild disability, compare cognitive testing and event-related potentials (ERP/EEG), and to correlate test data with clinical findings.

Methods and material: Patients with relapsing-remitting MS (n=62). Age 39.4 ±11.0 years. Disease duration 10.1 ±7.6 years. Symptoms scored with EDSS (2.9±1.4), Beck´s Depression Inventory (8.7±6.2) and Fatigue Severity Scale (3.9±1.9). EEG, ERP (auditory and visual). Cognitive tests. Healthy control subjects (n=39) similarly tested with EEG/ERP and cognitive tests.

Results:

Cognition: Decline in attention, executive functions, visual perception, and processing speed and global function. Visual memory and verbal function were normal..Cognitive performance correlated negatively with EDSS ($p < 0.01$), depression ($p < 0.001$) and fatigue ($p < 0.01$).

ERP: Significant increase in visual P150 latency in all frontal regions. Visual P300 amplitude increased in frontal regions.

Correlations: P300 amplitude (visual and auditory) had strong positive correlation ($p < 0.0005$ for visual) to cognitive function in patients but not in healthy controls.

Conclusion: Auditory and visual P300 show a strong positive correlation to cognitive function in MS patients. This may be a sign of a compensatory mechanism which requires more neurons to be excited in order to overcome loss of neural connectivity or other functional defects.

HUMORAL IMMUNE RESPONSE AGAINST EBV ANTIGENS AND NATIVE MOG IN CHILDREN WITH CNS DEMYELINATING DISEASES

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Introduction: Epstein Barr Virus (EBV) infection has been suggested to play a role in the development of CNS inflammatory demyelinating diseases. This may be mediated by molecular mimicry between EBV and CNS antigens, especially myelin oligodendrocyte glycoprotein (MOG). MOG is exclusively expressed on the outer myelin surface in the CNS, thus being an attractive and easy accessible target for immune reactions. High antibody reactivity to MOG was consistently found in children with a first demyelinating event.

Methods: Therefore we analyzed antibodies to viral antigens (EBV-CA, EBV-EA, EBV-EBNA-1, CMV) using ELISA and antibodies against native MOG with an immunofluorescence assay in children with different CNS demyelinating diseases and controls. We included 57 pediatric cases with acute disseminated encephalomyelitis (ADEM, n=15), clinically isolated syndrome (CIS, n=15), multiple sclerosis (MS, n=15) and other neurological controls (OND, n=12).

Results: In the disease groups there was no significant difference regarding serum levels or serum positivity of antibodies against viral antigens. High antibody titers against native MOG were found in children with ADEM. With exception from a trend towards EBV-EBNA 1 negativity in ADEM patients with high titer against MOG, there was no correlation of antibody serum levels / positivity against viral antigens and antibody serum levels / positivity against MOG.

Conclusion: Anti-MOG antibodies were found significantly more often in children affected by ADEM than in controls. Presence of these antibodies was not correlated with a humoral immune reaction to EBV.

POST-TRAUMA VISION SYNDROME: ANALYSIS AND TREATMENT USING A RAT MODEL OF DIFFUSE TBI

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Purpose: This study uses a well-characterized model of diffuse TBI to investigate the inflammatory response along the afferent visual pathway; correlate findings with structural/functional alterations within the pathway; and determine the efficacy of VIP treatment in ameliorating aforementioned changes post-injury.

Methods: TBI was induced in male Sprague-Dawley rats using a weight drop acceleration impact model modified after Marmarou. Superior colliculus, optic tract, optic nerve, and posterior eye were collected at 0, 24 and 48 h post-injury and processed for mRNA analysis, histopathology and diffusion tensor imaging (DTI).

Results: Eighty-four inflammatory cytokine/chemokine and receptor genes were examined by real-time RT-PCR revealing differential expression of pro- and anti-inflammatory molecules in all analyzed regional components of the visual pathway post-injury when compared to controls. Histopathologic alterations further supported the presence of a strong inflammatory response. DTI revealed structural effects on the optic tract post-injury when compared to pre-injury. Most striking however, VIP treatment resulted in significant decrease in expression of pro-inflammatory molecules and neuronal damage, while up-regulating expression of anti-inflammatory molecules, potentially preserving function of the visual system.

Conclusions: This study is first to show concurrent inflammation in functionally related structures along the visual pathway. The correlative mRNA, histopathologic and imaging findings support the notion that inflammation may underlie PTVS. VIP treatment aims to target components of the inflammatory response in an effort to improve effects on the visual system through a reduction in inflammatory cell activation, decreasing neuronal damage, restoring axonal transport, regulating cell death and promoting restoration of tissue homeostasis.

THE NEUROPSYCHIATRIC MANIFESTATIONS OF SYSTEMIC LUPUS - A MONOCENTRIC STUDY OF 95 CASES

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The neuropsychiatric manifestations are one of the the most deadful manifestations of systemic lupus erythematosus (SLE). The purpose of this study is to analyze the clinical and biological features, evolution and related factors of neuropsychiatric complication of SLE. It's a retrospective monocentric study of 348 cases diagnosed between 1990 and 2010 in an internal medicine department. The neuropsychiatric manifestations were observed in 95 cases (27.3%) mostly in women (95%). The average age was 30±11 years. The neurological disorders were inaugural in 85%. The central neurological manifestations (83%) were: convulsions in 24 patients (25.2%), psychotic troubles in 23 (24.2%), headaches in 40 (42.1%), aseptic meningitidis in 7 (7.3%), ischemic stroke in 6 (6.4%), vascularitis and myelopathy in 5 patients each (5.2%) and thrombophlebitis in 2 (2.1%). The peripheral neurological manifestations (17%) were peripheral neuropathy in 12 patients (12.6%), cranial nerve involvement in 5 (5.2%) and acute polyradiculoneuropathy in 4 (4.1%). The antinuclear antibody were positive in 93 (97.3%) patients, the DNA antibody in 78 (82.1%) and the anticardiolipin antibody in 19 (20%). The factors significantly associated with neurological events were: a high SLEDAI score (P< 0.001), thrombocytopenia (p=0.002), leukopenia (p=0.05) and an anti phospholipid syndrome (P=0.028).

All patients were treated with corticosteroids, 98% with antimalarial and 52 (54.7%) with immunosupressive agents. The evolution was good in 51 patients (53%) but a relapse was observed in 34 (35.8%). Ten (10.5%) patients deceaded mostly by infectious complications (P< 0.001).

In our report, neurological manifestations were frequent and associated with poor prognosis.

DETECTION OF ANCA (ANTI NEUTROPHIL CYTOPLASMIC ANTIBODIES) BY INDIRECT IMMUNOFLUORESCENCE/ELISA AND RELATED NEUROLOGICAL DISEASES: MOROCCAN SERIES

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Introduction: ANCA are associated with different pathologies among other vasculitis. Their diagnostic value, prognostic, specificity and their place as a marker of activity deserve to be clarified.

Objective: To identify and develop the methodology for the detection of these auto-antibodies through the use of two reference techniques: indirect immunofluorescence (IIF) on slides of neutrophils fixed in ethanol and ELISA as well as establish clinical correlates.

Materials and methods: We tested sera from 30 patients, Neurology Department, Ibn Rochd UH of Casablanca, with suspected vasculitis. The presence of ANCA was investigated by IIF on slides of neutrophils cytocentrifuged and fixed in ethanol and ELISA (anti-protéinase 3 : PR3 and anti-myeloperoxidase : MPO kits). The fluorescence is split in two aspects: cytoplasmic (c-ANCA) or perinuclear (p-ANCA). The main target of c-ANCA type autoantibodies is PR3, while that of p-ANCA type is MPO.

Results: The presence of ANCA by IIF was established in 63.33 % cases in two profiles: cytoplasmic fluorescence (c-ANCA) (46.66%) and perinuclear fluorescence (p-ANCA) (16.66%). These autoantibodies with or without PR3 antigenic targets and / or MPO correspond to various diseases (inclusion body myositis, vasculitis associated or not with an infectious disease, Goujerot Sjogren´s syndrome, Charcot disease....). In our study, the main target antigen is found PR3 (42.1 %).

Conclusion: In case of strong suspicion of vasculitis, it should look for ANCA by IFA and ELISA. In addition to PR3 and MPO, identify other antigenic targets of ANCA.

TARGET ANTIGEN ANALYSIS IN ANTI-VGKC-COMPLEX-ANTIBODY-POSITIVE SPECTRUM DISORDERS

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Purpose: Anti-VGKC (voltage gated potassium channel) antibody was identified as autoantibody of acquired neuromyotonia (NMT: Isaacs' syndrome) which assumes muscle cramp and difficulty of opening hands. On the other hand, this antibody is also positive in autoimmune limbic encephalitis (LE) which assumes subacute progress, poor memory or epilepsy attacks. In late years the true target antigen of the anti-VGKC antibody in VGKC-LE is recognized leucine-rich- glioma-inactivated protein (LGI)-1.

In Japan, we clarified anti-VGKC complex antibody positive patients having anti-LGI-1 antibody or not and examined having new target antigen or not.

Object and a method: We intended for 38 VGKC-LE sera more than antibody titer 300pM and 21 aNMT examples. We transfected candidate antigens (LGI-1, Caspr2) gene to COS cells, and then did immunostaining with patients IgGs.

About new antigens, we performed immunoprecipitation using IgG of the case and cut and brought down gel about antigens which showed a strong reaction and tried identification with mass spectrometry.

Result: About 70% of Japanese VGKC-LE patients had anti-LGI-1 antibody. Anti-LGI-1 antibody was positive in five of 21 cases in aNMT group.

We identified novel antigens as well as previously reported ones. We will characterize the antigens and discuss modes of action of autoantibodies.

Conclusions: Not only Kv, LGI-1, Caspr2 but other antigens associated anti-VGKC-complex-antibody-positive spectrum disorders.

PATTERNS OF SPONTANEOUS AND HEAD-SHAKING NYSTAGMUS IN CEREBELLAR INFARCTION: IMAGING CORRELATIONS

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Horizontal head-shaking may induce nystagmus in peripheral as well as central vestibular lesions. While the patterns and mechanism of head-shaking nystagmus are well established in peripheral vestibulopathy, those require further exploration in central vestibular disorders. To define the characteristics and mechanism of head-shaking nystagmus in central vestibulopathies, we investigated spontaneous nystagmus and head-shaking nystagmus in 72 patients with isolated cerebellar infarction. Spontaneous nystagmus was observed in 28 (39%) patients, and was mostly ipsilesional when observed in unilateral infarction (15/18, 83%). Head-shaking nystagmus developed in 37 (51%) patients, and the horizontal component of head-shaking nystagmus was uniformly ipsilesional when induced in patients with unilateral infarction. Perverted head-shaking nystagmus occurred in 23 (23/37, 62%) patients and was mostly downbeat (22/23, 96%). Lesion subtraction analyses revealed that damage to the uvula, nodulus, and inferior tonsil was mostly responsible for generation of head-shaking nystagmus. Ipsilesional head-shaking nystagmus in patients with unilateral cerebellar infarction may be explained by unilateral disruption of uvulonodular inhibition over the velocity storage. Perverted (downbeat) head-shaking nystagmus may be ascribed to impaired control over the spatial orientation of the angular vestibulo-ocular reflex due to uvulonodular lesions or a build-up of vertical vestibular asymmetry favoring upward bias due to lesions involving the inferior tonsil.

HINTS TRIAD AND OTHER OCULOMOTOR SIGNS TO DIAGNOSE STROKE IN THE ACUTE VESTIBULAR SYNDROME

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Introduction: Acute vestibular syndrome (AVS) is usually caused by acute peripheral vestibulopathy (APV), but may result from posterior-circulation stroke mimics. The HINTS triad (head impulse test, skew deviation and nystagmus direction) contributes to diagnostic localization. An abnormal bedside horizontal head impulse test (h-HIT) suggests APV. A negative HIT is the best discriminator central versus peripheral localization. We evaluated ocular lateropulsion (OL), defined as horizontal conjugate gaze deviation (h-CGD) after brief, 5- second period of eyelid closure in 60 recent AVS patients.

Methods: Cross-sectional study at an urban, academic hospital to identify sensitive oculomotor signs in this AVS population. Patients underwent examination (h-HIT, prism cross-cover test for ocular alignment and OL). Neuroimaging was performed within 72 hours. Strokes were diagnosed by MRI or CT. APV by normal MRI and clinical follow-up.

Results: We enrolled 148 high-risk AVS patients, among whom 41 had APV and 107 had a central lesion, including 90 ischemic strokes. Skew deviation (mean 8.2 prism-diopters, range 3-20) was present in 34% (n=31/90)—0.5% (n=1/41) with APV, 8% (n=2/30) with pure cerebellar lesions, and 46% (n=28/60) with brainstem involvement (χ^2 $p< 0.001$). Skew deviation correctly predicted lateral pontine stroke localization in 5 of 6 cases where positive h-HIT suggested benign APV. In 60 patients tested for OL, 59% (22/39) had a stroke and none had APV ($p < 0.001$).

Conclusions: Skew and OL are insensitive markers of central pathology but reasonably specific predictors of brainstem involvement among AVS patients. Skew and OL may identify stroke when h-HIT positivity falsely suggests peripheral localization.

NEUROLOGICAL RECOVERY POST ISCHAEMIC STROKE: THE OCULAR MOTOR SYSTEM AS A SURROGATE MARKER FOR MOTOR AND COGNITIVE RECOVERY

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Introduction: The standard neurological assessments of stroke patients are weighted significantly towards motor and sensory function, consistently underestimating cognitive deficits. Ocular motor function has been demonstrated as a reliable quantifier of cognitive dysfunction in degenerative neurological diseases and may be a valuable tool in the assessment of neurological recovery post stroke.

Aims: To evaluate ocular motor function as a surrogate marker for cognitive function in post stroke patients.

Methods: This was a prospective observational study with age-matched controls. We included mildly affected acute stroke patients without visual field defect and gaze palsy. Patients were examined at onset, 1 month and 3 months post stroke ictus by ocular motor function, National Institutes of Health Stroke Scale (NIHSS), Modified Rankin Scale (mRS) and standard cognitive function assessments.

Results: We recruited 15 patients (Mean age: 62.7, mean NIHSS: 2.25) and 10 controls (Mean age: 62.5). Ocular motor function (in anti-saccades and memory-guided saccades test) showed significant difference between the 2 groups at stroke onset as well as between first test and follow up in patients. It was more sensitive in identifying cognitive improvement compared with NIHSS and mRS.

Conclusions: Ocular motor assessment demonstrates cognitive effects of even mild stroke and may provide improved quantifiable measurements of cognitive recovery post acute stroke. This may provide insight into cognitive rehabilitation strategies which may improve functional outcomes.

VESTIBULAR LOSS AFTER COCHLEAR IMPLANTATION

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Background: Cochlear Implantation will lead to auditory perception of speech and sounds. Surgical risks are involved, such as vestibular loss. Therefore, adequate information of risks is necessary for preoperative counselling of candidates.

Aim: Of present study is to investigate risk of vestibular loss after implantation and find out whether central adaptation will take place postoperatively.

Methods: In addition to the audiological- and MRI findings, electronystagmography was performed in CI candidates and patients. Pre- and postoperative caloric dysfunction of horizontal semicircular canal is compared and asymmetry in rotational testing is evaluated. Besides vestibular functional variables also 'cause of deafness', 'age at implantation', 'surgical procedure', 'type of electrode', 'surgeon', 'time between surgery and ENG' and 'postoperative deterioration in pure tone threshold' are taken into account. Dizziness Handicap Inventory (DHI) was used to assess postoperative vestibular handicaps in the functional, physical and emotional domain.

Results: 25% of CI subjects lost their vestibular function after cochlear implantation; 8% completely lost their vestibular function. Regression analyses suggest that candidates beyond age of 49 years are more susceptible to vestibular deterioration after implantation. Other variables do not play a significant role.

Rotational chair data reveal that subjects postoperative show central adaptation that is in agreement with behavioral DHI results. Present data show no relationship between objective caloric test results and subjective handicap.

Conclusion: Adequately informing patients preoperatively is of importance for possible vestibular function loss after CI, especially beyond the age of 49 years.

CONFRONTATION WITH CONFRONTATION

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Introduction: Confrontation visual field testing is done as bedside clinical test. Aim of this study is to compare the accuracy of confrontation visual field tests (CVFTs) with automated perimetry.

Materials and methods: Double blinded, randomly ordered comparison of confrontation visual tests with the automated perimetry is done. Patients were selected randomly visiting neuro- ophthal clinic (total number of patients- 60), who had corrected visual acuity ≥ 6/60 and ability to perform all visual field tests. Seven different types of visual field tests were performed (face description, finger counting, finger comparison, static finger wiggling, kinetic finger wiggling, red comparison and kinetic red target). The CVFTs results were compared with automated perimetry as the standard method.

Results: From these tests, sensitivity and specificity of each confrontation visual field test were calculated and analysed. The sensitivity ranges from 30% to 70% and the specificity ranges from 80% to 90%.

Conclusion: Among the different confrontation tests kinetic finger wiggling & kinetic red target are having highest sensitivity (each 70%) , face description & finger comparison are having lowest sensitivity (each 30%), finger comparison & kinetic finger wiggling are having lowest specificity (each 80%) and the other 5 tests are having highest specificity (each 90%) for diagnosing visual field abnormalities.

AN INTRODUCTION TO OPTICAL COHERENCE TOMOGRAPHY (OCT) IN NEUROLOGIC DISEASE

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This is a 45 minute power-point presentation summarizing the basic technology of Spectral OCT, and discussion of OCT as an emerging diagnostic tool in clinical neurology. Differential diagnosis with case studies will be presented.

OUTCOMES OF FILIPINO PATIENTS WITH GUILLAIN BARRE SYNDROME: (COMPARATIVE REVIEW BETWEEN INTRAVENOUS IMMUNOGLOBULIN AND PLASMA EXCHANGE: PHILIPPINE EXPERIENCE)

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Background: The efficacy of plasmapheresis (PE) and intravenous immunoglobulin (IVIg) in the treatment of Guillain Barre Syndrome (GBS) has been established in international studies. However, there are no studies comparing the treatment outcome of Filipino patients with GBS.

Objectives: To determine prognostic factors influencing clinical outcomes of Filipino patients diagnosed with GBS.

Method: Retrospective Cohort Study.

Main outcome measure: Functional Grading Scale (FGS) of Hughes.

Statistical analysis: Kaplan-Meier curve was done to show the time to 1 and 2 grade functional recovery.

Results: A total of 132 GBS patients were retrospectively studied; 69 (52%) were males, 63 (47%) were females. The average age was 55.5 ± 6.3 years old. Eighteen (13.6%) were diagnosed with Miller Fisher Variant of GBS; seventeen (12.9%) defaulted therapy; seven (5.3%) received combination therapy; six (4.5%) died. Among the 84 patients in the efficacy subset analysis; Plasma exchange (PE, n=41), or immunoglobulin treatment (IVIg, n=43) were analyzed for comparison. The time to reach 1 functional grade recovery was 2.15 (95% CI 1.30, 3.57; p=0.003) times faster among those who received plasma exchange compared to those who received immune globulin. Likewise the time to reach 2 functional grade improvement was 2.55 times (95 CI 1.49, 4.37; p=0.001) faster among those who received plasma exchange compared to those who received immune globulin.

Conclusion: In this study, the treatment modality of choice significantly influenced the outcome. Thus, in the acute management of Filipino patients with GBS, PE can be the better form of immunomodulation.

HIGH PREVALENCE OF DISTAL SENSORY POLYNEUROPATHY IN ANTIRETROVIRAL-TREATED AND UNTREATED PEOPLE WITH HIV IN TANZANIA

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Introduction: Distal sensory polyneuropathy (DSP) is a complication both of advanced HIV disease and of antiretroviral therapy (ART), particularly didanosine and stavudine. There are few data on DSP prevalence in sub-saharan Africa.

Objectives: To described DSP prevalence amongst Tanzanians with HIV, on and off ART with CD4 counts above and below 200 cells/µL.

Design: Cross sectional survey.

Patients and methods: We recruited participants attending ART clinic into four groups: >6 months ART exposure and i)CD4< 200cells/µL or ii)CD4>200cells/µL (ART/CD4< 200 and ART/CD4>200 respectively); ART naïve and iii)CD4< 200cells/µL or iv)CD4>200cells/µL (noART/CD4< 200 and noART/CD4>200 respectively). Primary outcome was DSP, as defined by presence of at least one symptom and one sign.

Results: Among 326 evaluable participants, 81 (32 male, median CD4 142 cells/µL) were enrolled in the ART/CD4< 200 group, 78 (17 male, median CD4 345 cells/µL) in ART/CD4>200, 81 (30 male, median CD4 128 cells/µL) in noART/CD4< 200 and 86 (22 male, median CD4 446 cells/µL) in noART/CD4>200. DSP prevalence ranged from 43.2% in ART/CD4< 200 to 20.9% in noART/CD4>200. DSP was more common among men (adjusted odds ratio [aOR] 1.9, 95% confidence interval [CI] 1.2-3.3) and older participants (aOR 2.7, 95% CI 1.1-6.2 for age 40+ vs. < 30 years).

Conclusion: DSP is common amongst those attending this clinic, even those with no ART exposure and CD4 counts above 200 cells/µl. Stavudine and didanosine expose HIV patients to an additional avoidable risk of DSP. Access to non-neurotoxic ART regimes and earlier HIV diagnosis and ART initiation is needed.

ULNAR NEUROPATHY AT THE ELBOW: EVALUATION OF THE ROLES OF ELBOW LEANING AND FLEXION, AND EFFICACY OF CONSERVATIVE MANAGEMENT

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Introduction: Very few studies have evaluated the roles of elbow leaning and prolonged elbow flexion in causing non-traumatic ulnar neuropathies at the elbow (UNE). Few trials have assessed the efficacy of conservative management of non-traumatic UNEs.

Objectives: This prospective study was designed to evaluate the notion that UNEs are often caused by habitual elbow leaning and/or prolonged elbow flexion during sleep, and to test the hypothesis that avoiding these will correct the neuropathy.

Methods: Patients selected were those with moderate UNEs, defined clinically as having weakness of MRC grade 4 or worse of ulnar intrinsic hand muscles, and ulnar motor conduction abnormalities localized to the elbow. Exclusions were acute or chronic elbow trauma, perioperative UNEs, and known diabetes. Patients were taught to avoid elbow leaning and prolonged elbow flexion and followed 2 monthly.

Results: Over 6 years, 183 patients with UNEs were evaluated. Of 37 patients with 38 moderate UNEs, 25 (66%) slept with the elbow tightly flexed and 21 (55%) habitually leaned on their elbow; some did both.

Following conservative management 23 (61%) patients improved to their satisfaction, and a further 10 (26%) recovered fully. The time to these end points varied from 2 months to 3 years. Five (13%) patients worsened and were referred for surgery.

Conclusions: This prospective study supports the concept that elbow leaning and prolonged flexion are important causes of otherwise unexplained moderate UNEs, and shows that avoiding these habits is effective treatment in 87% of patients.

DIAGNOSTIC YIELD OF SURAL NERVE BIOSY IN PERIPHERAL NEUROPATHY

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Introduction: Peripheral neuropathies are a disparate group of disorders. Even with extensive evaluation about 50% patients are left with a diagnosis of idiopathic neuropathy. Sural nerve biopsy has an important place in the diagnosis of peripheral neuropathy with a recent prospective study showing that nerve biopsy improves treatment in an estimated 60% of patients.

Material and method: The present study was carried out at a tertiary care referral hospital in eastern part of India, over a period of 18 months from April 2009 to September 2010 on seventy patients suffering from peripheral neuropathy. A detailed clinical, electrophysiological and biochemical evaluation was carried out in all and symptomatic treatment given accordingly. Sural nerve biopsy was done in select number of cases whenever the diagnosis was in doubt.

Results: Out of total 75 patients, 36 patients selected for nerve biopsy. Thirty nine (52%) patients were diagnosed with detailed clinical electrophysiological and routine investigations. The mean age in biopsy group patients was 43.19±22.62 years, Male: female were 2.2:1.. Multiple mononeuropathy was present in 67% and polyneuropathy was found in 33%. In fifteen cases the nerve biopsy was diagnostic, while in 14 cases it was contributory.Overall a diagnosis couild be made in 80% of patients. Diagnosis was Hansen's disease in 50%, Vasculitis in 22%, CIDP in 5.5% and diabetes in 2.78%.

Conclusion: Thus judicious use of sural nerve biopsy in carefully selected patients increases the diagnostic yield especially in multiple neuropathy.

RETROSPECTIVE ANALYSIS OF CLINICAL AND ELECTROPHYSIOLOGICAL FEATURES OF SLOVENIAN PATIENTS WITH GUILLAIN-BARRÉ SYNDROME

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Introduction: Guillain-Barré syndrome (GBS) is the most common cause of the acute generalized paralysis. The aim of the study was to gather data on clinical and electrophysiological features of Slovenian GBS patients and compare them with published data.

Materials and methods: The study included consecutive patients with the final diagnosis of GBS, treated in period 1995 - 2008 in Ljubljana University Medical Centre. Basic demographic features, antecedent events, clinical features, results of the cerebrospinal fluid (CSF) analysis and the electromyographic (EMG) investigation were recorded.

Results: Of included 80 patients, aged 11 to 84 years (mean ± SD, 54 ± 17 years), 53% were men. Electrophysiological criteria for demyelination, and for axonal neuropathy fulfilled 79% and 11% of patients, respectively. Infection within the previous four weeks was reported by 61% of patients. GBS presented with progressive weakness and tingling mostly in all four limbs in 97% and 73% of patients, respectively. In fully developed illness all patients had flaccid tetraparesis, 83% reported sensory disturbances, and all but one patient had reduced or non-elicitable tendon reflexes. Bedridden or wheelchair bound were 49% patients, and 18% required assisted ventilation. Albumino-cytologic dissociation was found in 83% of patients.

Conclusion: This rare study of GBS in Slavic population demonstrated similar clinical and electrophysiological features as previously reported. Particularly CSF data were very rarely reported before.

NERVE ULTRASOUND EXAMINATION. THE DEFINITION OF THE ANATOMICAL DAMAGE IN TRAUMATIC NEUROPATHIES: OVER A FUNCTIONAL EVALUATION

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Background: Electrophysiology is the main tool in assessing nerve function. Recently, peripheral nerve ultrasound (PNUS) has proven to be helpful in detecting anatomical changes in nerve disorders. Aim of the study.To evaluate the contribution of PNUS in the diagnosis and management of traumatic neuropathy (TN).

Methods: Seventy-one patients (49 M, 22 F, aged 12-76 yrs.) with TN (8 ulnar, 15 radial, 5 median, 18 peroneal, 12 brachial plexus, 10 sciatic, 1 tibial, 1 femoral, 1 brachial medial cutaneous) after having submitted to neurological examination and EMG/ENG, underwent PNUS, which was performed by a neurologist trained in the technique, unmasked to diagnosis. According to previously reported classification, the contribution of PNUS was assessed, as follows: Contributive (US "impact" the diagnostic and therapeutic strategies), Confirming (US confirmed the clinical and neurophysiological diagnosis), Non-Confirming (US findings were normal), and Incorrect (US findings led to incorrect diagnosis).

Results: In 63.5% of patients PNUS yielded a relevant contribution to diagnosis as well as to surgical and rehabilitation approach to TN, giving useful information about nerve morphology, nerve continuity or interruption and relationships with surrounding anatomical structures. In 25.5% of patients PNUS provided no more then confirmatory information. In 11% of cases PNUS was not able to show the nerve lesion.

Discussion: Our results show that PNUS is an important complement to clinic and neurophysiology in TN since it improves diagnostic accuracy and provides useful information for therapeutic program in approximately 2/3 of patients.

OXALIPLATIN-INDUCED NEUROTOXICITY: NEUROPHYSIOLOGICAL ASSESSMENT OF THE COMPLETE SPECTRUM FROM ACUTE COLD HYPERSENSITIVITY TO LONG-TERM NEUROPATHY

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Introduction: Neurotoxicity is the major dose-limiting toxicity of oxaliplatin treatment, a platinum-derivative chemotherapy effective against colorectal cancer. Neurotoxicity may present as acute neuropathic symptoms immediately following infusion; with chronic sensory neuropathy developing at higher cumulative doses. We examined both the development and long-term persistence of oxaliplatin-induced neurotoxicity, using novel neurophysiological assessment tools.

Methods: Clinical grading scales, nerve conduction studies and sensory and motor axonal excitability studies were undertaken in 58 consecutive oxaliplatin-treated patients longitudinally across treatment, both before and within 2 days post-infusion. A subset of 24 patients was assessed at follow-up of a median 25 months post-treatment.

Results: Immediately following infusion, oxaliplatin significantly altered Na^+ channel related properties in both motor and sensory axons. However, longitudinally, only sensory axons demonstrated significant progressive changes in nerve excitability. Importantly, sensory excitability abnormalities preceded sensory amplitude reduction and were able to predict clinical outcome at final treatment in 80% of patients. At long-term follow-up, 76% of patients reported residual neuropathic symptoms and sensory amplitudes remained reduced. The extent of excitability abnormalities during treatment was significantly correlated with clinical outcomes at follow-up, suggesting that they represent markers of the long-term severity of oxaliplatin-induced neuropathy.

Conclusions: Axonal excitability studies represent a novel technique to identify the pathogenesis and development of lasting nerve damage following oxaliplatin treatment. Changes in axonal membrane properties develop both acutely following infusion and with increased cumulative dosing. Importantly, axonal excitability studies obtained during treatment provide early identification of patients at-risk of severe, long-lasting neurotoxicity prior to development of neuropathy.

EARLY CHANGES IN AXONAL FUNCTION IN DIABETIC PATIENTS PRIOR TO NEUROPATHY

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Objective: To identify markers of axonal dysfunction prior to the development of neuropathy in patients with diabetes.

Methods: Clinical assessment and nerve excitability techniques were undertaken in 110 type II diabetic patients (55 with neuropathy, 55 without neuropathy) with HbA1c level, Total Neuropathy Score (TNS), and standard nerve conduction studies. Patients were further grouped based on TNS grade into mild (TNS score 2-8) and moderate/severe neuropathy (TNS score 9-24).

Results: Compared to age-matched controls, patients without neuropathy had significantly increased threshold and prolonged latency ($p < 0.001$), indicating their nerves were difficult to activate. Patients with neuropathy demonstrated significantly greater changes in multiple excitability properties which became progressively more abnormal with increasing severity. Significant changes in the parameters subexcitability and depolarizing threshold electrotonus developed in the mild neuropathy group, while further progressive changes developed in patients with severe neuropathy. Importantly, in patients without neuropathy, there were significant correlations between HbA1c level and excitability parameters ($p < 0.001$), with poor glucose control associated with a worse excitability profile.

Conclusions: Axonal excitability techniques detected a spectrum of abnormalities in patients with diabetes, with early axonal dysfunction prior to the development of neuropathy and progressive changes that correlated to neuropathy severity. Changes in axonal excitability prior the development of neuropathy correlated with the efficacy of glucose control. As such, axonal excitability studies may provide a useful marker of the early development and severity of diabetic neuropathy and as a tool for observing the benefits of strict glucose control or neuroprotective approaches.

TO WHAT EXTENT IS DIABETIC NEUROPATHY REVERSIBLE?

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Context: Distal sensorimotor polyneuropathy has a high prevalence (>50%), and severely compromises activities of daily living in diabetic patients.

Objectives: To examine whether diabetic neuropathy can be reversed by a good metabolic control in a 1-year observation period.

Methods: We selected 50 diabetic patients with peripheral neuropathies (age: 38-76 years; 25 men and 25 women). All patients had partial metabolic control, were not affected by other disorders associated with distal neuropathies, and were not taking neurotoxic drugs. We achieved a good metabolic control in all patients through careful monitoring of blood glucose levels, proper medication, and diet. In addition, all patients were invited to perform moderate physical activity consisting of at least 30-min walking, 3 days per week for 1 year.

Results: Forty-two out of 50 patients were checked throughout the 1-year observation period for glycaemic control every week, and neurophysiological assessment every 4 months. After 1 year of treatment, we found a partial improvement of the typical signs and symptoms of diabetic neuropathy in all patients. Neurophysiological evaluation showed a significant improvement in sensorimotor conduction velocity after 8 months in 62% of patients, but partial regression of the axonal components (amplitude of SAPs and/or CMAPs). Subjective symptoms improved in 53% of patients; the criteria for a better prognosis were: disease duration, younger age, treatment compliance, diet and the physical activity.

Conclusion: We conclude diabetic sensorimotor polyneuropathy can be partially reversed by a good metabolic control in a few months, but prevention remains the essential target.

SERIAL ELECTRODIAGNOSTIC STUDIES INCREASE THE DIAGNOSTIC YIELD OF AXONAL GUILLAIN-BARRÉ SYNDROME

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Background: Recent studies have shown that in Guillain-Barré syndrome (GBS), serial nerve conduction examinations are required to differentiate acute motor axonal neuropathy (AMAN) from acute inflammatory demyelinating polyneuropathy (AIDP) subtypes. We performed a retrospective study of GBS patients seen at our institution to assess the utility of repeat electrodiagnostic studies.

Methods: The electrodiagnostic records of GBS patients seen at a tertiary hospital in Singapore over the last four years were scrutinized for cases that had repeat nerve conduction studies. The utility of a follow-up electrodiagnostic study in altering the initial diagnosis of GBS subtypes was analysed. GBS diagnosis was based on clinical features delineated by Ashbury and Cornblath in 1990. Sub-classification of GBS into AIDP and AMAN was based on the Ho's electrodiagnostic criteria. Consensus criteria of the American Association of Electrodiagnostic Medicine was used to define conduction block.

Results: Out of a total of 42 cases, 10 had repeat studies. Seven were initially labeled as AIDP, three were inconclusive, nil as AMAN. At the follow-up study at least 1 week later, one AIDP was reclassified as AMAN. Of the three inconclusive cases, two were categorized as AMAN and one remained inconclusive. The cases that were reclassified as AMAN showed reversible distal conduction failure.

Conclusions: Our study supports the growing consensus that serial electrodiagnostic studies improve the diagnosis of GBS-subtypes, in particular AMAN.

CORRELATION OF SERUM VASCULAR ENDOTHELIAL GROWTH FACTOR LEVELS WITH PLATELET COUNT IN POEMS SYNDROME

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Introduction: Monoclonal gammopathies are often associated with peripheral neuropathies. Among these, POEMS syndrome is associated with high levels of serum vascular endothelial growth factor (VEGF), which may play a role in pathogenesis of POEMS syndrome. VEGF protein is present in platelets.

Obejective: To demonstrate the correlation between serum VEGF and platelet count.

Methods: We measured serum VEGF and platelet counts in 23 patients with peripheral neuropathy and monoclonal gammopathy consecutively recruited. Eleven patients had POEMS syndrome, 10 had monoclonal gammopathy of undetermined significance (MGUS), and 2 had multiple myeloma (MM).

Results: All patients with POEMS syndrome had markedly increased serum VEGF levels with values ranging from 821 to 12900 pg/mL (mean ± SD: 3370.1 ± 3316.3 pg/mL). In 10 MGUS patients, serum VEGF levels were from 55.2 to 770 pg/mL (293.0 ± 231.7 pg/mL). In 2 MM patients, serum VEGF levels were 83.4 and 370 pg/mL. Serum VEGF levels were significantly higher in POEMS syndrome compared to other monoclonal gammopathies (282.0 ± 220.0 pg/mL; $p < 0.001$)). Platelet counts were also significantly higher in POEMS syndrome (410.8 ± 96.5 $*10^3/\mu L$) than other monoclonal gammopathies (236.3 ± 40.4 $*10^3/\mu L$; $P < 0.001$). There was significant correlation between serum VEGF levels and platelet counts in POEMS syndrome (r =0.641, $P = 0.034$) but not in other monoclonal gammopathies.

Conclusion: These results reveal that serum VEGF levels correlate with platelet counts in POEMS syndrome and suggest that platelets may be a major source of VEGF in POEMS syndrome.

MUTATIONAL ANALYSIS OF *PMP22, MPZ,* CX32 (GJB1), MFN2, GDAP1, HSP27, EGR2, AND *NEFL* FROM KOREAN CHARCOT-MARIE-TOOTH PATIENTS

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Determination of exact mutation is important in Charcot-Marie-Tooth disease (CMT), clinically but also for the therapeutic approach. we investigated the causative genes in 1526 individuals (affected, 940; unaffected 586) from 527 unrelated Korean CMT families. Based on clinical and electrophysiological criteria, 217 families were diagnosed as CMT1, 140 families as CMT2, 33 families as CMTX, and 102 families as HNPP, and 34 families as the other CMT types.

We identified the causative mutations in 238 families (45.2%). The CMT1A duplication was detected in 48.6% of 217 CMT1 families, which was lower than that found by the European Collaborative Study (70.7%). In addition, we identified 3 CMT1A families (FC85, FC116, and FC388) with rare nonrecurrent rearrangements at 17p12 associated with unique copy number variation (CNV). The most frequently detected mutation was HNPP, which was found in 67 of 102 families (65.7%). The MFN2 gene mutations were detected in 23 of 140 CMT2 families (16.4%), and did not occurred in the CMT1 group. The Cx32 (GJB1) gene mutations in CMT1X were identified as 27 of 527 CMT families (5.1%), which was lower than that the mean frequency data from eight studies indicated approximately 12% of all CMT. Three GDAP1 gene mutations were identified from autosomal dominant or recessive families.

We suggest that CMTX1 and CMT1A are less frequent in Koreans than Europeans or Americans. Therefore, CMT might be heterogeneous not only genetically and clinically, but also ethnically.

CHRONIC INFLAMMATORY DEMYELINATING POLYNEUROPATHY (CIDP): A STUDY OF 60 CASES

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Chronic inflammatory demyelinating polyneuropathy (CIDP) is a chronic acquired immune and inflammatory disorder of peripheral nervous system.

The aim of this study is to describe clinical, electrophysiological and biological aspects and outcome of 60 patients.

All patients had clinical evaluation, electroneuromyography and CSF analysis. Nerve biopsy was performed in 11 cases. All patients received steroids treatment. There were 45 men and 15 women aged 2.5 to 73 years. The classic form of CIDP was diagnosed in 44 cases (73%). In the remaining 16 patients, six had a subacute onset, 2 had sensory neuropathy, 3 had hypertrophic neuropathy, and the neuropathy was pure motor in one case and asymmetric in 2 others, and 2 Lewis-Sumner. The disease course was progressive in 40 patients and relapsing in 20 patients.

The AdHoc committee criteria of demyelination were verified in 54 cases (90%). CSF analysis showed albuminocytologic dissociation in 70% of cases. Nerve biopsy was contributively to the diagnosis in 36 % of cases.

Further biologic investigations allowed to rule out another systemic condition associated to CIDP in all patients.

Steroids treatment was effective alone for 46 patients. Azathioprin, cyclophosphamide, IVIg or plasmapheresis were administrated in 15 cases.

The outcome estimated during a period ranging from 3 months to 26 years, was good in 45 patients (75%), poor in 8 patients and 7 patients had regular relapses.

The guidelines for the diagnosis and treatment of CIDP developed recently have the target to define the spectrum of the disorder and to adapt the therapeutic strategies.

CHARCOT MARIE TOOTH DISEASE: CLINICAL, ELETROPHYSIOLOGICAL AND GENETIC STUDY OF 104 MOROCCAN FAMILIES

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Charcot-Marie-Tooth (CMT) disease is a pathologically heterogeneous group of hereditary motor and sensory neuropathies that are either demyelinating or axonal. The two types are currently distinguished by the values of median motor nerve conduction velocity at electrophysiological examination. In each type, there are several modes of inheritance and many loci and genes have been identified. The aim of this study is to describe the different forms of CMT identified in Moroccan families.

All index patients and some relatives underwent clinical and electrophysiological examination, and DNA analysis for current forms in our region.

Among 118 families with hereditary neuropathies examined in our department from January 1997 to may 2011, 104 were diagnosed with CMT (88%). The inheritance was autosomal recessive (AR) in 53% of families and autosomal dominant (AD) in 23%. Axonal subtypes were more frequent representing 59% of AR forms. Among AR forms the most frequent genetic defect was GDAP1 gene mutation (CMT4A), followed by Lamin A/C mutation. Few families were identified with CMT4B2, CMT4C and CMT4H. Among AD forms, PMP22 gene duplication was identified in 6 families out of 14 with demyelinating neuropathy. Connexin 32 mutation was found in 1 family. Few families had particular phenotypes where CMT was associated to other signs such as facial diplegia, tongue atrophy or congenital cataract.

The AR forms are the most frequent in our population, due mainly to a founder effect in some mutations and the frequency of consanguinity. These data are very useful for building molecular genetic diagnosis strategies.

AMYOTROPHIC LATERAL SCLEROSIS IN MOROCCAN POPULATION: AN OBSERVATORY STUDY OF 57 CASES

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Amyotrophic lateral sclerosis (ALS) is a fatal neurodegenerative disease affecting motorneurons that requires specific care for patients. Our purpose was to study the characteristics of Moroccan ALS patients.

A diagnosis file was prospectively fulfilled for patients referred to our departments with ALS between May 2009 and May 2011. The collected data concerned personal, clinical, biological, electrophysiological and imaging investigations. Fifty seven ALS patients from different Moroccan regions were referred, with a sex ratio of 1,28 (32 males / 25 females). The mean age was 48,66 ± 13,18 years (range: 22 - 74). The onset signs were fasciculations in 84,2%, muscle weakness and atrophy in 75,4%, bulbar palsy was the presenting sign in 15,8%. The mean score of ALS-functional rating scale was 32,72 ± 8,76 ranging from 12 to 49. Electroneuromyography confirmed the anterior horn impairment in all patients, either localised to the four limbs or diffused to bulbar muscles. Biological and MRI investigations were normal in all patients ruling out the diagnosis of other possible causes. According to the Al-Escorial diagnosis criteria there was a definite ALS in 49% of patients and clinically probable ALS in 35,1%, 15,8% of patients had a probable ALS according to investigations. The majority of patients had a common form of ALS (75,4%) mostly with brachial onset. Implication of all Moroccan neurological departments in such study is needed to determine the frequency of the disease in our country and convince our healthcare authorities with the necessity of developing centres devoted to ALS patients care.

FAMILIAL AMYLOID POLYNEUROPATHY ASSOCIATED WITH TTRSER50ARG MUTATION IN MEXICO

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Background: Familial amyloid polyneuropathy (FAP) is a late-onset inherited amyloidosis associated with a mutation on the transthyretin (TTR) gene. TTR Ser50Arg mutation has been described as an infrequent variant of the classic Met30Val mutation.

Objective: We present the clinical and laboratory profile of 11 subjects from 7 families with FAP and TTR Ser50Arg mutation in Mexico.

Methods: Patients with suggestive signs and symptoms had a family history performed, biopsies in search for amyloid deposits, and several studies to rule out other forms of amyloidosis. TTR mutation was found in blood (3) and saliva (8) specimens sent to a commercial specialized laboratory.

Results: Nine men and 2 women from 7 different families presented with polyneuropathy, weight loss (mean: 27 kg), dry eyes and mouth, orthostatic hypotension (mean systolic fall of 38 mmHg), and chronic diarrhea. Mean age at onset was 29 yo (28-40). The most common symptom at onset was diarrhea, but all patients developed severe neuropathic pain. Positive biopsies for amyloid were found in duodenum and rectum. All autonomic testing and nerve conduction studies were abnormal. Diastolic dysfunction, followed by bundle branch heart blocks was found in the echocardiogram. Vitreous opacities were found in one half. Only one patient had proteinuria. Two patients died and three patients had walking disabilities.

Discussion: Although the clinical manifestations are similar to the classic FAP Met30Val mutation, earlier age at onset and severe clinical course with rapid deterioration are compatible with the aforementioned aggressiveness of the Ser50Arg mutation.

SLEEP PROBLEMS IN CHILDREN ARE RELATED TO BEHAVIOR PROBLEMS

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Introduction: Sleep problems are known to affect behavioral development of children, however this relationship has rarely been investigated among children in the community. The aim of the study was to identify the relationship between sleep problems and behavior problems among community children using sleep and behavioral questionnaires.

Methods: Child and Adolescent Sleep Checklist (CASC) and Strengths and Difficulties Questionnaire (SDQ) were given to all students of the schools in a city of Japan. 3643 subjects who responded to the questionnaire properly (response rate: 86%) were included in the analysis. Total and subscale scores of CASC were used as sleep parameters. SDQ total and subscale scores were used as behavior measures. Relationship between CASC scores and SDQ scores were investigated for each school age group.

Results: Subjects with elevated CASC total sleep problem score showed significantly ($p< 0.01$) disturbed SDQ total score (12.4 vs 7.1) and emotional (2.8 vs 1.3), conduct (3.0 vs 1.8), hyperactivity (4.5 vs 2.7) and peer problems (2.2 vs 2.5) subscales scores. This relationship was equally observed in all school age groups. In addition, subjects with elevated CASC subscale scores on bedtime, nighttime or daytime showed significantly disturbed SDQ scores respectively.

Conclusion: Sleep problems in children were related to behavior problems, regardless of the age groups. Screening and management of sleep problems should also be included in making intervention for children with behavior problem.

HOW TO DISTINGUISH NOCTURNAL FRONTAL LOBE EPILEPSY FROM NON-RAPID EYE MOVEMENT SLEEP PARASOMNIAS

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The diagnostic of nocturnal paroxysmal phenomena can seem easy. Clinical history, and the description of the episodes by relatives usually allow a correct diagnostic. However, the differential diagnosis between some sleep related seizures and paroxysmal non-epileptic motor episodes may still be a cause of diagnostic uncertainty, specially when the patient presents with only nocturnal signs.

We report the cases of 2 patients who complained of episodes of violent behavior during sleep. Clinical examination was normal in both patients. EEG was unremarkable in the two cases.

In these cases, it was difficult to distinguish sleep seizures from non REM parasomnia. Polysomnography confirmed the diagnostic of frontal epilepsy in one case and parasomnia in the other.

Interictal recording could fail to show paroxysmal abnormalities in nocturnal frontal lobe seizures.

Video-polysomnographic recording of the attack during sleep remains the gold-standard for the diagnosis.

Further studies are needed to clarify the physiopathogenetic and molecular substrates underlying the mechanisms leading to non-epileptic paroxysmal disorders and seizures during sleep.

THE EPILEPSY TREATMENT GAP IN SIX PRIMARY CARE CENTRES IN TOGO (2007-2009)

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Introduction: In 2001, WHO launched the countryside " to leave the epilepsy the shade " in Togo where the therapeutic gap is higher than 90 %.

Objective: It is a question of evaluating the objective of the PNSM, that to reduce to less than 50 % in a durable way the therapeutic gap of the epilepsy in the six units of peripheral (USP) care selected in the five medical areas of Togo.

Methods: An evaluative exploratory study of the strategies was carried out from May 2007 to July 2009. A USP was selected in a district of the 06 medical areas which account Togo. They are the USP Nadjundi, Nadoba, Kaboli, Asrama, Glidji, and Adakpamé. The adopted strategy passed by the staff training, the sensitizing of the communities, and the availability of antiepileptic of first line, the support at Community base with the patient's epileptics.

Results: The evaluation interns Community assumption of responsibility of 816 epileptics was carried out. The activities of the adopted strategy were carried out. The sex ratio (H/F) is equal to 1, 10. The rate of observance of the treatment varies from 96 % to 99 %. Mortality was 9 ‰. The therapeutic gap in the USP which varied between 98 % with 94 % in May 2007 passed in July 2009 between 40% to 25 %.

Conclusion: The objective was achieved in the 05 USP located in rural zone. The therapeutic gap passed in a durable way to less than 50 %.

THE PHENOBARBITAL IN THE CARE OF PEOPLE WITH EPILEPSY IN THE NORTH COUNTRY TAMBERMA-TOGO

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Introduction: Epilepsy is a neurological disease which have characterictics not contagious, most prevalent in the world , with stigma but can be controlled in more than 70% of cases. Phenobarbital (PB) was used as a reference molecule for a decentralized strategy of community care of epilepsy.

Objectives: To estimate the treatment gap, identify obstacles to treatment-related Phenobarbital, note side effects of the molecule; evaluate the cost of the treatement per year for an epileptic patient.

Results: In the 66 subjects with epilepsy,(Men : 56.1% Women: 43.9%), the average age was 25.36 years with extreme ages 3 years and 60 years. The rate of epileptic with regular fit passed to 81.8% in 2001 to 12.1% during the investigation.

The therapeutic gap from 4.08% in 2003, reached 12.12% in 2004. 71.2% of patients with epilepsy, it was noted no interruption of treatement and 92.4% of them claimed to take their treatment daily. Indeed, 69.7% of the subjects feared a relapse, and 3% the worsening of the disease. In 95.5% of patients with epilepsy, it was noted an improvement in their health with the treatment the PB. The side effects mentioned during the treatement were the drowsiness (50%) and the weariness (13.6%). It was increased by the alcoholism in 57.6% of the patients with epilepsy of the study.

The cost of treatment was estimated at 13.4 euros per year for an epileptic patient.

Conclusion: Phenobarbital molecule has excellent efficiency in the treatment of epilepsy in rural areas and is affordable too.

NEUROLOGY IN FRANCE AND ENGLAND IN THE 19TH CENTURY: CHARCOT AND HUGHLINGS JACKSON

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Background: *Jean Martin Charcot* (1825-93) and *John Hughlings Jackson* (1835-1911) made significant contributions to the development of neurology and described by some as "the fathers" of the specialty.

Aim: This work explores how differences in medical training and health provision in nineteenth century France and England impacted on their work.

Methods: Literature search and review of primary and secondary sources.

Results: *Charcot* worked in a large hospital full of patients and was funded by the State, whereas *Hughlings Jackson* practised on a much smaller scale; funding was through donations and most of his work was achieved through the private practice of his friends. The freedom to perform post-mortems in France enabled *Charcot* to link the clinical signs with pathology, pressures of a small private practice enabled *Hughlings Jackson* to develop therapeutics.

Conclusions: Thus, in respect to nineteenth century neurology, the French neurologists named it and the English neurologists treated it.

In addition to their individual contributions, their collaberative work supports *Granshaw's* argument that medical institutions transcended the competitiveness among nation states to further the specialty. As evident in the establishment of a *World Congress of Neurology.*

HISTORY OF NEUROLOGY: THE ARAB AND MOROCCAN CONTRIBUTION

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Introduction: Neurology was used by Willis in 1664 to designate “nervous system diseases ” but Arab doctors, linking their research on Neurology to the Hippocratic and Galenic heritage already considered the brain as the origin of psychic and neurological diseases.

Aims: Ancient Egyptian physicians described the brain, meninges, CSF, migraine, monoplegia, hemiplegia, quadriplegia, facial paralysis and generalized convulsions, but flourishing period of Arab medicine started from Andalusia which was conquered by the Moroccan Tarik Ibn Ziyad.

Marrakesh was built in 1062 by Yusuf Ibn Tachfin the first king of Almoravides dynasty as capital of Morocco. Our country contributed to the development of Neurology in Europe between the ninth and thirteenth centuries (School of Cordoba, Karaouiyine university in Morocco).

Andalusian doctors made major contributions to neuroscience: Abulcasis, was the pioneer of modern surgery, Avicenne (Ibn Sina) the father of modern medicine with his book “the Canon”, Averroes (Ibn Rochd) suggested the existence of Parkinson's disease . Avenzoar (Ibn Zohr) described meningitis, intracranial thrombophlebitis and contributed to modern neuropharmacology. Maimonides (Ibn Maymoun) a jewish physician described neuropsychiatric disorders and belladonna intoxication.

Since 1920, number of French physicians settled down in Morocco and set up two departments of neurosurgery in Rabat and Casablanca (1960) and the first school of medicine in Rabat (1963). The Moroccan society of Neurology was founded in 1995.

Conclusion: Arabo African world had fundamental contribution in Neurology but Misconceptions are still seen with connections to magic and spiritual fields and social stigma of neurological problems especially in epilepsy.

THE IMPACT OF IMMUNE RECONSTITUTION ON COGNITIVE FUNCTIONS IN HIV/AIDS PATIENTS ON HIGHLY ACTIVE ANTIRETROVIRAL THERAPY (HAART)

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Introduction: The HIV-1 infections can be complicated with a range of neurocognitive disorders that become more severe as the immune system declines. The effects of antiretroviral therapy (ART) on cognitive performances of Nigerians with HIV/AIDS have not been studied previously.

Objective: To determine the impact of immune reconstitution on cognitive function of affected persons by comparing their cognitive performances before and after institution of highly active antiretroviral therapy (HAART).

Design and methods: A prospective longitudinal cohort study of one hundred and five HIV-seropositive antiretroviral naïve patients with CD4 count ≤ 350 cells/ul followed up for twelve months. Their baseline cognitive performances before and after commencing HAART were compared after 12 months using the International HIV dementia scale (IHDS), the Community Screening Interview for Dementia (CSID) and Fepsy as neuropsychological test instruments.

Results: The mean baseline and post-HAART CD4 counts were 136.25 ± 85.65 /ul (range 5 to 350/ul) and 263.43 ± 74.42/ul (range 51 to 770/ul) respectively while mean CSID scores at baseline and post HAART were 61.45 ± 9.32 and 68.23± 7.85 respectively ($p< 0.001$). The mean pre- and post-HAART IHDS scores of the patients were 6.89 ± 2.45 and 10.30± 2.51 respectively ($p=0.007$). The mean pre-HAART scores for simple reaction time, binary choice reaction, concentration, tapping task and working memory were significantly worse than the mean post -HAART scores on Fepsy ($p< 0.001$).

Conclusion: Significant cognitive impairments are associated with HIV/AIDS. HAART significantly improves cognitive performances in patients with HIV/AIDS.

STRESS INDUCED DYSREGULATION OF BDNF-TRKB SIGNALING CASCADES IN HIPPOCAMPUS OF LEARNED HELPLESSNESS MODEL OF RATS

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Objectives: The neurotrophins or nerve growth factors comprise a family of secreted proteins that promote the survival and differentiation in the developing mammalian nervous system. Brain-derived neurotrophic factor (BDNF) is a member of the nerve growth factor family, and is widely expressed in mammalian brain. BDNF directly binds and activates receptor TrkB, which is directly involved in many physiological functions in the brain.

Aims: Our experiment focused on the effects of chronic stress and antidepressant treatment in the MAP Kinase and PI-3 Kinase signalling cascades of BDNF in hippocampus.

Materials and methods: Adult rats were randomly divided into control, chronic stress and recovery groups. Stress-induced helplessness in rodents constitutes a well-defined model to investigate neurobiological mechanism of depression. Fluoxetine hydrochloride (FLX) as antidepressant drug was administered among the recovery group rats. The expression of BDNF was measured by sandwich ELISA, its cognate receptor TrkB, downstream molecules Akt and ERK 1/2 in the hippocampus were assayed by immunoblotting technique.

Results:

(1) Chronic stressed rats exhibited down regulation of BDNF and TrkB along with ERK1/2 and Akt.

(2) The FLX treated rats exhibited significant increase in escape behavior,

(3) also exhibited significant restoration of BDNF, TrkB, ERK1/2 and Akt,

(4) behavioral response was significantly correlated with expression of BDNF, TrkB, ERK1/2 and Akt in comparisons with the stressed, control and recovery rats.

Conclusion: Our finding suggests that chronic stress is responsible for dysregulation of both MAP Kinase and PI-3 Kinase signaling pathways generated through the activation of BDNF and TrkB interaction.

ROLE OF ERK SIGNALING IN ANIMAL MODEL OF DEPRESSION: EFFECT OF CHRONIC ANTIDEPRESSANT TREATMENT

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Objective: Depression is associated with deficiencies in monoaminergic neurotransmitters and possibly neurotrophins. A common cellular response to these molecules is the activation of extracellular signal-regulated kinase (ERK). A deficiency of ERK signal transduction in rat model of depression was therefore hypothesized and tested the efficacy of antidepressant treatment.

Methods: We measured escape behavior with shuttle box escape test as a mark of behavioral depression and brain levels of ERK, phosphorylated ERK (pERK), and MAPK phosphatase-2 (MKP-2) by western blots in control, stressed and antidepressant fluoxetine hydrochloride (Flx-HCL) treated recovery rats.

Results: The FLX treated rats exhibited significant increase in escape behavior and also exhibited

(1) significant increases of pERK1/2 in the frontal cortex and pERK1 in the hippocampus,

(2) significant restoration of ERK2 in the frontal cortex and hippocampus,

(3) no changes in MKP-2 in either frontal cortex or hippocampus, and

(4) measures of behavioral response was significantly correlated with expression of ERK2 and pERK2 in the frontal cortex and hippocampus in comparisons with the stressed and normal control rats .

Conclusions: Antidepressant treatment increase "behavioral despair" and expression of ERK and pERK1/2 associated with key limbic region of rat brain in depression. These findings suggest that a deficiency in the ERK signaling pathway is involved in the display of depressive behaviors.

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BODY DYSMORPHIC DISORDER DRIFT TOWARD FRONTO-TEMPORAL DEMENTIA

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Object of study: Body Dysmorphic Disorder (BDD) is a polymorphic condition, whose features range from an excessive preoccupation with a presumed or minimal flaw in appearance to neglect or even exhibition of an evident defect (Fiori P., Giannetti L.M., 2009). The aim of our present study was to assess whether BDD may be an early sign of fronto-temporal dementia (FTD).

Materials and methods: The study is ongoing on < 45 years old subjects. Brief Assessment of Negative Dysmorphic Signs (Fiori P. et al. 2010), Temperament and Character Inventory (Cloninger C.R., 1987), Body Dysmorphic Disorder Examination (Rosen J.C. and Reiter J.L., 1996), Mini-International Neuropsychiatry Inventory (Sheehan D.V., Lecubrier Y. 1994), Hamilton Depression Rating Scale (Hamilton M., 1960). Dissociative Disorders Interview Schedule (Ross C et al., 1989) are administered. Blood and radiological examinations are performed.

Results: Our results show that BDD is a misdiagnosed disorder that may pervade any aspect of daily life, with individual, relational, economic and social consequences. Comorbidity with depression, eating disorders, addiction and schizoaffective reactions is found. A loss of directiveness and a higher transcendence is observed in females compared to males. In the latter, high directiveness may not correspond to self realization and relational competence. Moreover, a behavioral drive toward dominant or submissive behaviors is observed, as in FTD (Rankin KP et al, 2003).

Discussion: BDD is related to modality of attachment and interferes with personality development. It causes a chronic activation of stress responses with increased susceptibility to diseases. Prospective studies and functional imaging are needed.

CHILDHOOD-ONSET NEURODEGENERATION ASSOCIATED WITH *PLA2G6* GENE MUTATIONS: AN EVOLVING ENTITY OF RECESSIVE ATAXIA SYNDROME

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Introduction and objective: Neurodegeneration associated with *PLA2G6* mutations manifests with variable phenotypes including infantile neuroaxonal dystrophy (INAD), idiopathic neurodegeneration with brain iron accumulation (NBIA), and Karak syndrome. We review the clinical, genetic, neuroimaging and pathologic features of 11 patients with *PLA2G6* mutations.

Methods: Eleven patients (seen during 17 years) with mutations in the *PLA2G6* gene were studied. Neuroimaging consisted of brain CT and/or MRI in all patients. Neurophysiologic investigations included nerve conduction studies (NCS)/ electromyography (EMG) which was performed in 10 and EEG in 5 patients. Muscle biopsy was undertaken in 4 and examined for histology and histochemistry. Two glutaraldehyde-fixed muscle specimens were available for electron microscopy.

Results: Eleven patients (5 males and 6 females) from 6 consanguinous families were studied. Although all patients have the same ethnic Arab background, the clinical phenotype varied. Six presented as classic INAD, one as atypical neuroaxonal dystrophy (NAD), and 4 as Karak syndrome phenotype. All patients developed cerebellar ataxia and showed cerebellar cortical atrophy on neuroimaging, as early as 1.3 years of age. After a period of up to 3.3 years, changes consistent with increased iron deposition were identified in the globus pallidus and substania nigra. Five novel *PLA2G6* mutations were detected in the 6 families. Electron microscopy of muscle biopsy showed focal increase in granular and membraneous material possibly resulting from disrupted membrane homeostasis known to occur with *PLA2G6* mutations.

Conclusions: Molecular testing for *PLA2G6* mutation is indicated in childhood-onset ataxia, if neuroimaging shows cerebellar atrophy with, or without, evidence of iron accumulation.

STROKE IN CHIDREN WITH CARDIAC DISORDERS: RESULTS OF THE INTERNATIONAL PEDIATRIC STROKE STUDY

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The etiology of arterial ischemic stroke (AIS) in children is diverse and multifactorial, with many occuring in children with cardiac disorders. We hypothesized that the clinical presentations, radiographic features, and outcomes would differ between those with and without cardiac disorders. We analyzed the large population of children with AIS from the International Pediatric Stroke Study, comparing the demographics, presentations, imaging, and outcomes between children with and without identified cardiac disorders. Of 676 children ages 29d-19y in the registry; 667 had etiological data. Stroke was associated with cardiac disorders in 204/667 (30.6%): congenital heart disease in 121/204 (59.3%), acquired heart disease in 40/204 (19.6%), isolated PFO in 31/204 (15.2%). Compared to other children with stroke, those with cardiac disorders were younger (median age 3.1 vs 6.5y; $p< 0.001$) and less likely to present with headache (25.6% vs 44.6%; $p< 0.001$) but were similar in terms of gender, focal deficits, seizures, or recent infection. Analysis of imaging identified significant differences ($p=0.005$) in the vascular distribution (anterior vs posterior circulation or both) between those with and without cardiac disorders. Bilateral strokes and hemorrhagic conversion were more prevalent in the cardiac disorders group. Cardiac disorders were identified in almost one third of children with AIS. They had similar clinical presentations to those without cardiac disorders but differed in age of onset and headache prevalence. Analysis of imaging results suggests that children with cardiac disorders more frequently had bilateral strokes in both the anterior and posterior circulations, and a greater tendency to hemorrhagic transformation.

CORTICAL SURFACE AREA, CORTICAL THICKNESS AND WHITE MATTER MICROSTRUCTURE RELATE TO IQ IN PRETERM BORN VERY-LOW-BIRTH-WEIGHT (VLBW) YOUNG ADULTS

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Background and aims: Perinatal brain injury in VLBW children affecting grey and white matter is associated with neurocognitive deficits that persist into adulthood. The aim of study was to investigate the relationship between cognitive deficits and cortical and white matter deviations in VLBW young adults.

Material and methods: 49 VLBW (birth weight ≤ 1500 grams) and 59 controls were examined at age 19 with Wechsler Adult Intelligence Scale-III and MRI. An automated MRI technique at 1.5 Tesla for morphometric analysis of cortical surface area and thickness, and diffusion tensor imaging to investigate fractional anisotropy (FA) in white matter tracts were performed.

Results: Low IQ scores were correlated with reduced surface area in dorsolateral frontal areas, in the parietal and temporal lobes, and in the left occipital lobe. Reduced IQ was also associated with cortical thickening in medial frontal areas and temporoparietal thinning. The IQ indices that corresponded the most to the associations were the Perceptual Organization Index with the temporo-parietal thinning, and the Processing Speed Index and the Working Memory Index with the frontal thickening and with surface area reduction. The FA-IQ correlation analysis demonstrated positive correlations between FA and IQ in white matter including corpus callosum and long and short association tracts that ended in the affected cortical areas. No correlations were seen in the control group.

Conclusions: Cognitive deficits in VLBW young adults are related with grey and white matter changes indicating perinatal brain injury with permanent influence on cortical development and tract connectivity.

LEVETIRACETAM IN TOURETTE SYNDROME: A CONTROLLED DOUBLE BLIND, PLACEBO CONTROLLED STUDY

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Introduction: Some drugs currently used to treat tics have drawbacks, including the risk of side effects such as tardive dyskinesia. Therapeutic options with better safety profiles are needed. Levetiracetam is an antiepileptic drug with atypical GABAergic effects that might be beneficial for this indication.

Purpose: To evaluate the effects of levetiracetam on motor and focal tics, behavior, and school performance in children and adolescents with tics and Tourette syndrome.

Methods: 24 patients; range was 6-18 years, with tics and Tourette syndrome were enrolled in this study for 8 weeks. Each group had 12 patients. The initial starting dose of levetiracetam was 250 mg/d; titrated over 3 weeks to 1,000 to 2,000 mg/d. Clinical outcomes were assessed with the Clinical Global Impression Scale, Yale Global Tic Severity Scale, and Revised Conners´ Scale.

Results: 10 out of 12 patients in Levetiracetam group showed improvements based on all of the scales used and 4 patients improved with regard to behavior and school performance. 2 dropped out. 9 out of 12 in the placebo group showed no improvement, one showed a great placebo effect . 2 dropped out. Levetiracetam was generally well tolerated. 2 discontinued because of exaggeration of pre-existing behavioral problems.

Conclusions:

• Levetiracetam may be useful in treating tics in children and adolescents. Given its established safety profile, levetiracetam is a candidate for additional evaluation.

• This preliminary, pilot study supports the use of levetiracetam as one of the new pharmacological methods available to treat vocal and motor tics in TS.

DEVELOPMENTAL FUNCTIONING OF INDIAN CHILDREN WITH CHRONIC MALNUTRITION

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Objective: To examine the effect of stunted growth on the developmental functioning of young children.

Methodology: Developmental functioning of 29 severely malnourished children, less than 5 years of age, was compared to 29, age and household income matched, adequately nourished children. Stunting was defined as height for age less than 2 standard deviations below the median. Developmental Assessment Battery (Sidhu et al., 2010) and Home Environment Inventory (Mohite, 1989) was used to assess developmental functioning and quality of the home environment. Stepwise multivariate regression analysis was used to identify significant socio-economic, demographic, and home environment predictors of total DQ scores in children with stunting.

Results: Nearly 30% of children were found to be stunted in the study population. Stunted children as compared to adequately nourished children had lower developmental quotients. However, significant differences were found on only the motor DQ scores (t= 1.99, P= .05). The home environment of stunted children as compared to adequately nourished children was found to be significantly poorer on the physical environment domain (t= 2.13, P= .037). Multivariate regression analysis revealed that 47% of the variance in the total DQs of stunted children was accounted by income of the household and age of the child (F= 9.35, P= .001). Younger stunted children from relatively higher income groups had higher DQs.

Conclusions: Significant number of children in India are exposed to multiple risks for poor development including poverty, poor nutrition and inadequate home environments.

INTRAOPERATIVELY CONTROLLED MENINGIOMA RESECTION INVOLVED THE ROLANDIC REGION BY PRIMARY MOTOR CORTEX MAPPING

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Objective: Growth of the meningioma adjacent to primary motor cortex (PMC) may be surgical risk factor. Functional preservation should be superior to resection radicality.

Aim: Determine whether PMC mapping during meningioma resection influences the extent of resection and patient's outcome.

Material and method: From 1/2005 to 12/2010 there were operated 42 patients with meningioma compressing PMC. Four patients harboured recurrent tumor. 25 patients (59.5%) suffered from paresis.

PMC confirmation was made by cortical mapping. Threshold stimulation current for motor response (MEP) was set at every site (monopolar, train 5 pulses, 500Hz, 400μs, ≤ 25mA) at tumour-cortex junction repeatedly during dissection.

Results: Radical resection Simpson 1 and 2 was achieved in 30 (71.4%), subtotal Simpson 4 in 12 cases (28.6%). New permanent deficit developed in 4 (9.5%). All these patiens had paresis (muscle strength ≤3) preoperatively.

Three patiens experienced early complication (2 haematomas, 1 status epilepticus).

MEP threshold incerased by ≥ 1.0 mA in 10 patients (23.8%) during dissection. In 4 thin layer of tumour was left adjacent to PMC (2 with trasient paresis). In 6 radical resection was achieved (1 permanent deficit).

Histology: G-I in 29 (69.1%), G-II in 13 (30.9%). Average follow-up was 33.2 months.

Conclusion: PMC mapping influences tumour dissection considerably. It seems to be beneficial from functional perspective to leave small tumour residuum at PMC if it is not possible to find an approriate dissection layer. Further studies aiming at long term follow-up are needed.

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HOW MONITORING DESEASE PROGRESSION IN AMYOTROPHIC LATERAL SCLEROSIS (ALS) PATIENTS USING MUNE AND MACRO-EMG

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Background and objective: Amyotrophic Lateral Sclerosis (ALS) is the commonest degenerative motor neuron diseases. Clinical neurophysiology in ALS plays a role both in diagnosis and assessment of its severity and progression. This study was aimed to assess ALS progression using Motor Unit Number Estimation (MUNE) and Macro-electromyography (macro-EMG).

Material and methods: both techniques were applied to 61 patients, basally (T0) and after 4 (T1), 8 (T2), and 12 (T3) months. Twenty-two patients had a bulbar and thirty-nine a spinal form of disease; forty were in treatment with riluzole (Rilutek®). Thirty-three healthy volunteers served as controls. Macro Motor Unit Potentials (macro MUPs) were derived from Biceps Brachii (BB) muscle; MUNE was performed both in BB and Abductor Digiti Minimi (ADM) of the same side.

Results: MUs number decreased in both muscles throughout the entire follow up and the rate of MU decrease was similar in both muscles, but steeper distally ($p < 0.05$). Macro-MUPs area progressively increased at T1, T2 and T3 in respect to T0 in either ALS form ($p < 0.005$). Fiber density (FD) at T3 decreased a bit lower than T2.

Discussion: MUNE and Macro-EMG simultaneously performed in ALS allowed to identify a trends in of denervation/reinnervation rate in earlier and later stages of ALS useful to assess disease progression. Moreover the combined use of both MUNE and Macro EMG techniques in ALS patients, that are reproducible, low-cost, and relatively easy-to-perform, represent a potentially tool to effectively track and quantify over time changes in MU number and features.

CHARACTERISTICS OF THE LONG LATENCY VESTIBULAR ELECTRICAL EVOKED POTENTIAL IN CONTROL HUMAN SUBJECTS: PHYSIOLOGIC SCALP RESPONSE OR ELECTRICAL ARTIFACT?

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Introduction: A human vestibular electrical evoked potential (VEEP) technique has recently been reported.

Objective: To report a unique long latency waveform associated with the previously described human VEEP which has novel electrical properties.

Methods: Adult control subjects (23 ears) were studied with transcutaneous bipolar electrical stimulation of the mastoid region. Evoked potentials were recorded over Cz-$A_{1/2}$ with standard signal averaging techniques. Late responses were produced at 2.5 mA and for 5 subjects at a range of current strengths from 1 to 25 mA.

Results: In control subjects, stimulation of the mastoid region at 2.5 mA yielded Cz-$A_{1/2}$ late responses of median amplitude of 61 µV (range 1.6-104; SD 25) and of median latency of 10.2 ms (range 6.0-13.3; SD 4.9). This response progressively increased in latency from 8.6 to 22.6 ms (mean latency increase of 1.3 ms/mA) as current strength was increased in 10 steps (1mA/step) from threshold current level in all 5 subjects.

Conclusions:

(1) The human VEEP technique produces reproducible late responses in neurologically normal adult control subjects,

(2) the VEEP late response latency increases with increasing current strength as previously reported in animal experiments,

(3) the current strength-response pattern of the VEEP late response in humans may be a reflection of increasing inhibition of descending vestibular efferent pathways or perhaps less likely an artifactual electrical phenomenon unrelated to the vestibular system, and

(4) future studies are needed to define further the nature and origin of the VEEP late response in health and disease.

CERVICAL RADICULAR PAIN INDUCED NEUROPLASTICITY IN SOMATOSENSORY PATHWAY

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Purpose: This study assesses the relationship between chronic pain and plasticity in somatosensory pathway by recording **somatosensory evoked potentials** (SEPs) in patients complaining of unilateral cervical radicular pain.

Methods: Twenty patients were assessed and pain severity was graded. Routine labs, plain X-ray and MRI of the cervical spine were performed. Nerve conduction studies, electromyography (EMG), and SEP studies after digital nerve stimulation of thumb, little finger on painful and non painful sides were done. SEP parameters were compared to those of 10 age and sex matched control subjects.

Results: Pain duration was 11.95±3.25 months. Pain severity was graded as II in 13 patients and III in 7. C6 was the mostly involved root clinically and radiologically. No evidence of deafferentation, by EMG, in 75% of patients. Amplitudes of EP, N13, N20 and P22 after stimulation of the painful thumb were greater than those of the non-painful thumb, little finger on painful and non painful sides and those of controls.

Conclusion: Results suggest that pain can induce neuroplastic changes, irrespective of presence of deafferentation, involving both peripheral and central levels but more evident centrally and these changes are selective according to involved territory.

COGNITIVE DYSFUNCTION AFTER GENERAL VERSUS REGIONAL ANESTHESIA ASSESSED BY P300 WAVE

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Background: Postoperative cognitive dysfunction has been reported after a variety of non-cardiac surgical procedures especially in elderly patients. We hypothesized that the risk of postoperative cognitive dysfunction might be different with regional than with general anesthesia.

Methods: Sixty patients (25 male, 35 females) aged over sixty years and classified I, II according to American Society of Anesthesiologist (ASA) were undergoing elective total knee replacement or Dynamic hip screw orthopedic operations. They were classified into two groups: 30 patients anesthetized generally and 30 patients anesthetized regionally. Hemodynamic parameters (O_2 saturation, heart rate and blood pressure) were recorded preoperatively, intraoperatively and postoperatively. Cognitive function was measured by P300 wave preoperatively and within one week postoperatively.

Results: In general anesthesia group, there was a statistically significant decrease in O_2 saturation and increase in heart rate between postoperative and preoperative (control) group. In regional anesthesia group, there was no such difference. There was a statistically significant increase in P300 latency in milliseconds postoperatively (350±9.7) in comparison to preoperatively (333.4±15) in general anesthesia group. In regional anesthesia group, there was no such difference.

Conclusion: General anesthesia may produce cognitive dysfunction in elderly patients as detected by a statistically significant delay in the P300 wave latency postoperatively. Therefore epidural anesthesia is a better choice for total knee replacement and Dynamic hip screw for less cognitive dysfunction and less hospital stay.

GUILLAIN-BARRÉ SYNDROME: A CLINICAL AND ELECTROPHYSIOLOGIC STUDY OF 446 MOROCCAN CASES

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Background: Guillain-Barré syndrome (GBS) is an acute inflammatory polyradiculopathy. Electrophysiologic examination is a useful tool for diagnosis confirmation, prognosis and categorization of GBS into recognised demyelinating (AIDP) and axonal (AMAN and AMSAN) subgroups.

Methods: This is a study of 446 patients presenting to the department of neurophysiology from January 1998 to may 2011 with a clinical diagnosis of GBS.

Results: Mean age was 24,9 ±20,9. History of preceding infection was found in 62% of patients. There was 192 children (43%) aged 10 months to 15 years and 254 adults (56,9%) aged 16 to 80 years. AIDP was diagnosed in 318 patients (71,3%) who fulfilled the published criteria of demyelination, the remaining 128 cases (28,7%) had axonal form of GBS, most of which with the AMAN subtype. Recurrent GBS was diagnosed in 18 patients (4,2%). The axonal form was significantly more frequent in children than in adults (40,1% vs 20,1. p< 0,001). The clinical characteristics and the evolution were compared between demyelinating and axonal subtypes in both adults and children subgroups. The clinical severity with bulbar palsy leading to mechanical ventilation, was significantly higher in the axonal subgroup when compared to AIDP one (41,7% vs 24,5. p< 0,001). IVIg treatment was given to 30 patients and plasma exchange (EP) to 3 cases with good evolution except exacerbation of the symptoms in 1 case.

Conclusion: The recognition of GBS subtypes using the electrophysiological study is crucial as each may have an independent immunopathogenesis and, therefore may require selective treatments

THE STUDY AND DATE ANALYSIS OF INTERICTAL EEG IN EILEPTIC PATIENTS

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Introduction: The modern antiepileptic Drugs-AED can imitate normalization of clinical futures in epileptic children and change the typical epileptiform pattern of EEG. For this reason the correct evaluation of EEG in interictal period gain a special significance for adequate treatment strategy. Was an elaborate criterion for investigation of interictal EEG patterns using computer EEG approach to study the correlation between clinical and neurophysiological outcomes. The aim of this study was to investigate alteration of different EEG characteristics in epilepsy contingent during the treatment.

Methods: Following quantitative characteristics of EEG were analyzed: absolute values of the power spectra; EEG-topography- spatial distribution of frequency ranges. 137 epilepsy patients aged 3 -12 years were examined.

Results and conclusions: Quantitative Spectral analysis of interictal EEG reveals that most powerful are the oscillations of 3-8 Hz with prevalent amplitude 60-120 µV. The essential value has morphology of the theta-waves and its distribution. The presence of rhythmic monomorph high amplitude theta-waves of tempo-parietal localization in interictal EEG of children is a negative finding despite of normalization clinical status and allows to expect renewing of seizures after canceling of AED. The value of EEG date as predicting seizure exacerbation in children with new onset epilepsy is important. Careful follow-up EEG, including repeated EEG recordings and date analysis will be usefully to identify changes predictive of seizures aggravation after initiation of treatment.

SACCADIC EYE MOVEMENTS DURING AGING IN HEALTHY VOLUNTEERS, PATIENTS WITH PARKINSON'S DISEASE AND PROGRESSIVE SUPRANUCLEAR PALSY

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The goal of our study was to figure out the dynamic of neurodegeneration in healthy subjects, patients with Parkinson's disease (PD) and progressive supranuclear palsy (PSP) and to compare processes of pathological neurodegeneration and normal aging. For these purposes we registered saccadic eye movements using electrooculography. 27 patients with PD, 5 patients with PSP and 52 healthy volunteers took part in the study. To analyze aging dynamic all participants were divided into matching age groups.

In healthy volunteers the mean saccade latency and the percentage of multistep saccades increase significantly after the age of 60. Values of these characteristics in patients with PD significantly exceed the values in the corresponding age groups of healthy subjects. The duration of single saccades depends on age to a smaller extent and does not change in patients with PD. In patients with PSP eye movement abnormalities are more salient than in patients with PD. Restriction of vertical gaze in PSP appears even on early stages of disease. As the disease progresses oculomotor abnormalities became more pronounced: decreasing of saccades amount, limitation of vertical and horizontal gaze and eye movements mismatch were revealed.

Thereby the saccades characteristics analysis allows us to reveal the rate of neurodegeneration that may be useful for early diagnostics and treatment control.

CACNG2 AFFECTS GENETIC SUSCEPTIBILITY TO CHRONIC PAIN

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An integrative approach was implemented to identify *pain1*, a pain-related QTL. The neuroma model was used to assess chronic pain in mice. Using advanced mapping strategies, we first narrowed the QTL containing interval from 30cM down to about 1cM or a 2.4Mb interval containing 78 genes. Subsequently we performed thorough candidate gene prioritization analyses. These included:

(i) in-silico SNP association analysis using whole-genome sequence information of several inbred strains.

(ii) Functional relevance to pain from known mechanisms.

(iii) Complete expression profiling of the mouse transcriptome in various inbred strains and under alternative nerve injury conditions.

These analyses resulted with only CACNG2, a calcium channel subunit, being prioritized by all screening criteria. To confirm the relevance of the candidate CACNG2 gene to chronic pain, we took advantage of a natural knockout for CACNG2 (*stargazer*). We confirmed such relevance by observing a significantly different chronic pain response for mice with different knockout genotypes. To further confirm human relevance, a cohort of 549 breast cancer patients, who underwent total or partial breast removal, was genotyped for variations at the CACNG2 locus and assessed for post-operative chronic pain. We found that the A-C-C haplotype of the 3 SNPs rs4820242, rs2284015 and rs2284017, significantly increased susceptibility to chronic pain in this cohort, OR=1.65 (p=0.001). This study illustrates the efficiency of an integrative approach for the identification of genes underlying complex traits and highlights a possible new pathway that may enable the discovery of novel therapies to chronic pain, a highly common but poorly treated condition.

THE NOCICEPTION COMA SCALE - REVISED, A SENSITIVE SCALE TO ASSESS NOCICEPTION IN PATIENTS WITH DISORDERS OF CONSCIOUSNESS

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Objectives: Assessing nociception is difficult in patients with disorders of consciousness. We developed a new scale for assessing nociception in vegetative (VS) and minimally conscious (MCS) state patients, the Nociception Coma Scale (NCS). Here, we will compare the behavioral changes observed with the NCS in noxious as well as non-noxious conditions in order to determine its sensitivity to nociception.

Methods: We assessed the responses of 64 patients (27 VS and 37 MCS) during baseline and following tactile (tap on the shoulder) and noxious (pressure to the fingernail) stimulations.

Results: We used an analysis of variance with repeated measures on condition (baseline vs tactile vs noxious) to detect differences in NCS total scores and subscores. We obtained significant differences for the total scores and for all subscores. Post-hoc analyses revealed a difference between baseline and noxious conditions as well as between tactile and noxious conditions for the total scores and for the motor, verbal and facial subscores. For the visual subscores, there was no difference between tactile and noxious conditions. Additionally, a ROC curve analysis revealed that, with a cut-off score of 4, the exclusion of the visual subscale increased the sensitivity of the scale from 46% to 73% (specificity of 97% for both versions).

Conclusion: The visual subscale does not seem to be informative for assessing responses to noxious stimulation. Since its exclusion increased the sensitivity of the scale, we propose a revised version of the NCS (NCS-R), a sensitive clinical tool for assessing nociception in postcomatose patients.

END-OF-LIFE ATTITUDES ARE MEDIATED BY OPINIONS ON PAIN PERCEPTION IN PATIENTS WITH DISORDERS OF CONSCIOUSNESS

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Objectives: Previous surveys show clinicians' support of treatment withdrawal from vegetative state (VS) but not from minimally conscious state (MCS) patients [1]. In light of controversies on perception of pain and suffering in VS [2], it is not clear how opinions on pain perception contribute to end-of-life attitudes.

Methods: A questionnaire [as in 1, 2] was distributed at conferences around Europe. 1606 medical and 653 paramedical professionals (N=2260) provided yes-no answers on questions related to pain and end-of-life issues in chronic (>1 year) VS and MCS patients. Chi-square tests on contingency tables were performed.

Results: For chronic VS, 67% (n=1486) of respondents supported treatment withdrawal and 54% (n=1195) considered that they feel pain. Treatment withdrawal was supported more by respondents who thought that VS patients did not feel pain (77%, n=775) as opposed to those who thought they did (59%, n=691; $p < .001$). Opinions between medical (78%, n=610) and paramedical professionals (75%, n=165) did not differ ($p=.19$). For chronic MCS, 29% (n=643) of respondents supported treatment withdrawal and 96% (n=2158) considered that they feel pain. Respondents' attitudes on treatment withdrawal were not mediated with opinions on pain perception in MCS ($p=.07$).

Conclusions: Opinions on pain perception contributed to end-of-life attitudes towards VS but not for MCS. Our results point to the existing controversies on pain perception for VS and highlight the necessity of further scientific exploration of pain in these patients.

1. Demertzi, et al. (2011). J Neurol. 258: 1058-65.

2. Demertzi, et al. (2009). Prog Brain Res. 177: 329-38.

TRANSCULTURAL CONSIDERATIONS IN NEUROETHICS

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Till the early 19th century medicine was based on traditional medicine missing scientific based therapeutic rules. During the following time Western medicine came to an intensive development period using the results in histology, bacteriology and the different methods in surgical and conservative treatment. Éthical rules were mainly based on the Hippocratic principles. With the involvement of living human beings in the biomedical research based on the Helsinki Declaration (1964), the Western medical laws are directing medical obligations in practice and research worldwide, backed by the WHO settings. Till now Western ethical rules and ethical principles are still guiding modern medicine . The Western ethics are based on the philosophical schools of Plato and Aristoteles, implicated by the Christian ideology introduced by Saint Augustinus and Thomas Aquinas. Non- Western ethical rules following cultural tradition and different religious laws are not integrated. But ethical principles have to be identical. At the beginning of the 21th century the time has come to discuss a transformation in global acceptable ethical rules, based on the different cultural, traditional and religious requirements.

The WFN Research Group on Neuroethics is trying to elaborate a concept for ethical guidelines in neurology proofing the various transcultural influences.

PAIN AND ITS ASSOCIATION WITH PSYCHOLOGICAL CHARACTERISTICS IN SEVERAL SUBGROUPS OF IN-PATIENTS AT A UNIVERSITY HOSPITAL IN RUSSIA

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Introduction: Co-occurence of the anxiety and pain is a well described phenomenon (Asmundson GJ, Katz J., 2009).

Objectives: of our study were to study association of pain, anxiety and depression in patients of our university hospital.

Design: Cross-sectional study in 8 wards: neurological, internal medicine and surgeries.

Material and methods: A half of the in-patients (183 subjects - 48.2%) consented to participate in our survey (59% females). Mean age of the group was 51.6±18.0 years. The Hospital Anxiety and Depression Scale (HADS) was used as the key psychological tool.

Results: HADS showed the signs of anxiety in 114 (62%) patients (more in females) and depression in 75 (41%) subjects in both genders equally. Pain was present at the moment of the study in 132 (72%) patients (mean score - 5.3±2.5 out of 10). During the last 3 months most of them (92%) experienced pain, 38% had chronic daily pain, 80% complained of pain interfering daily living activities. The most frequent sites of pain were lower back (32.8%), headaches (26.9%), and joints (23.9%) in all the wards. Patients with no pain during the last 3 months did not have signs of depression and 87% of them did not show anxiety. We found positive correlation between pain at the moment of the study and the index of anxiety ($r=0.4$, $p \leq 0.01$) and the frequency of pain and HADS indices ($r = 0.4$, $p < 0.01$).

Conclusions: Pain, anxiety and depression intercorrelate and affect daily life of most of the in-patients at our university hospital.

CEREBRAL VENOUS SINUS THROMBOSIS IN SAUDI ARABIA

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Objective: To analyze the clinical patterns, etiologies, treatment and outcome of cerebral venous sinus thrombosis (CVST) in two major cities of Saudi Arabia, Jeddah and Al Baha.

Methods: One hundred and eleven patients diagnosed as CVST were identified from the medical records at King Abdulaziz medical city in Jeddah and King Fahad hospital in Al Baha, from January 1990 through November 2010. We retrospectively analyzed the data, compared it with local and international studies and reviewed the literature.

Results: There were 92 adults and 19 children. Among adults, females predominated (79.35%) while more boys(73.7%) were affected than girls. The mean age of onset was 29.5 years. The most common clinical presentations were headache (69.4%), focal neurologic deficits (44.1%), seizures (40.5%), papilledema (35.1%) and decreased level of consciousness (27%). Main risk factors identified were pregnancy/puerperium (15.3%), antiphospholipid antibody syndrome (13.5%), oral contraceptive pills (12.6%). malignancy (9.9%) and infections (9.9%). Multiple sinuses were affected in 51 patients(45.9%). When a single sinus was involved, superior sagittal sinus (24.3%) was the most common. Seventy four patients recovered completely, 23patients recovered partially, and ten patients died. Bad prognostic factors included incurable co-morbid condition,late presentation and status epilepticus.

Conclusions: Pregnancy/puerperium was the most common aetiological factor in our series. Clinical features were similar to international series. Behcet's disease was not a major aetiological factor in our series.. Majority of the patients had involvement of multiple sinuses. Prompt treatment with anticoagulation resulted in complete or partial recovery in 87.4% of patients.

TROPICAL SPASTIC PARAPARESIS: A MAJOR NEUROLOGIC PROBLEM IN CAUNGULA- ANGOLA RELATED TO CYANIDE OF CASSAVA: FIRST REPORT FROM ANGOLA

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A particular kind of spastic paraparesis was first reported in Republic of Zaire in the 80 years. Since then other reports was made in other tropical countries as Mozambique, Tanzania, Cameroon, related to cyanide intake of same kind of cassava.

The typical clinical picture is spastic paraparesis with abnormality of gait while walking or running with onset less than a week and irreversible curse.

No reports have been made before in Angola.

In order to clarify an unusual frequency of unknown disease at the site, we attended to the Caungula Vilage in the northest of Angola.

Caungula is a small rural village in the northest of Angola near the border with Democratic Republic of Congo.

We observed 20 patients affected with spastic paraparesis with different degrees of gait limitation. In 10 out of then we collected Blood sample for Cyanide, HIV and HTLV virus analyses.

The patients were from 05 to 34 years old, most of them was woman. From those who blood was collected (10), all the blood samples were non-reactive to HIV and HTLV 1 and 2; but all of them had higth levels of cyanide.

We conclude that tropical Spastic paraparesis (Konzo) in Angola is related to same kind of cassava with high concentration of cyanide. This is the first report of that disease in Angola.

PRIMARY SENSORY NEURONS ARE RESISTANT TO TDP-43 PATHOLOGY IN AMYOTROPHIC LATERAL SCLEROSIS

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Introduction: Amyotrophic lateral sclerosis (ALS) is defined as a disease of the motor neurons, and recently regarded as a TDP-43 proteinopathy. Although several studies have shown involvement of the sensory nervous system, there is no pathological study about the damage of primary sensory neurons from the aspect of TDP-43 proteinopathy.

Aim: To evaluate the TDP-43 pathology of dorsal root ganglia (DRG) in ALS.

Methods: We studied 20 autopsied cases with ALS (48-81 years of age, mean 63.9; M : F = 16 : 4; mean duration of illness 28.4 months). We divided into three clinical subtypes by the first symptom, namely 10 cases of upper extremity (UE) type, 4 cases of lower extremity (LE) type, and 6 cases of bulbar (B) type. Lumbar spinal cords (L3-L5) and the same levels of dorsal root ganglia were stained with HE and KB. Immunohistochemistry was done with anti-cystatin C, TDP-43, and pTDP-43 antibodies.

Results: All cases showed neuronal loss of the anterior horn cells and the degeneration of lateral corticospinal tract. There were TDP-43 positive cytoplasmic inclusions in the lower motor neurons in all cases. The appearance ratio was lower in LE type than the other types. Bunina bodies were recognized in 5 cases. The spinal ganglia revealed neither the nodules of Nageotte nor the neuronal loss. TDP-43 positive inclusions could not be found in dorsal root ganglia of all the cases studied.

Conclusions: Primary sensory neurons of ALS are preserved well, not affecting by TDP-43 proteinopathy.

TRANSDERMAL SUMATRIPTAN FOR ACUTE TREATMENT OF MIGRAINE

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Introduction: Migraine is a widespread neurologic disorder characterized by episodes of headache accompanied by photophobia, phonophobia, gastrointestinal symptoms and, often, cutaneous allodynia. Presenting symptoms can vary considerably, but gastrointestinal disturbances are common. Current pharmacotherapy for migraine includes analgesics, nonsteroidal anti-inflammatory drugs, and several 5HT-agonists in various oral, nasal spray, and subcutaneous formulations. Among the 5HT-agonists, sumatriptan is the most frequently prescribed, but its therapeutic limitations (ie, poor absorption, low bioavailability, adverse events) cause some migraineurs to delay or avoid treatment and may lead to suboptimal outcomes.

Objective: Transdermal sumatriptan (Zelrix®) is a new, single-use, disposable patch that delivers sumatriptan via iontophoresis, a less invasive method for systemic delivery.

Methods: Well-controlled clinical studies demonstrate significant superiority versus placebo.

Results: Pharmacokinetic data indicate that transdermal sumatriptan delivery is fast, consistent, and predictable. Results from well-controlled clinical studies demonstrate significant superiority versus placebo within 1 hour post-activation for pain relief (P=0.0135) and nausea-free (P=0.0251); at 2 hours post-activation, transdermal sumatriptan significantly outperformed placebo for pain-free (P=0.009), pain relief (P=0.0135), photophobia-free (P=0.0028), phonophobia-free (P=0.0002), and migraine-free (P=0.0135).

Conclusion: Transdermal sumatriptan is well tolerated, and reported adverse events are mostly mild, transient application site reactions. This article reviews the evidence in support of the efficacy and safety of transdermal sumatriptan for acute treatment of migraine.

PREVALENCE OF MIGRAINE AND HEADACHE IN MOROCCAN SCHOOLCHILDREN

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Objective: To determine the prevalence of migraine and headache in school children aged 6 to 13 years in the city of Agadir.

Background: This study is the first survey of headache in children in Morocco.

Methods: 1999 students were randomly selected using a multistage clustered sampling procedure. We used a questionnaire followed by an interview and clinical examination, between January and June 2004. 569 students who had reported having moderate or severe headache were interviewed and examined by a neurologist with the presence of their parents. Diagnosis of migraine headache was made according to the International Classification of Headache 2004.

Results: Participation rate was high (93.7%; 1874 of 1999).

From the questionnaire 52% reported a history of headache in the previous six months.

9% fulfilled the criteria for migraine without aura. Prevalence of migraine with aura was low (0.7 %). Overall prevalence increased with age.The mean age of onset of migraine was 7.9 years. 52.6% had a frequency of occurrence of one to two attacks per month. In 58%, the headache lasted one to four hours. 64% had bilateral location.79% had pulsating quality.

Prevalence of probable migraine was 1.2%. Prevalence of chronic migraine was low (0.1%).

84% had a family history of headache.

30% of children had missed school in the previous 3 months because of migraine attacks. 71% used over-the-counter drugs for migraine.

Conclusions: In school children in Agadir:

The prevalence of headache is high.

Migraine is a common health problem and is mostly under- estimated and under-diagnosed.

HEADACHE SYMPTOMS OF THE PREEMPT POPULATION

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Background and objective: Chronic migraine (CM) is a complex neurological disorder affecting approximately 2% of the general adult population. CM sufferers experience a broad range of debilitating symptoms. This analysis assesses the daily headache symptoms of CM patients over a 4-week period.

Methods: PREEMPT (two phase 3 studies: 24-week, double-blind, placebo-controlled, parallel-group phase, followed by 32-week, open-label phase) evaluated onabotulinumtoxinA for prophylaxis of headaches in CM (≥15 days/month with headache lasting ≥4 hours/day). A total of 1384 CM patients daily reported their headache symptoms for a 28-day baseline period using an interactive voice response telephone diary. The baseline frequencies of various headache features and associated symptoms were computed.

Results: Of 38,752 total days, patients reported 27,483 (70.9%) days with ≥4 hours of headache. Patients classified their pain as moderate/severe on 90.9% of their headache-days. The most common associated symptoms patients described experiencing on headache-days were photophobia (81.2%), phonophobia (80.2%), exacerbation with physical activity (80.0%), pulsating quality (70.8%), unilateral pain (63.6%), and nausea (59.8%). Vomiting (13.8%) was reported infrequently.

Conclusion: These CM patients experienced severe headache symptoms throughout the 28-day baseline period. The overwhelming majority of headaches were characterized as moderate/severe pain intensity, which were often accompanied with sensitivity to both light and sound and aggravated by routine physical activity. The majority of patients also reported pulsating pain quality, unilateral headache, and nausea. The heavy burden of illness suffered by CM patients emphasizes the necessity of prophylactic treatment for their headaches.

Support: Allergan, Inc.

COMPARISONS OF DISABILITY, HRQOL AND RESOURCE USE BETWEEN CHRONIC AND EPISODIC MIGRAINEURS:A STUDY FROM TWO HEADACHE CLINICS IN TAIWAN

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Background: Chronic migraine (CM) is a disabling condition affecting 1.5% of the population. Patients with CM have a diagnosis of migraine and headache **≥**15 days/month for **≥**3 months;whereas, patients with episodic migraine (EM) have headache < 15 days/month.

Objectives: We investigated the relationship between migraine status and disability, health-related quality of life (HRQoL), productivity and health care resource utilization.

Methods: Patients with EM and CM were recruited from two headache clinics in Taiwan as they presented for care related to their headaches. Physicians determined migraine diagnoses via patient interview. Participants reported sociodemographics, Migraine Disability Assessment (MIDAS), EQ-5D, Migraine-Specific Quality of Life v2.1 (MSQ), Patient Health Questionnaire-4 (PHQ-4), productivity and health care resource utilization.

Results: A total of 331 patients (257F/74M, mean age 41±11 years old) completed the study. One hundred and sixty-four patients had EM (49.5%); 167 had CM (50.5%). Age, gender and education levels did not differ significantly between these groups. CM patients reported significantly greater disability (MIDAS 46.1 vs. 14.4, p< 0.001), lower HRQoL (MSQ three domains: role restrictive 56.4 vs. 70.8; role preventive 70.0 vs. 81.4, emotional functioning 62.0 vs. 78.1), lower EQ-5D VAS 67.4 vs 82.3; lower EQ-5D index score 0.7 vs. 0.9 all p< 0.001), higher levels of anxiety and depression (PHQ-4 ³6) (33.5% vs.7.9%, p< 0.001) and greater health care resource utilization and productivity loss versus those with EM.

Conclusions: Compared to EM, CM was significantly associated with higher disability, lower HRQoL and greater health care resource utilization and productivity loss.

EFFECTS OF ANTIEPILEPTIC DRUGS ON SPREADING DEPRESSION IN THE CHICK RETINA: IMPLICATIONS FOR MIGRAINE PROPHYLAXIS

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Objectives: To test in a useful experimental model the effects of GABAergc drugs on spreading depression.

Material and methods:

1) Isolated retinas from 2 week-old chicks. Briefly, each retina was dissected and kept in a superfusion chamber under aflow of 1.2 ml/min of Ringer´s reference solution at 31°C, pH 7.4 and 5%CO2. Mechanical or chemical stimuli were applied every 15 minutes, as slow retinal potentials were registered using two glass microelectrodes inserted inthe internal plexiform layer, connected to a WPI223 electrometer, and recorded on a Grass5D polygraph. SD waves were characterized by their speed (mm/min), amplitude (mV), deflagration threshold (DT, tested with KCl- stimulus) and absolute refractory period (ARP,) with and without the drugs under study. Five antiepileptic drugs with proven effect on the modulation of GABAergic transmission were tested: Topiramate, Valproate semisodium, Gabapentin, Lamotrigine and Levetiracetam.

2) Additional retinas were treated by the drugs for 15 min, then homogenized to measure the activity of the enzymeGABA-transaminase (GABA-T). Analysis of variance was used to compare results from differentexperimental groups.

Results: All five tested drugs reduced the speed and amplitude of SD in a dose-dependent and reversible manner, *invitro* as well as in*vivo*.

Conclusions: Antiepileptic drugs, and more especially Topiramate, can significantly affect both the threshold and the propagation of SD in adose-dependant manner. Our results reinforce the notion that SD may underlie the physiopathology of migraine and that, althoughfurther investigations on cortical SD are needed, our model may be a useful tool for the test of new prophylactic drugs.

SALIENCE NETWORK CONNECTIVITY REFLECTS THE LEVEL OF CONSCIOUSNESS IN NON-COMMUNICATIVE BRAIN-DAMAGED PATIENTS

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Objectives: At resting state fMRI, the salience network encompasses anterior cingulate (ACC) and fronto-insular cortices and has been linked -among other functions- to the emotional counterpart of pain [1]. For patients in coma, vegetative state (VS) and minimally conscious state (MCS) pain perception is a controversial issue [2]. We here aimed to characterize the integrity of the salience network in different pathological alterations of consciousness.

Methods: Ten minutes resting state fMRI acquisitions (300 scans) were obtained from 23 controls and 33 patients (17 MCS, 10 VS, 6 coma). Patients were assessed with the Coma Recovery-Scale Revised (CRS-R). Activity in the right anterior insula [x=38, y=26, z=-10 as in 1] was considered as a seed region. Data were analyzed with SPM8 software.

Results: Second level analysis (FWE $p < .05$) showed a linear positive correlation between CRS-R total score and cortico-cortical connectivity between right insula and ACC (x=2, y=20, z=34, z=5.69, $p < .001$), left insular cortex (x=-38, y=4, z=14, z=4.65, p=.012), right (x=46, y=-40, z=30, z=4.78, p=.007) and left posterior parietal cortex (x=-46, y=-40, z=22, z=4.69, p=.01).

Conclusions: A significant group-level correlation between the salience network connectivity and the level of consciousness was identified. These results suggest that, after further validation, the present methodology could potentially be translated into a routine clinical setting, bringing relevant ancillary information on a patient's residual brain function to bear on their clinical evaluation of pain perception and treatment.

1.Seeley, et al. (2007). J Neurosci. 27: 2349-56.

2.Demertzi, et al. (2009). Prog Brain Res. 177: 329-38.

AIRPLANE HEADACHE: A NOVEL ENTITY?

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Introduction: Airplane headache (AH) indicates a form of headache, whose attacks are strictly related to airplane travel. Only few cases have been described, although AH does not seem to be so rare.

Material and methods: Following our previously paper, we were contacted by several subjects. They were asked to fill up a questionnaire, which was evaluated directly or by phone.

Results: Up to now, 65 cases (males: 65%; mean age at onset: 29.6 years, range 7-62) were diagnosed. The pain site was mainly frontal-orbital (n=51) or frontal-parietal (n=6). A strictly unilateral side was reported in 79% of patients; side-shift in different attacks was observed in 22%. AH attacks occurred during landing (in four patients also during take off), lasted about 20 minutes (range 5-60) and remitted spontaneously. Its intensity was very severe or severe. The attacks presented in more than 50% of flights in 16 patients; nine reported its occurrence during every flight. Three patients suffered from headache attacks also during the rapid ascent of mountain by car, reaching the altitude of 2,000 metres in less than 30 minutes. Four patients reported headache attacks occurring also after diving, attaining the maximum depth of 5-8 meters.

Conclusions: To our knowledge, this is the largest series of AH cases. Our data suggest that this headache is a specific clinical entity, in keeping with the provisional diagnostic criteria we proposed. Therefore, AH could be listed in the appendix of the ICHD-II, among novel entities that require further validation.

ARE THE DESTRUCTIVE NEUROSURGICAL TECHNIQUES AS EFFECTIVE AS MICROVASCULAR DECOMPRESSION IN THE MANAGEMENT OF TRIGEMINAL NEURALGIA?

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Background: The aim of the study was to assess the long-term outcome (efficiency and morbidity) of treated patients with one of these techniques (TC, PTGC, and MVD) in the same institution.

Methods: The authors present a retrospective study of 225 consecutive patients from 1983 to 2009. The inclusion criteria were drug-resistant idiopathic TN and intolerance to medical treatment. Three groups were set up according to the techniques used: Group I (n=84), treated by TC; Group II (n=78), treated by PTGC; Group III (n=63), treated by MVD. The main judgment criterion was pain relief. The second judgment criterion was morbidity, χ^2 or Fisher exact test, Kaplan-Meier, and log-rank were used for statistical analysis.

Results: The 3 groups were homogeneous according to age, duration of evolution, and pain topography. Concerning gender, groups I and II were different (females, 58% vs. 37%; *P*=.021). The immediate efficiency for the 3 groups was, respectively, 96%, 94%, and 95% (NS). At 6 years follow-up, 70%, 77%, and 72% of the patients, respectively, remained pain-free (NS). As determined by the Kaplan-Meier survival curve, there was no difference between the 3 groups (log-rank, *P*=.867). Hypoesthesia was more frequent for PTGC (89%).

Conclusions: In our study, we did not find MVD to be more effective than the other techniques. However, it had the lowest long-term complication rate, which is a strong argument in choosing this technique as the initial procedure for young and healthy patients. Percutaneous techniques, however, are still recommended in specific circumstances.

EFFICACY OF NATUROPATHY ON MODULATION OF SYMPATHOVAGAL BALANCE AND CLINICAL SYMPTOMS IN MIGRAINE PATIENTS

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Background: Disturbed autonomic symptoms are common in migraine with hemicranial headache. Naturopathy treatment including yoga and hydrotherapy which are traditional Indian psycho-philosophical-cultural method that has multiple health benefits including the improvement in the Sympathovagal balance.

Objective: To study the effect of naturopathy treatment on clinical and Sympathovagal balance in migraine patients.

Methods: Fifteen migraine patients (age31.8±6.08yrs; duration of illness8.3±4.7yrs) fulfilling the International classification of headache disorders (ICHD) II criteria, were recruited from the Neurology outpatient department, NIMHANS, Bangalore. In addition to the conventional treatment, patients advised to practice yoga therapy for 60 min and hydrotherapy for 20 mins 30 sessions in 45days. Patients were assessed before and after intervention by headache frequency and headache intensity by visual analogue scale(VAS) for pain and Sympathovagal balance by heart rate variability(HRV) measures. Lead II resting ECG was recorded for 15 minutes and analyzed offline.

Results: With naturopathy treatment, patients exhibited significant improvement in clinical parameters (Headache frequency pre 9.1±4.6 post 2.5±1.6per month; VAS pre9.3±1.03VAS post 2.6±1.12). HRV parameters showed improvement in parasympathetic activity and reduced sympathetic activity significantly (LFnu pre 58.9±4.4, LFnu post 48.5±4.2; HFnu pre 31.2±2.9, HFnu post 43.2±3.8; LF/HF pre 2.3±0.4, LF/HF post 1.4±0.3).

Conclusion: Predominant sympathetic activity is found in migraine , which is a poor prognostic marker. Our study shows that naturopathy treatment enhanced the vagal tone in addition to reducing the frequency and intensity of headaches and thus improving the quality of life in migraine patients. Hence naturopathy treatment can be effectively incorporated as an add-on therapy.

HEADACHE WITH FACIAL PAIN: THE TAC-TIC COMPLEX

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Trigeminal autonomic cephalalgias (TACs) are severe side locked primary headache disorders. Trigeminal neuralgia (TN) or *tic douloureux* is a disorder of the sensory divisions of the trigeminal nerve characterized by severe unilateral facial pain in the distribution of the fifth cranial nerve. Rare coexistences of TACs with tic in the same patient is described. This is probably more than a mere coincidence. TAC-tics may be a rare sub group of TACs.

Cases:

Case 1 (on video): A 42 y F with side locked right sided headache with right facial pain. A case of CPH-tic. She was treated with Indomethacin and Carbemezepine to which she responded well.

Case 2 (on video): 50 Fwith left sided headache and facial pain- A SUNCT-tic. Patient responded well to a combination of Indomethacin and Lamotrigine.

Case 3 (on video): A 60 year old female presented with side locked severe left headache, another CPH-tic responding to Indomethacin and Carbemezepine.

Case 4: A 27 year old female with a 10 year history of side locked typical migraine. No autonomic features.

Case 5: 50 YF patient with right CPH-tic responding to Indomethacin and Carbemezepine.

Conclusion: TAC-tics are probably a separate headache entity or a subgroup of TAC headaches and are very rare. It is important to recognize the co-existence of both these conditions in the same patient at the same time and treat for both.

ONABOTULINUMTOXINA FOR TREATMENT OF CHRONIC MIGRAINE: POOLED RESULTS FROM THE DOUBLE-BLIND, RANDOMIZED, PLACEBO-CONTROLLED PHASE OF THE PREEMPT CLINICAL PROGRAM

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Objective: To assess the efficacy, safety, and tolerability of onabotulinumtoxinA for the prophylaxis of headaches in adults with chronic migraine (CM; ≥15 days/month with headache lasting ≥4 hours).

Background: CM is a prevalent, disabling, undertreated disorder. Few preventive treatments have been investigated.

Design/methods: The PREEMPT clinical program included two phase 3, 24-week, double-blind, placebo-controlled studies, followed by a 32-week, open-label phase. Subjects were randomized (1:1) to onabotulinumtoxinA or placebo every 12 weeks. Key endpoints were mean change from baseline in frequencies of headache days (primary PREEMPT 2) and headache episodes (primary PREEMPT 1) at Week 24.

Results: Pooled analyses of 1384 randomized adults (onabotulinumtoxinA, n=688; placebo, n=696) demonstrated a large mean decrease from baseline in frequency of headache days (-8.4 onabotulinumtoxinA, -6.6 placebo; $p< 0.001$), headache episodes (-5.2 onabotulinumtoxinA, -4.9 placebo; $p=0.009$), and in almost all secondary variables, favoring onabotulinumtoxinA at Week 24 and all other time points. The percent of patients with ≥50% reduction from baseline in headache days was significantly greater for onabotulinumtoxinA (Week 24: 47.1% onabotulinumtoxinA, 35.1% placebo; $p< 0.001$). Only overall acute headache medication use (all categories; $p=0.247$) was not significant at Week 24. A significant between-group difference in triptan use reduction was observed ($p< 0.001$). Most adverse events (62.4% onabotulinumtoxinA, 51.7% placebo) were mild to moderate in severity, and they caused few discontinuations (2.8% onabotulinumtoxinA, 0.7% placebo).

Conclusions: This pooled analysis of the PREEMPT trials supports the efficacy, safety, and tolerability of onabotulinumtoxinA for the prophylaxis of headache in adults with CM.

Support: Allergan, Inc.

THE EXTENDED LOCKED-IN SYNDROME

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The Locked-in Syndrome is one of the most devastating neurological conditions. However, despite thorough description of the condition and its clinical appearance, the classic locked-in, which is defined as quadriplegia, anarthria, only vertical eye movement and blinking possible, but with preserved cognitive abilities, seems to be infrequently present. This syndrome is also referred to as bilateral ventral pontine syndrome, which in respect neuroanatomically explains the symptomatology. Since MRI verified isolated damage to the pons poses the finding in this certain case, the question arises, how the symptomatology increases, if additional lesions are found in mesencephalic brain areas. For the case centers for vertical gaze are affected as well, the terminus complete locked-in was proposed, characterizing the total loss of all voluntary muscle movement. However, as damage can spread further to thalamic, cerebellar and occipital brain areas, alterations of arousal and awareness can be expected. Here, brain areas of special interest constitute the mesencephalic and pontine periaqueductal gray matter and medial thalamic nuclei. In such remarkable cases, brain damage does not only affect the patients' motor abilities, but also their consciousness.

We present four cases of locked-in syndrome, each with different patterns of structural injury, as obtained by 3T MRI in great detail. It is discussed how clinical appearance and imaging results relate to each other. The question will be approached if it is useful to differentiate severer types of locked-in syndrome.

CHANGES IN FMRI RESTING STATE ACTIVITY DURING PROPOFOL INDUCED UNCONSCIOUSNES

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Objective: To date, there is no consensus on the mechanisms by which anesthetic drugs induce loss of consciousness. Resting state fMRI studies have identified several brain networks including the default mode network, executive control networks, auditory and visual networks. Our aim was to analyze the effects of propofol anesthesia by investigating changes in relevant resting state networks through fMRI functional connectivity analyses.

Methods: Data from 18 healthy participants was acquired at resting state in four conditions: wakefulness, mild sedation, deep sedation and recovery of consciousness, using 3T-fMRI. Independent component analysis identified 30 components. Components of interest were selected based on spatial (template matching) and temporal properties (neuronal activity testing). The selected components were summed to create scalar maps of neuronal activity. A repeated measures general linear model (random effects analysis, SPM8) tested for significant differences between conditions.

Results: Analysis of the scalar maps revealed resting state neuronal activation of several areas to correlate negatively with the state of consciousness. Prefrontal ($p < 0.001$), middle temporal ($p < 0.001$), language-related ($p < 0.005$) and somatosensory areas ($p < 0.005$) including the thalamus ($p < 0.01$) showed a significant decrease in activation with loss of consciousness under whole brain family wise error correction.

Conclusion: The creation of simulated metabolic scalar maps from resting state connectivity made it possible to identify regions in the whole brain that are modified by propofol. Our findings suggest that functioning in higher order fronto-temporo-parietal networks is diminished through anesthesia, leading to loss of consciousness.

THALAMUS CONTROLS RECOVERY IN MINIMALLY CONSCIOUS AND VEGETATIVE STATES

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Introduction: The anatomopathologies of the vegetative state (VS) and minimally conscious state (MCS) are incompletely understood. Comparison of regional glucose metabolism may provide insight into focal lesions specific for these conditions, but small populations and heterogeneity of cerebral damages in these patients have limited previous studies.

Material and methods: We used PET-FDG to measure relative regional glucose consumption rates (CMR_{glc}) in 77 MCS patients, 70 VS patients, 15 patients who recovered from MCS, and 92 healthy volunteers. We used SPM8 to examine regional differences in FDG metabolism, as well as changes in FDG metabolism over time.

Results: MCS and VS patients had significantly lower relative rates of glucose metabolism in thalamus, posterior cingulate gyrus, and precuneus. VS patients, in addition, showed hypometabolism in the remaining cerebral cortex. A regression analysis using time since onset of medical condition revealed time-related relative increases in glucose metabolism in somatosensory cortex of MCS patients. In contrast, VS patients showed time-related relative decreases in thalamus, anterior, and posterior cingulate gyri over time periods from 3 months to 10 years. Finally, in the patients who emerged from MCS, relative thalamic metabolic rate at emergence correlated negatively with the duration of the medical condition, i.e., patients showing rapid recovery had higher metabolic rates in thalamus than patients recovering slowly.

Conclusion: The results are congruent with previous studies of glucose metabolism in chronic disorders of consciousness. Region-specific changes in metabolism over time and thalamic involvement in recovery of these conditions have not been shown before.

FREQUENCY AND RISK FACTORS FOR HIV-ASSOCIATED DEMENTIA IN MALI

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Introduction: In sub-Saharan Africa, the introduction of HAART has resulted in decline of the incidence of opportunistic infections. As HIV + patients live longer, they may confront risk of neurocognitive complications termed HIV associated dementia (HAD). A number of risk factors have been found to be associated with HAD. In Mali, where the national prevalence of HIV infection is 1.3% we have evaluated the frequency of HAD and determined risk factors associated with HAD through the use of the International HIV Dementia Scale (IHDS).

Method: Through a cross-sectional study design, 119 HIV+ patients were consecutively recruited from Mai to August 2010. After clinical evaluation, patients were tested with the IHDS and classified as demented; IHDS score≤10 and not demented with IHDS score>10. Age, sex, marital status, education level, WHO staging, body mass index, CD4 counts, use of HAART and presence of anemia and malaria were used in univariate analysis. A logistic regression model was created to determine risk factors independently associated with HAD.

Results: We found that 27.73% of the HIV positive patients had HAD. Among them 26.05% had a CD4 count less than 200. In the logistic regression analysis, advanced clinical stage (OR: 3.53, P=0.024), and low CD4 count (**OR**:13.20, P=0.002) were the only variables identified as significant risk factors associated with HAD.

Conclusion: In Mali patients are initiated on HAART at low CD4 counts and with significant neurocognitive complications. In the future, we aim to improve HAD screening at the different HCNLS (National High Council for AIDS) sites.

PREDICTORS OF HEALTH RELATED QUALITY OF LIFE AND FATIGUE 30 MONTHS AFTER TREATMENT FOR EUROPEAN NEUROBORRELIOSIS

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Aim: To identify predictive factors for non-favourable long term outcome with respect to health related Quality of Life and fatigue after treated neuroborreliosis.

Methods: We followed 50 patients diagnosed with Lyme Neuroborreliosis (LNB) prospectively, and assessed outcome by the self-report questionnaires Short form-36 (SF-36) and the Fatigue Severity Scale (FSS) 30 months after treatment. Associations between long term outcome and demographic, clinical and laboratory data collected before and 4, 12 and 30 months after treatment were analyzed by univariate analyses and linear regression. A composite clinical score based on subjective complaints and objective findings was used to assess clinical variables.

Results: Lower scores in the SF-36 domain Physical Summary Component were associated with pre-treatment symptoms duration ≥ 6 weeks (Beta -0.456, p=0.037) and incomplete clinical recovery 4 months after treatment (Beta -0.269, p=0.001). Lower scores in the SF-36 domain Mental Summary Component were associated with incomplete recovery at 4 months (Beta -0.369, p=0.01). Higher scores on the FSS were associated with high scores on the composite clinical score pre-treatment (Beta 0.479, p≤0.001) and 12 months after treatment (Beta 0.285, p=0.020), respectively. No laboratory tests were associated with any of the outcomes measured in this study.

Conclusions: Pre-treatment symptom duration ≥ 6 weeks and non complete recovery 4 months after treatment seem to predict reduced health related Quality of Life 30 months after treated LNB. A more severe clinical picture pre-treatment and remaining complaints one year after treatment seem to predict more fatigue 30 months after LNB.

THE IMPACT OF ROUTINE CRYPTOCOCCAL SCREENING AND TREATMENT ON MORTALITY AMONG HIV-INFECTED INDIVIDUALS WITH CD4≤100 IN NYANZA PROVINCE, KENYA

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Background: We hypothesized that a screening and treatment intervention for early cryptococcal infection would improve survival among HIV-infected individuals with low CD4 cell counts.

Methods: Newly enrolled patients at Family AIDS Care and Education Services in Kenya with CD4≤100 cells/µl were tested for serum Cryptococcal antigen (sCrAg). Individuals with sCrAg titer≥1:2 were treated with high-dose fluconazole. Log rank tests of Kaplan-Meier curves were used to compare survival among individuals with CD4≤100 in the intervention and historical control groups.

Results: The median age was 35 years [IQR: 29,42], 44% were male, and median CD4 was 41 cells/µl [IQR: 17,70]. Follow-up time was 723.5 person-years. In the intervention group 66% (381/576) were tested for sCrAg; among sCrAg positive individuals 86% (31/36) received fluconazole. All-cause mortality was 23% (121/404) in the control and 25% (142/576) in the intervention group. Median survival was 8.6 weeks [95%CI: 7.1, 10.3]. Log rank test did not demonstrate a significant difference in survival between the intervention and control groups (p=0.14), even if individuals who did not undergo sCrAg testing were excluded from analysis (p=0.20). Within the intervention group, there was no significant difference in survival between individuals with and without cryptococcal infection (p=0.11).

Conclusion: A screening and treatment intervention to identify individuals with early cryptococcal infection and treat them with high-dose fluconazole did not significantly improve overall survival among HIV-infected individuals with CD4 counts≤100 cells/ml as compared to a historical control group. Within the intervention group, survival was similar between individuals with and without early cryptococcal infection.

AIDS AND EPILEPSY

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The study was carried out at Khartoum state Hospitals, during the period March 1998 to November 2008.About 700 AIDS patients were included in this cross sectional hospital based study. Almost 5.71% of the patients had epilepsy and 50% of them had generalized convulsion. Encephalitis was found to be the commonest cause of epilepsy followed by meningitis, brain abscess, CNS lymphoma and toxoplasmosis. All patients with CNS lymphoma had secondary epilepsy; most of them had partial epilepsy (5 patients). The study showed that all patients with brain abscess presented with convulsion (5 had partial epilepsy while 2 had generalized convulsion). Eight out of 14 patients with meningitis experienced more than two attack of convulsion (5 had generalize seizure and 3 had partial seizure). It did appear that 5 out of 7 patients with toxoplasmosis had epilepsy (3 had generalize epilepsy and 2 had partial epilepsy). Regarding those who had encephalitis including PML (10 cases) nine patients had epilepsy (6 had generalize epilepsy and 3 had partial epilepsy). No obvious underlying cause was detected in four patients (2 had partial epilepsy and 2 had generalize epilepsy). The EEGs showed abnormal discharge in 28 patients (70%). AIDS is a great mimicker. It can be present in almost any neurological manifestation. Epilepsy is not an uncommon neurological manifestation associated with AIDS.

SPECTRUM OF NEUROLOGICAL MANIFESTATIONS OF DENGUE VIRUS INFECTION IN NORTH WEST INDIA

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Background: Neurological manifestations of Dengue virus infection are uncommon.

Objective: To study the spectrum of neurological manifestations in patients with dengue infection.

Materials and methods: Prospective study done in the Departments of Medicine and Neurology, Christian Medical College, Ludhiana. All patients with confirmed dengue infection who presented to our hospital during the epidemic from 1st September 2010 till the 31st of December 2010 were screened for neurological manifestations. A detailed history, physical, systemic examination and neurological findings were documented. Haematological, biochemical parameters and Dengue NS1 antigen / Dengue IgM serology testing were done. Neuroimaging of the brain and nerve conduction study was carried out wherever indicated.

Results: There were 1008 patients with dengue infection during the last epidemic. Neurological manifestations were noted in 22 (2.2 %) of them. There were 19 (86.4%) men, mean age was 33.7± 13.9 years. The neurological symptoms included; headache (2.7%), seizure (13.6%), altered sensorium (31.8%), motor weakness (54.5%), and autonomic symptoms (9.1%). The major neurological manifestations include acute quadriparesis due to hypokalemia 7 (31.8%), myositis 4 (18.8%), encephalopathy 4 (18.8%), Guillain-Barre syndrome 2 (9.09%) and acute disseminated encephalomyelitis 2 (9.09%). Others had compartmental syndrome 1 (4.54%), brachial plexitis 1 (4.54%) and intracranial haemorrhage 1 (4.54%). Three patients (13.6%) died.

Conclusion: Neurological manifestations in Dengue infection are not uncommon. Clinicians should be aware of these manifestations particularly in Dengue endemic areas. Reversible quadriparesis due to hypokalemia and encephalopathy were the most common neurological manifestations.

HEPATITIS C VIRUS CO-INFECTION INCREASES NEUROCOGNITIVE IMPAIRMENT SEVERITY AND RISK OF DEATH IN TREATED HIV/AIDS

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Background: Previous studies have reported that hepatitis C virus (HCV) co-infection worsens neurocognitive status among individuals with human immunodeficiency virus (HIV)-1 infection.

Objective: To define the prevalence of neurologic disorders and the severity of HIV-associated neurocognitive impairment among HIV-infected individuals with HCV co-infection.

Methods: Neurologic disease prevalence and severity was analysed in two centralized HIV clinics in Alberta, Canada from 1998 to 2010 based on their HCV serostatus.

Results: Of 456 HIV-infected persons without concurrent substance abuse, 91 (20.0%) were HCV seropositive. Of 58 neurologic disorders identified in the cohort, HIV/HCV co-infected individuals exhibited a higher prevalence of multiple neurologic disorders compared to HIV-infected individuals (60.4% vs. 46.6%, $p< 0.05$) and a higher frequency of seizures (28.6% vs. 17.8%, $p< 0.05$). Unlike HIV mono-infected persons, the risk of seizures was independent of immune status in HIV/HCV co-infected individuals ($p< 0.05$). Symptomatic HIV-associated neurocognitive disorders (sHAND) were more severe among HIV/HCV co-infected persons ($p< 0.05$). HCV co-infection was associated with an increased mortality rate (24.2% vs. 14.5%, $p< 0.05$) with a mortality hazard ratio of 2.38 after adjusting for demographic and clinical variables.

Conclusions: Our results indicate that the presence of HCV co-infection among HIV-infected individuals increased neurologic disease burden and risk of death, underscoring HCV's capacity to affect the nervous system and survival of HIV-infected persons.

EPIDEMIOLOGICAL AND CLINICAL ASPECTS OF NEUROSYPHILIS IN MOROCCO

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Background and aims: Eventhough neurosyphilis has become a rare disease in developed countries; it remains common in underdeveloped countries. Increased incidence of syphilis was associated with AIDS epidemic with resurgence of neurosyphilis. This study was carried out to evaluate epidemiological aspects and clinical manifestations of neurosyphilis in Morocco through a series of 278 patients treated at the department of neurology at Rabat University Hospital between the period of 1986 and 2010.

Methods: This study is a retrospective review of patient clinical records with neurosyphilis diagnosis. Inclusion criteria were positive TPHA and VDRL testing on cerebrospinal fluid. We recorded for each patient socio-demographic and clinical data, laboratory and imaging investigations and clinical outcome.

Results: A total of 278 cases (82% men) were identified with a mean age of 40 +/- 9.2 years. Clinical symptoms were dominated by meningoencephalitis in 66,9% (with cranial nerves impairment in 30% of them) and meningovascular in 10% followed by tabes dorsalis in 9,7% and optic atrophic in 9,3%. Cerebrospinal fluid abnormalities included elevated protein levels and pleocytosis, which were found in up to 50% of patients. Brain CT scan showed cortico-frontal atrophy in 92 cases out of 103. Concerning the outcome, 46, 9% of patients improved under penicilline.

Conclusion: Neurosyphilis remains a public health problem in Morocco independently of AIDS epidemic causing a higher incidence of early dementia.

The main characteristics of our study are that our patients had an early age of onset and clinical features showing that meningoencephalitis is still predominant phenotype.

NEUROSYPHILIS: ABOUT 45 CASES

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Introduction: Syphilis is a sexually transmitted disease widespread through the world. Neurosyphilis (NS) has risen because of the advent of AIDS. The diagnosis is based on positive serological reactions. Early treatment is the only guarantee of cure in primary syphilis and of good prognosis in NS.

Aim: To illustrate the clinical and radiological presentations of NS and evaluate the follow up profile of NS patients.

Material and methods: It's a retrospective study about 45 cases registered in the Neurology Department at the university hospital of Fes - Morocco between January 2004 and May 2011. The diagnosis of NS was based on positive serological reactions in blood and cerebrospinal fluid. All patients underwent a brain imaging: CT scan or MRI, study of CSF and HIV and hepatitis serologies.The treatment was based on intraveinous penicillin G.

Results: All our patients were male with a mean age of 43 years. The syphilitic canker was found in 58%. The average time between primary infection and NS diagnosis was 18 years.Different clinical forms were registered: chronic meningoencephalitis in 42%, meningovascular form in 15%.

Discussion: About 8% of patients with untreated syphilis will develop symptoms in the central nervous system. NS can appear at any time after the onset of primary syphilis (5-35 years).The male dominance may be explained early sexual activity, sexual liberation in our society and under-medication of patients.

Conclusion: NS is a late complication of untreated early syphilis. The prevention depends on the prophylaxis of syphilis including primary prevention,early screening and adequate treatment.

ROLE OF OXIDATIVE STRESS AND NF-KB IN RABIES VIRUS INFECTION

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Recent studies in an experimental model of rabies have shown that there are major structural changes in the brain involving neuronal processes that are associated with severe clinical disease. Cultured adult mouse dorsal root ganglion (DRG) neurons are a good in vitro model for studying the mechanisms involved in rabies virus - induced degeneration of neurites (axons), because unlike other neuronal cell types, these neurons are permissive to rabies virus infection. DRG neurons infected with the CVS strain of rabies virus show axonal swellings and immunostaining for 4-hydroxy-2-nonenal (4-HNE), indicating evidence of lipid peroxidation associated with oxidative stress, and also reduced axonal growth in comparison with mock-infected DRG neurons. Treatment with the antioxidant N-acetyl cysteine prevented the reduction in axonal outgrowth that occurred with CVS infection. The axonal swellings with 4-HNE-labelled puncta were found to be associated with aggregations of actively respiring mitochondria. Because NF-κB plays a central role in oxidative stress, we have investigated its role. The expression and localization of NF- κB were evaluated by western immunoblotting and immunofluorescence, respectively, in mock- versus CVS-infected DRG neurons. CVS infection increased the expression of NF-κB p50, but this was not associated with p50 nuclear localization. CVS infection may induce oxidative stress by preventing nuclear activation of NF-κB. Further investigations are needed to gain a better understanding of the basic mechanisms involved in the oxidative damage associated with rabies virus infection. This information may prove helpful in the design of future therapeutic effects for this dreaded ancient disease.

SEIZURES, EPILEPSY AND HIV INFECTION IN AFRICA

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Seizures are frequent manifestations of central nervous system disorders in patients infected with human immune-deficiency virus (HIV). They are more common in advanced stage of the disease. Opportunistic infections such as toxoplasmosis, tuberculosis, cryptococcal meningitis, stroke, metabolic and electrolyte disturbances are common causes of new-onset seizures in HIV-seropositive individuals. In the absence of any cause, primary HIV infection may be considered responsible for seizures. The treatment of HIV-infected individuals with seizures comprises antiepileptic drugs (AEDs), specific treatment of the underlying conditions, and antiretroviral drugs. The choice of AEDs should take into account those that have limited protein binding, have no effects on the hepatic enzyme system and does not increase viral replication.

CHARACTERISTICS AND OUTCOME OF TETANUS IN ADOLESCENT AND ADULT PATIENTS ADMITTED TO LAGOS UNIVERSITY TEACHING HOSPITAL BETWEEN 2000 AND 2009

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Methods: This study was a retrospective of all tetanus patients seen. Records of all patients admitted via the A & E and intensive care unit with diagnosis of tetanus were included. Admission and mortality registers, and death certificate booklets were used to retrieve records. Demographic and clinical data were extracted using a structured questionnaire. Data were analyzed using SPSS software.

Results: A total of 197 patients were admitted for tetanus, of which 190 patients with reasonably complete data were included. Males composed 75.8% and females were 24.2%. The mean age of the patients was 30.4 ± 13.8 years. The most common professional activity was commercial motorcyclist which constituted about 30%. The route of infection was determined in 94% of patients and 124 (69.3%) had portal of entry through the lower limbs. Generalized tetanus accounted for 96.8% . The commonest form of presentation was trismus (83%). 12.1% patients had complications which include autonomic dysfunction, laryngeal spasm, deep venous thrombosis. The mean incubation period was 11.4 ± 4.8 days, while mean period of onset was 72 ± 45.6 hours. 96% of patients were unimmunized. A total of 31 deaths were recorded, thus case fatality rate of 16.6%. Parameters associated with increased CFR were generalized tetanus, short period of onset and development of complications.

Conclusion: In contrast to previous published data, CFR is on the decline in our centre, though it still unacceptably high considering the preventable nature of the disease. Hence attention to primary prevention is crucial to further reduce tetanus related mortality.

EFFECTS OF SHAM-CONTROLLED DOUBLE BLIND TRANSCRANIAL DIRECT CURRENT STIMULATION IN PATIENTS WITH DISORDERS OF CONSCIOUSNESS

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Objective: Previous studies showed that anodal transcranial direct current stimulation (tDCS) applied to the left dorsolateral prefrontal cortex (LDLPF) transiently improves memory and attentional performance after stroke. In this study, we tested the effect of tDCS on the level of consciousness in severely brain injured patients in vegetative state (VS) and minimally conscious state (MCS) with a double-blind cross-over sham-controlled experimental design.

Methods: We assessed 34 patients with disorders of consciousness (DOC) (17 VS, 17 MCS; 47 ± 15 years; 13 traumatic). An anodal tDCS and sham tDCS were administered on the LDLPF cortex during 20 minutes over two different sessions (randomized order). We assessed the level of consciousness with the Coma Recovery Scale-Revised (CRS-R) just before and after both stimulation.

Results: Globally, CRS-R scores obtained after the anodal tDCS were significantly higher ($p < 0.001$) than CRS-R scores obtained after the sham tDCS. 14 patients showed a behavioral enhancement after the anodal tDCS and not after the sham tDCS. A significant improvement ($p=0.02$) was observed in MCS patients, but not in VS patients ($p=0.056$). No significant effects were found for etiology ($p=0.858$) and time since onset ($p=0.064$).

Conclusion: tDCS over LDLPF cortex significantly increases CRS-R score in the MCS population. Our results suggest that tDCS could be an effective tool to improve cognitive recovery in DOC patients.

DIAGNOSING CHRONIC DISORDERS OF CONSCIOUSNESS WITH FMRI

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Objective: Accurate diagnosis of severe chronic disorders of consciousness (DOC) after brain injury is essential for clinical and rehabilitative care and decision-making. Neurobehavioral assessment scales (as the Coma Recovery Scale Revised), which rely on the patients' intellectual and motor ability to communicate, are the most widely used diagnostic tools, since their advantage over standard clinical assessment has been validated. However, with the emergence of modern neuroimaging methods, especially functional MRI, objective physiological markers for assessing the state of consciousness are available in specialized clinics. They are, however not fully integrated in clinical routine, because their benefit has yet to be determined.

Material and methods: 15 patients in apallic syndrome (AS) and 5 patients in minimally conscious state (MCS) after TBI and other etiologies were examined with auditory event related paradigms in fMRI. The findings were compared to the neurobehavioral diagnosis and it was analyzed, if the additional information from fMRI confirmed or questioned the diagnosis.

Results: 3 out of 15 patients in AS showed distinct fMRI activations in event related paradigms. None of the five patients in MCS did so.

Conclusion: Provided that a positive, event related fMRI response in apallic patients changes their diagnosis, it can be assumed, that even well established behavioral assessment scales lack diagnostic certainty. This may be because they depend on the patients' motor abilities as well as on the patients´ cognitive abilities.

C-JUN N-TERMINAL KINASE MEDIATES SYNAPTIC DYSFUNCTION IN A MODEL OF ALZHEIMER'S DISEASE

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Alzheimer's disease (AD) is a progressive neurodegenerative disorder that culminates with cognitive impairment. The oligomeric forms of beta amyloid (Abeta) are the primary toxic agents in AD inducing the synaptic failure of the excitatory synaptic button. The molecular mechanisms by which Abeta oligomers induce synaptic degeneration are not well known but may involve mitogen-activated protein kinases (MAPKs). Amongst MAPKs, c-jun N-terminal kinase (JNK) has been extensively studied for its role in stress stimuli and in AD pathology. To investigate the intracellular mechanisms that lead to AD synaptopathology we set up an in vitro model of synaptic degeneration by treating hippocampal neurons from Brainbow mice with sub-toxic concentrations of synthetic Abeta oligomers. Activation of JNK signalling following Abeta oligomers application, correlated with the reduction of the number of dendritic spines and decrease of post-synaptic markers (AMPAR and NMDAR subunits, PSD95 and drebrin). A strong activation of the pro-apoptotic caspase 3 was also observed specifically in the synaptic compartment, indicative of “synaptic death”. To confirm the involvement of JNK in the intracellular mechanisms that regulate the Abeta oligomers-mediated synaptic degeneration we used the specific cell permeable JNK inhibitor peptide, D-JNKI1. Treatment with D-JNKI1 reverted the synaptic degeneration induced by Abeta oligomers by preventing the loss of dendritic spines and of AMPAR and NMDAR subunits, PSD95 and drebrin from the post-synaptic membrane. Moreover it inhibited activation of caspase 3 in the synaptic compartment. In conclusion, JNK is a key signalling pathway in the early events of “synaptic death” that characterise AD.

PRENATAL HYPOXIA IS A RISK FACTOR FOR ALZHEIMER´S DISEASE

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Most cases of Alzheimer's disease (AD) arise through interaction between genetic and environmental factors. Cerebrovascular disease and stroke are closely associated with clinical AD. Hypoxia in utero during pregnancy can result in long-lasting cognitive dysfunction and neurodegeneration. In the present study, we investigate the pathological role of prenatal hypoxia in the development of AD neuropathology in $APP^{Swe}/PS1^{A246E}$ transgenic mice of AD. We exposed the pregnant AD mice to simulated high-altitude hypoxia (oxygen, O2: 11.1%) in a hypobaric chamber 6 h per day during 7-20 days of gestation. We found that adult offsprings of prenatal hypoxic mice exhibited significant difficulty in spatial learning and memory abilities in water maze test. These mice showed a significant decrease in the number of synapses and synaptic vesicles in the cortex. We also documented significant higher level of amyloid precursor protein (APP), lower level of Aβ-degrading enzyme neprilysin (NEP), and increased Aβ accumulation in the brain of adult offspring of prenatal hypoxic mice as compared with normoxic controls. Finally, we demonstrated significantly aggravated neuropathologic changes in the brain of offspring of prenatal hypoxic AD mice, showing greater senile plaque formation, elevated Aβ production, increased phosphorylation of Tau, and decreased level of hypoxia-induced factor (HIF) and enhanced activation of astrocytes and microglia. These results suggest that although the characteristic neuropathologic changes of AD appear in the late adult life, hypoxemia in prenatal stage can contribute to the pathogenesis of AD, supporting the notion that environmental factors can trigger or aggravate AD development.

OXIDATIVE STRESS AND INFLAMMATION IN TRANSGENIC MICE (APP/PRESENILINE 1) AND IN NEURAL CELLS IN PRIMARY CULTURE

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In 40th years 35% of world population will have more than 60 years old. Alzheimer´ s disease is increasing day after day in the world. Our group and others have demonstrated oxidative stress and inflammation after Aβ (1-42) addition to neurons and astrocytes in primary culture. Using microarray to inflammation we show here a group of genes with significant differences between wild type and transgenic mice. Furthermore, by western-blot we detect changes in inflammatory mediators (iNOS, COX -2, IL - 1, TNF-α) and in oxidative stress (MDA, Peroxide quantification and MnSOD) in transgenic mice compared to wild type. Anti-inflammatory proteins such as PPAR-γ, lL-4 and IL-10 were decreased in transgenic mice. *In vitro* studies, using neurons and astrocytes in primary culture, shown an increase in T-fam and pgc-1α indicating induction of mitochondrogenesis in Alzheimer´s disease. Our hipotesis are: after necrosis and apoptosis induced by Aβ, a protective mechanisms are produced in brain, increasing mitochondria numbers to control oxidative stress and inflammation in Alzheimer´s disease.

THE ASSOCIATION BETWEEN EDUCATIONAL LEVEL AND DEMENTIA IN RURAL TANZANIA

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Background: Studies from the developed world have reported an association between lower educational attainment and dementia but there are few data from the developing world where literacy and educational levels are frequently much lower. We investigated the association between education and dementia prevalence in rural Tanzania.

Method: 1198 individuals aged 70 and over were assessed using the Community Screening Instrument for Dementia (CSI-D). The CSI-D is validated in low-literacy settings, and ranks individuals into “probable”, “possible” and “no dementia” categories. All “probable” cases, 50% of the “possible dementia” and 5% of the “no dementia” groups were subsequently interviewed, and clinical diagnoses using DSM-IV criteria were made where appropriate. Information regarding literacy and educational level was also collected.

Results: 62.7% of women had no education, 30.7% had four years or less, and 6.8% had more than four years. Figures for men were 32.0%, 49.4% and 18.5% respectively. Females were 3.56 times more likely to have had no education than males (95% CI 2.8-4.55).

Illiteracy was associated with probable dementia by CSI-D, OR 2.99 (95% CI 1.71-5.21) for males and OR 2.79 (95% CI 1.72-4.49) for females.

Interestingly, amongst individuals with 'probable dementia' who were subsequently interviewed, there was no significant difference in literacy or education between those with or without diagnosed DSM-IV dementia.

Conclusion: We found a significant association between low educational level and dementia using appropriate assessment tools designed for low literacy settings. Illiteracy may be a significant risk factor for dementia in developing countries.

COMPARISON OF TWO ANALYTICAL PLATFORMS FOR C.S.F. BIOMARKERS OF ALZHEIMER´S DISEASE

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Methods: We compared the performances of the two most commonly used platforms, INNOTEST enzyme-linked immunosorbent assay and INNO-BIA AlzBio-3 for measurement of CSF $A\beta_{1-42}$, total tau (T-tau) and phosphorylated tau 181 ($p\text{-}tau_{181p}$) proteins in 30 probable NINCDS-ADRDA AD patients and 28 control subjects. The relations between the variables of both techniques were evaluated using the Spearman p correlation coefficient ($\alpha = .05$). Receiver operating characteristic and area under the curve (AUC) analyses were calculated for the variables of both techniques.

Results: The two assays platforms yielded different absolute values for the various analytes(approximately 2- to 4-fold, higher in INNOTEST). However, those values were highly correlated ($A\beta_{1-42}$: $r= 0.70$, $p< 0.01$; T-tau: $r=0.90$, $p< 0.01$; $p\text{-}tau_{181p}$: $r=0.85$, $p< 0.01$) and the AUC for the variables showed very similar values ($A\beta_{1-42}$: 0.90 vs. 0.96; T-tau: 0.91 vs. 0.93 and $p\text{-}tau_{181p}$: 0.95 vs. 0.91).

Conclusions: The results obtained with INNOTEST and INNO-BIA were highly correlated and its validity were very similar. However, differences in absolute values point to the need for a clear description of the technique used.

RAPID PROGRESSION FROM MILD COGNITIVE IMPAIRMENT TO ALZHEIMER´S DISEASE RELATED WITH C.S.F BIOMARKER ABNORMALITIES

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Introduction: Some studies have shown that CSF amyloid-beta 1-42 (Ab_{1-42}), total tau (T-tau) and tau phosphorylated at threonine 181 (P-tau $_{181p}$) proteins are useful diagnostic markers for distinguish between clinically stable mild cognitive impairment (MCI) patients and those other who will develop Alzheimer´s disease (AD).

Our objective was to test the ability of this technique to discriminate in our cohort of MCI patients, according to the clinical evolution, one year after the lumbar puncture.

Method: 64 amnestic MCI patients were included from the local hospital memory clinic. Using INNO-BIA Alzbio-3 reagents from Innogenetics, we quantified CSF Ab_{1-42}, T-tau and P-tau $_{181p}$ proteins and calculated the ratios T-tau / Ab_{1-42} y P-tau $_{181p}$ / Ab_{1-42}. This project was approved by the local Ethical Committee.

Results: One year after the lumbar puncture, 29 MCI patients (45%) developed AD. These patients showed lower Ab_{1-42} protein levels (308.3vs435.8ng/ml, $p< 0.003$) and higher of T-tau (113.5 vs. 71.6 ng/ml, $p< 0.003$) and P-tau $_{181p}$ (62.2 vs. 48.6 ng/ml, $p< 0.01$) as well as T-tau/Ab_{1-42} (0.37 vs. 0.20, $p< 0.0001$) and P-tau $_{181p}$ / Ab_{1-42} ratio (0.22vs 0.14, $p< 0.001$) than the clinically stable patients.

Conclusion: Our MCI patients with lower Ab_{1-42} protein levels and increased tau proteins progressed rapidly to EA. These results may help to identify those MCI patients with a worse prognosis.

THE -219G/T POLYMORPHISM OF THE APOLIPOPROTEIN E GENE WITH THE APOE E4 ALLELE AND ALZHEIMER'S DISEASE IN TUNISIAN POPULATION

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Alzheimer's disease (AD) is a paradigmatic model of complex diseases resulting from the interaction between genetic and environmental factors.

This study is based of case and control study and aims at highlighting the effect of APOE ε4 and -219 G/T polymorphisms in connection with AD.

Our study included 80 controls and 81 patients recruited at the consultation of memory of the Neurology Department of the EPS Charles Nicolle, Tunis. The diagnosis of AD was selected according to the DSM IV and NINCDS-ADRDA. All patients underwent neurological and neuropsychological examinations, and brain imaging. Genomic DNA was extracted from peripheral blood leukocytes by the phenol/chloroform protocol. Genotyping was performed using the PCR restriction fragment length polymorphism (PCR-RFLP) method.

The allele frequencies of the APOE gene are 31.65% and 12.65% for allele ε4, 63.35% and 81.65% for ε3 and 5% and 5.6%for ε2, for patients and controls respectively. The ε4 allele frequency was higher in the AD group than in controls and comparable to that observed in most studies covering non-African and African populations. The frequency of the T allele was higher in the AD group than in controls (53% vs 47%), whereas the frequency of the G allele was lower in AD than in controls (47% vs 53%). This result is similar to that concerning Caucasian populations.

Future studies on larger cohort of AD might further increase the power of the analysis as well as confirm the possible risk/protective effects associated with these polymorphisms/haplotypes and their complex interactions.

COGNITIVE DECLINE IN THE ELDERLY POPULATION OF THE GUIDAGE STUDY - A 5-YEAR FOLLOW UP OF SUBJECTS WITH MEMORY COMPLAINTS

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Background: The GuidAge study assessed the potential efficacy of standardized Gingko biloba extract (EGb761) for the prevention of Alzheimer's dementia (AD) in elderly subjects with memory complaints. The aim of this analysis was to describe the subjects who underwent clinically relevant cognitive decline during the 5-years of follow-up.

Methods: 2854 subjects aged 70 years or older, were assessed annually with a full cognitive battery. We identified subgroups of subjects who underwent either an increase of 0.5 on the CDR or of at least 3 points on the CDR sum of boxes (SB), either a decrease of 3 MMSE points, or of at least 3 words on the total recall Free and Cued Selective-Reminding-Test (FCSRT).

Results: An increase of 0.5 of CDR was observed in 845 subjects and of at least 3 points on the CDR-SB in 149 subjects. 513 subjects had a decrease of at least 3 points on the MMSE, and 1047 a decrease of at least 3 words on the FCSRT. 119 subjects underwent cognitive decline on both the CDR-SB and FCSRT, 134 on both the MMSE and FCSRT, and 100 on both the MMSE and CDR-SB. 81 subjects underwent cognitive decline on all 3 tests.

Demographic and psychometric characteristics of theses respective groups will be presented. Baseline factors predictive of cognitive decline will be established.

Conclusions: The GuidAge study enabled 2854 elderly subjects with memory complaints to be followed-up for 5 years. Clinically relevant cognitive decline was observed in some subjects, and predictive factors will be described.

DEMENTIA AND COGNITIVE IMPAIRMENT IN CENTRAL AFRICA: THE EDAC STUDY 2-YEARS FOLLOW-UP

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Aims: To reassess the cognition in elderly with dementia or cognitive impairment, two years after the initial EDAC (Epidemiology of Dementia in Central Africa) study in order to determine mortality rates and conversion to dementia rates.

Methods: All subjects with dementia or cognitive impairment at the initial study and controls free-of-dementia were retrieved in Bangui (Central African Republic) and Brazzaville (Republic of Congo). Cognitive assessment was carried out using the same psychometrical tests then initial assessment (Free and Cued Selective Reminding Test, Isaacs Set Test, Zazzo's cancellation task) and a neurological examination was realized. DSM-IV and NINCDS-ADRDA criteria were required for dementia and Alzheimer's disease diagnoses. Standardized Mortality Rates (SMR) were computed in each group and conversion rates to dementia were calculated.

Results: Information was obtained in 91.4% of the subjects of whom 67.3% were reassessed and 10.0% had moved.

Crude mortality rates were 27.5% and 40.0% in demented subjects respectively in Bangui and Brazzaville, 15.3% and 12.1% among elderly with cognitive impairment and 10.7% and 7.1% in controls. SMR (reference: mortality in controls) were 256 (CI95% [80-605]) for subjects with dementia in Bangui and 560 (CI95% [193-1252]) in Brazzaville, whereas SMR for cognitively impaired subjects were 113 (CI95% [40-248]) in Bangui and 214 (CI95% [76-472]) in Brazzaville.

Conversion to dementia rates will be presented for both sites.

Conclusion: This study confirms very high mortality rates in people with dementia in two cities of Central Africa.

OBJECTIFICATION OF FOUR DIFFERENT COGNITIVE PATTERNS USING A UNIQUE VIRTUAL REALITY TOOL

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Introduction: New tests formats such as virtual reality (VR) have been proposed as a more ecologically valid alternative to traditional paper-and-pencil tests. VR-based tests provide realistic simulations of environments and enable a conjoint assessment of cognitive deficits and disabilities.

Method: We proposed a VR replica of the California Verbal Learning Test (CVLT), simulating a visit in a virtual apartment consisting of four rooms (bedroom, bathroom, kitchen, and sitting room). According to the traditional CVLT, four memory indices were measured: learning, strategic processing at encoding and at retrieval, post-retrieval processing (FR, intrusion, perseverations) and proactive interference with control subjects (younger and older adults) and patients (Traumatic brain injury (TBI) and Alzheimer disease (AD)).

Results: The analysis of psychometric qualities revealed identical sensitivity and reliability of the CVLT and the replica. However, the replica showed higher selectivity and ecological validity and diagnostic value criteria compared to the traditional CVLT.

Conclusion: Thus, our study provides the clinical interest of the VR-based memory test by differentiating a more executive cognitive pattern in TBI from a mnemonic pattern in AD. The more theoretical importance of the present work is also highlighted by supporting the hypothesis of an executive deficit common to elderly and TBI adults.

REM SLEEP SPECTRAL ANALYSIS PATTERNS IN ALZHEIMER´S DISEASE PATIENTS AND AGE MATCHED CONTROLS

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Introduction: Alzheimer´s disease (AD) is characterized by memory impairments and sleep changes that evolute in parallel. Literature suggests that cholinergic deficit may influence REM sleep mechanisms in AD. We investigated the potential link between the pattern of REM sleep spectral analysis and cognitive impairment in AD patients.

Methods: Thirty-six mild and moderate AD subjects (12 males, 24 females) and 21 normal elderly (10 males, 11 females) were allocated in two groups. Polysomnography with REM sleep EEG spectral analysis and cognitive scoring were performed after an adaptation night. Slowing ratio was the ratio between slow (delta+theta) and fast (alpha+beta) EEG frequency bands. Cognitive and sleep data were analyzed using one-way ANOVA. Correlations between cognitive improvement and REM sleep EEG were also calculated.

Results: REM sleep duration was reduced in AD patients compared to controls ($p< 0.01$). REM sleep EEG slowing ratio was increased overall and in frontal, temporal, parietal and occipital derivations in AD patients ($p< 0.05$). Frontal slowing ratio correlated inversely with MMSE (mini-mental) scores in AD patients ($p< 0.05$). Overall, frontal, temporal and parietal slowing ratio correlated inversely with ADAS-cog scores in AD patients ($p< 0.05$) Controls did not show any correlation between sleep parameters and cognitive scores.

Conclusion: AD patients present reduced REM sleep and slower REM sleep EEG rhythms. Slower REM sleep EEG is a candidate for a biological marker of cognitive impairment in AD.

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A COMBINATION OF NEUROPSYCHOLOGICAL AND BIOMARKER VARIABLES PREDICTS DEMENTIA IN MCI

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Objective: To study which neuropsychological and biomarker variables strongest predicted conversion to dementia in general and Alzheimer's disease (AD) in mild cognitive impairment (MCI).

Materials and methods: Forty-two MCI subjects and 26 controls were included in the study and followed up for two years. The patients underwent comprehensive examinations at baseline: a neuropsychological assessment comprising 20 tests covering the domains speed/attention, memory, visuospatial, language and executive functions, MRI and cerebrospinal fluid (CSF) analyses. Twenty-one MCI subjects converted to mild dementia at follow-up (MCI-c), and 21 were stationary MCI (MCI-s).

Results: The neuropsychological tests that most clearly distinguished between MCI-c and MCI-s were memory tests, a visuospatial and a naming test. Also CSF amyloid beta 42 (Aβ42) and left hippocampus volume distinguished the groups very clearly. On a Partial Least Squares Discriminant Analysis (PLS-DA) the variables that most strongly predicted conversion to dementia were a memory test, a visuospatial test, Aβ42 and a naming test. On a second PLS-DA subjects converting to AD (N=14) were contrasted to all the other subjects. The variables that most strongly predicted conversion to AD were a visuospatial test, CSF total tau, a memory test, CSF phosphorylated tau and a naming test.

Conclusions: A combination of neuropsychological and CSF variables seem to be the best predictors of both dementia in general and AD. Memory, visuospatial and language tests were the best neuropsychological predictors of both dementia and AD. Notably the strongest predictor of AD was not a memory test but a visuospatial test.

COUNSELING FOR FAMILY CAREGIVERS OF PATIENTS WITH ALZHEIMER'S DISEASE

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Aims: The caregivers of Alzheimer subjects experience their own loss and the loss for their loved ones. We report the results of a group counseling directed not only to provide useful information, but mainly to support the caregivers in exploring the psychological aspects connected with it.

Materials: 30 caregivers (9 Males) participated to four meetings. The intervention was focused on the general knowledge and the practical aspects and to the understanding of the different phases of the grieving process that is almost always associated with the progression of the disease. Before and after the counseling we evaluated the perceived burden of care through the CBI and an “ad hoc” questionnaire.

Results: The perceived burden was significantly reduced ($p < .0100$) and the evolutive and emotional components were particularly lowered after the intervention. The greatest effectiveness was found in the caregivers-spouses, so that the baseline scores differences between them and the caregiver-children was annulled.

Conclusion: Grieving and mourning are common feelings in chronic diseases caregivers, and are particularly severe in AD. The counseling should dedicate, apart from the general information on the disease, a particular attention to these aspects as understanding these processes and how to cope with them help the caregivers to better re-organize their existence.

ALCOHOLIC ENCEPHALOPATHY, A RISK FACTOR FOR ALZHEIMER DISEASE

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This presentation identifies the clinical and subclinical Alcoholic Encephalopathies (AE) as a major risk factor to develop Alzheimer Disease (AD).

A retrospective study of the autopsy findings in over 140 individuals from a psychiatric hospital which had clinical diagnoses of a dementing illness and a history of ethanol abuse. These patients represented almost 50% of all autopsies from a psychiatric hospital.

The findings: Five brains had gross and histological evidence Posttraumatic Encephalopathy and a history of belligerent behavior and altercations.

Twenty one brains had evidence of Wernicke´s Encephalopathy.

One hundred and five had cerebral atrophy with ventricular dilatation, hippocampal atrophy and histologicaly plaques and tangles.

There was varying degree of Mammillary bodies pathology, the most severe showing total shrinkage with fibrosis, while others had almost preserved form and size.

The surprising feature was presence in AD cases of neurofibrillary tangles and plaques in the Mammillary bodies.

In the remaining eleven brains we found mixtures of Alcoholiv Encephalopathy and trauma.

The age of the patients ranged from 48 to 72. Those who did have Alzheimer disease (~70%) were of lower age than what is expected in the general population. This suggests that the preexisting alcohol damage (Thiamine deficiency) had facilitated / accelerated the onset of Alzheimer morphologic changes.

Conclusion: Alcoholic Encephalopathy is one of the risk factors which accelerate the onset of Alzheimer Disease.

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KYNURENIC ACID AND DEMENTIA

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There is evidence that kynurenic acid, a tryptophan metabolite interferes with the working memory (Steele et al., 1993) and an enhancement of endogenous kynurenic acid levels induces spatial memory deficits (Chess et al., 2007). The assumption that an increase of kynurenic acid levels in the human central nervous system might be involved in cognitive decline is supported by the increased kynurenic acid metabolism in Alzheimer's patients (Baran et al., 1999), in patients with Down syndrome (Baran et al., 1996), in patients with subcortical sclerotic encephalopathy (Kepplinger et al., 2001), in patients infected with HIV-1 virus (Heyes et al., 1992; Baran et al., 2000), in patients with Schizophrenia (Schwarcz et al., 2001) and in elder human subjects (Kepplinger et al., 2005). Human studies indicated that Cerebrolysin improves dementia symptoms and cognitive performance in patients with Alzheimer´s disease and in other types of dementia (Crook et al., 2005; Álvarez et al., 2006; Muresanu et al., 2008) and in elderly control subjects (Álvarez et al., 2000). We have shown in an in vitro study that Cerebrolysin blocks significantly kynurenic acid synthesis in the human brain homogenate (Baran et al., 2009). Furthermore, there are data showing a similar alteration of kynurenine metabolism in the serum of demented patients after Cerebrolysin treatment. However, a variation in the change of tryptophan metabolism could be observed in some patients too. We suggest that the anti-dementia effect of Cerebrolysin might be in part due to Cerebrolysin's induced reduction of kynurenic acid levels, thus modulating cholinergic and glutamatergic neurotransmission.

PROLONGED VISUAL MEMORY ENHANCEMENT AFTER DIRECT CURRENT STIMULATION IN ALZHEIMER'S DISEASE

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Background and aims: Transcranial direct current stimulation (tDCS) is a non-invasive technique for focal modulation of brain that induces persisting excitability changes of the human cerebral cortex. Previous studies showed that, immediately after a single session of anodal tDCS, patients with Alzheimer's disease (AD) improve their memory performance.In this study we aimed to assess memory changes after five consecutive sessions of anodal tDCS applied over the temporal cortex in patients with AD.

Methods: A total 15 patients were enrolled in two centers. Cognitive functions were evaluated before and after therapeutic tDCS. tDCS was delivered bilaterally through two scalp anodal electrodes placed over the temporal regions and a reference electrode over the right deltoid muscle. The stimulating current was set at 2 mA intensity and was delivered for 30 minutes per day for 5 consecutive days.

Results: After patients received tDCS, their performance in a visual recognition memory test significantly improved. We found a main effect of tDCS on memory performance; i.e anodal stimulation improved it by 8.99% from baseline whereas sham stimulation decreased it by 2.62%. tDCS failed to influence differentially general cognitive performance measures or a visual attention measure.

Conclusion: Our findings show that after patients with AD receive anodal tDCS over the temporal cerebral cortex in five consecutive daily sessions their visual recognition memory improves and the improvement persists for at least four weeks after therapy. These encouraging results provide additional support for continuing to investigate anodal tDCS as an adjuvant treatment for patients with AD.

GSK3BETA INTERACTS WITH AND PHOSPHORYLATES DRP1/HDYNIV AT GTPASE EFFECTOR DOMAIN THAT AFFECTS MITOCHONDRIAL MORPHOLOGY IN NEURAL CELLS

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Posttranslational modification of dynamin related protein 1 (Drp1/HdynIV) emerged as regulatory mechanisms affecting various activities during mitochondrial fission. Phosphorylation events on Ser-616 and Ser-637 regulate mitochondrial fission. Recent study has also demonstrated that nitrosylation on Cys-644 triggered mitochondrial fission in Alzheimer´s disease. However, the posttranslational modification of Drp1/HdynIV function remains a challenge. In our previous studies, we have demonstrated that Drp1/HdynIV and its splicing variants interact with the GSK3β through their carboxyl-terminal lack of PH and praline-rich domain region. In this report, we further narrow down the binding region locates at 634-690 in Drp1/HdynIV GTPase effector domain (GED domain). We also perform *in vitro* kinase assays to examine whether Drp1/HdynIV is a physiological substrate for GSK3β. The data show that fragment of 691-736 a.a (Drp1/HdynIV) is phosphorylated. *In vivo* assay further show that wild type, S693A and S693D were transfected into Hela cell or SH-SY5Y neural cells to assess mitochondria morphological changes by confocal immunofluorescence. Intriguingly, the data also indicate that phosphorylation at GED domain of Ser-693 Drp1/HdynIV results in the alterations of mitochondrial morphology which likely involved in dynamic regulation of mitochondrial division in cells. This is the first report that GSK3beta interacts with and phosphorylates Drp1/HdynIV at GED domain. In summary, we propose that in addition to Ser-616 and Ser-637 phosphorylation sites, Ser-693 phosphorylation of Drp1/HdynIV by GSK3βmay be thought to be another key mediator of mitochondrial fission in Alzheimer´s disease.

THE LONG AND WINDING ROAD OF ALZHEIMER´S DISEASE CURE DEVELOPMENT: WHY ALL AMYLOID HYPOTHESIS BASED DRUGS FAIL?

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In August 2010 Eli Lilly terminated the development of Semagacestat, an Alzheimer´s disease (AD) therapy promise that blocked the enzyme γ-secretase, responsible for Amyloid precursor protein (APP) proteolysis. Based on amyloid beta hypothesis, this chemical was used to reduce Abeta protein in the brain and reverse the memory loss. Lilly reported, however, that “patients taking semagacestat oppositely saw their cognition, or memory and reasoning skills, and their ability to complete daily living activities like getting dressed worsen to a statistically significantly greater degree than patients taking a placebo”. The Lancet editorial reminded that “other drugs [such as latrepirdine, tramiprosate and tarenflurbil] also failed phase 3 trials” (1).

Despite two decades of Amyloid hypothesis as a mainstream AD research (2), there is no evidence that brain amyloid affects neuronal function. This is why we studied hippocampal slices from non-mutated human APP695 transgenic- and non-transgenic control mice, aiming to differentiate separate actions of the aged (25.5 months) transgenic plaque-like amyloid and diffuse amyloid of the non-transgenes (immunohistochemistry verified) on synaptic plasticity. Extracellular recording of CA1 field fEPSP in vitro revealed impairment of input/output characteristics, long-term potentiation, and the delay of few milliseconds in initial post-tetanic traces in aged transgenic versus control hippocampus. While our results indicate that amyloid plaque (and not diffuse amyloid) may cause synaptic dysfunction, we conclude other factors drive the disease progression in pre-plaque stages of AD.

1 The Lancet 376:658 (2010)

2 Begley S. Is Alzheimer´s field blocking research into other causes? WSJ Science Journal p.B.1 (2004)

NEUROPSYCHOLOGICAL, RADIOLOGICAL AND GENETIC PROFILES IN A GROUP OF FRONTO-TEMPORAL COLOMBIAN DEMENTIA PATIENTS

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Fronto temporal dementia (FTD) usually appears in the pre senile age, with important familial, medical and social implications. Its etiology is described as polygenic or multifactorial, with some cases having familial aggregation and different genes involved, particularly MAPT and PRG. Several studies have attempted to address the issue of differential diagnosis of early-stage FTD and Alzheimer disease (AD). However, there are many controversies and it remains difficult to make a clear diagnosis in the early stage of the disease. The purpose of this study was to describe the profiles of FTD patients compared to AD and controls. Patients were identified through the Memory Clinic in San Ignacio Hospital in Bogota- Colombia. Assessment of all cases included an informant history, neurological, geriatric and psychiatric examinations, neuropsychological tests, routine blood screening tests, and magnetic resonance imaging (MRI). FTD patients had also genetic screening test. Five groups were included in the study: 17 frontal lobe variant of FTD (fv FTD), 9 semantic dementia (SD), 9 primary progressive aphasia (PPA), 10 Alzheimer Disease (AD) and 20 normal controls. All patients with fv DFT presented with an informant-based history of progressive change in personality and behavior. Patients with SD presented progressive loss of vocabulary and semantics in the context of fluent speech. Patients with APP had phonological and grammatical difficulties. Patients with AD presented with progressive cognitive impairment, predominantly affecting memory. The profiles of FTD, AD and controls in all variables are discussed and the implications for patients, families and treatment decisions are analyzed.

^{123}I-FP-CIT (DATSCAN™) SCINTIGRAPHY IN THE DIAGNOSIS OF DEMENTIA WITH LEWY BODY

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The differential diagnosis of Dementia with Lewy bodies (DLB) from other types of dementia is important in patient management and outcome. Current clinically based diagnostics criteria for DLB have limited accuracy. Severe nigrostriatal degeneration occur in DLB, but not in other subtypes of dementia, especially in Alzheimer`s disease. A lower uptake of DaTSCAN was observed in DLB patients. In the literature a mean sensitivity of 78% for detecting clinical probable DLB and a specificity of 90% for excluding non-DLB dementia was reported [1]. Using autopsy data for diagnosis the sensitivity of an initial clinical diagnosis of DLB was 75% and specificity was 42%. In contrast, the sensitivity of DatScan of ^{123}I-FP-CIT for the diagnosis of DLB was 88% and specificity was 100% [2].

Conclusion: The visualization of the nigrostriatal dopaminergic degeneration using DaTSCAN™ allowed the differentiation to Alzheimer´s disease or most other dementia subtypes.

1. McKeith I, O´Brien J, Walker Z, et al. Sensitivity and specificity of dopamine transporter imaging with 123I-FP-CIT SPECT in dementia with Lewy bodies: a phase III, multicentre study. Lancet Neurol 2007;6:305-13.

2. Walker Z, Jaros E, Walker RW, et al. Dementia with Lewy bodies: a comparison of clinical diagnosis, FP-CIT single photon emission computed tomography imaging and autopsy. J Neurol Neurosurg Psychiatry 2007;78:1176-81.

COGNITIVE AND BEHAVIORAL IMPAIRMENTS REPRESENT A PROGNOSTIC VARIABLE IN AMYOTROPHIC LATERAL SCLEROSIS

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Background: Increasing evidence shows that cognitive and/or behavioral impairment are a common feature in amyotrophic lateral sclerosis (ALS). A recent study suggested that executive dysfunction is a negative prognostic factor in these patients (Elamin et al, 2011).

Objectives: To investigate the frequency of cognitive and behavioral abnormalities in ALS patients and to evaluate their impact on survival.Patients and Methods. 75 probable or definite non-demented patients (M/F=1.5) have been enrolled in this study. Median age at onset was 60 years (range: 49-67) with a median education of 8 years (range: 5-13). Patients had normal scores at MMSE and Beck Depression Inventory. Frontal lobe impairment was assayed through the verbal fluency tests. To estimate the behavioural impairment, the Neuropsychiatric Inventory was used. Patients were divided in 4 groups: normal (ALS-n); cognitively impaired (ALS-c); behavioral impaired (ALS-b); both cognitively and behaviorally impaired (ALS b-c). Behavioral and cognitive changes were related to sex, age and site of onset and disease progression, and the effect on survival was also evaluated.

Results: A relatively high proportion (63%) of non-demented ALS patients showed a cognitive and/or behavioral impairment. There was no significant difference in the age at onset and sex between groups. In ALS-c patients the site of onset was most frequently bulbar. Kaplan-Meyer analysis showed a trend towards a shorter survival in patients with cognitive and/or behavioral impairment.

Conclusions: Cognitive and behavioral impairment are a common feature in non-demented ALS patients and they might have a negative effect on survival.

COGNITIVE DISCONNECTIVE SYNDROMES BY SINGLE STRATEGIC STROKE IN VASCULAR DEMENTIA

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Objective: Show the clinical disconnective characteristics of single strategic strokes of different subcortical regions of the limbic and paralimbic circuits, and to emphasize the production of convergent vascular cognitive syndromes by sharing in a common pathway.

Methods: Patients (n=6) were submitted to neuropsychological assessment and neuroimage study with MRI (GE Signa Horizon 1,5 T) and brain SPECT to evaluate the regions disconnected.

Results: The localization of the strokes and their respective symptons were: Case 1. Anteromedian thalamus left [L]: amnesia, disexecutive syndrome (DS), apathy, depression. Case 2. Anterior thalamus right [R]: amnesia, DS, apathy, depression. Case 3. Dorsomedian thalamus [L] and Hipocampal region [R]: amnesia, DS, aggressiveness, impulsiveness, apathy. Case 4.Central paramedian thalamus [L]: DS, aggressiveness, infantile, personality disorder. Case 5. Head of caudate nucleus ventral [L]: DS, delirium, visual alucinations, personality disorder. Case 6. Anterior capsule [L]: SD, apathy, depression.

Conclusion: Frontal and temporal disconnection syndrome could be appreciate in the evaluation of the cases, beyond the cognitive characteristics inherent to each one strategic site. The hipocampal amnesic symptons represent the temporal disconnection, path mamillothalamic tract, and the impairment of the executive function represents the frontal disconnection, observed in all the cases, with heterogeneous expression between them, associated to behavioural disorders with characteristics of the orbito-frontal and cingulate pathways caused by the strokes in three different levels of their trajectory, individualized by presentation of the specific symptons and by the frontal hipoperfusion to distant shown through the brain SPECT.

NEUROPSYCHOLOGICAL AND MAGNETIC RESONANCE IMAGING FINDINGS IN FIVE PATIENTS AFTER CARBON MONOXIDE POISONING

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We report cognitive impairments and brain MRI study in 5 patients after a severe acute carbon monoxide poisoning (COP).

A battery of neuropsychological tests was administered to all patients.

All subjects exhibited marked impairment in long term memory with a severe defect in recall performance. Visual memory was more affected than the verbal one. Patients also experienced moderate disturbances in intellectual, executive, visual-spatial and constructional functions. Four patients had depression. Cerebral MRI revealed in all patients, bilateral pallidal necrosis and hippocampal atrophy. Fornix atrophy was found in 2 patients and corpus mammillary atrophy in 3 others. Bromocriptine was effective in three cases. There was no improvement in patients treated 14 months and 5 years after COP.

Cognitive impairments in COP have rarely been documented. Ours results are similar to those reported in few series (Gale and al, 1999; Porter and *al,* 2002; Prockop 2005), consisting mainly in severe episodic memory disturbances, intellectual, executive, visuospatial defects and depression. One patient presented alexia agraphia, severe visual agnosia, constructional and dressing apraxia related to bilateral parietal and occipital lesions.Cognitive defects in our patients are well correlated to cerebral lesions. Defect in memory is related to hippocampal, fornix and corpus mammillary atrophy, in visual-spatial and constructional functions to pallidal and parietal lesions and in executive functions to frontal and pallidal abnormalities. Early treatment by bromocriptine can improve these troubles.

NEUROPSYCHOLOGICAL STUDY OF NEUROBEHÇET'S DEMENTIA: 12 CASES

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Cognitive impairments in Behçet's disease (BD) have rarely been analysed. We report a neuropsychological study of 12 patients with NeuroBehçet's (NB) dementia.

Neuropsychological tests were administered 3 months, 6 months and one year after diagnosis. Cerebral imaging was performed in all patients and cerebral arteriography in 7 patients. All subjects were treated with prednisone and cyclophosphamide.

Dementia was severe in 3 cases and moderate in 9 others. It occurred after several neurological injuries in 9 cases, related to thalamic and midbrain infarcts. In 3 cases, it was inaugural and due to diffuse subcortical white matter lesions. There were 8 subcortical dementia with memory deficits (predominant in recall and learning), executive and visuospatial dysfunction, behavioural changes and apathy, 2 thalamic dementia, 1 case of severe amnesic syndrome and 1 other of progressive aphasia. Five patients improved under treatment while 3 had persistent severe dementia and 4 others died.

Cognitive abilities in BD may be affected in the absence of neurological symptoms. Dementia can be the initial presentation of NB but usually, it appears after several neurological injuries. In literature, only Oktem-Tanor and al in 1999, published a neuropsychological study of 12 cases of NB with results similar to ours. Neuropsychological impairments are correlated to brain abnormalities, frequent from the upper brainstem to diencephalic structures, close to the temporal cortex, explaining therefore the memory deficit. Dementia in NB could be reversible if early treatment using prednisone and cyclophosphamide is instituted, otherwise it leads to severe and definitive sequelae.

DISCONNECTIVE SYNDROMES BY STRATEGIC STROKE IN VASCULAR DEMENTIA

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Objective: Show the clinical disconnective characteristics of strategic strokes of different subcortical regions of the limbic-paralimbic circuits, and to emphasize the production of convergent cognitive-behavioural syndromes by sharing in a common pathway.

Methods: Patients (n=6) were submitted to clinical neuropsychological and behavioural assessments, to structural MRI to show the localizations of the strokes and brain SPECT to evaluate the perfusion of intact and disconnected regions.

Results: The strokes and cerebral perfusion found with their respective symptons were: *Case 1.* Anteromedian thalamus left [L] with dorsolateral-frontal hypoperfusion [L]: amnesia, disexecutive syndrome (DS), apathy, depression. *Case 2.* Anterior thalamus right [R] with frontal hypoperfusion [R]: amnesia, DS, apathy, depression. *Case 3.* Dorsomedian thalamus [L] and Hipocampal region [R] with frontal [L] and temporal [R] hypoperfusion: amnesia, DS, aggressiveness, impulsiveness, apathy. *Case 4.* Central paramedian thalamus [R]: DS, aggressiveness, infantile, personality disorder. *Case 5.* Head of caudate nucleus ventral [L]: DS, delirium, visual alucinations, personality disorder. *Case 6.* Anterior capsule [L]: DS, apathy, depression.

Conclusion: Frontal and temporal disconnection syndromes with cognitive-behavioural characteristics inherent to each strategic site compounded the picture of vascular dementia.The amnesic symptons represent the hipocampal temporal disconnection, path mamillothalamic tract, and DS with heterogeneous expression among the cases represents frontal disconnection, associated to behavioural disorders with characteristics of the orbitofrontal and cingulate pathways produced by interruption in three different levels of their trajectory by the strokes, individualized by the presentation of the specific symptons and by the frontal subregions hypoperfusion to distance as observed through the SPECT.

FRONTOTEMPORAL LOBAR ATROPHY BEHAVIORAL VARIANT: CAREGIVER STRAIN IN RELATION TO COGNITION, ACTIVITIES OF DAILY LIVING AND BEHAVIORAL ABNORMALITIES

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Introduction: Frontotemporal lobar atrophy behavioral variant (FTLAbV) is characterized by behavioral abnormalities, altered speech, frontal-dysexecutive syndrome and loss of insight.

Aim: To evaluate patients with FTLAbV with regard to factors underlying caregiver strain, such as impaired activities of daily living (ADL), behavioral abnormailities, and neuropsychological performance.

Methods: 31 consecutive patients with early FTLAbV (Neary et al 1998) and 29 patients with probable Alzheimer disease (AD, McKhann 1984, Dubois et al 2007) have been included.

Results: Age is younger in the FTLAbV than in the AD group (mean 66 versus 75; p=.03, Student t test). MMSE (22.6 versus 22.1), Frontal Assessmant Battery scores (FAB, Dubois et al 2000; 12 versus 12) and most of the CERAD+ subscores were similar in both groups, except for semantic and phonematic fluency (z-scores -2.15 versus -1.5, p=.03, and -1.4 versus -0.5, p=.03) and discriminability (word list; -1.5 versus -2.3, p=.03). Sum scores of the Rivermead Scale of ADL (Whiting 1980, Lincoln 1990), the instrumental ADL scores of Lawton and Brody (1964) and the Barthel Index were similar in FTLAbV and AD. Behavioral abnormalities (Frontal Behavioral Inventory, FBI, Kertesz et al 2000) and caregiver strain (CS, Robinson 1983) were more severe in FTLAbV than in AD (28.2 versus 15.9, p=.002, and 6 versus 2.6, p< .001). The FBI sum score correlated with the CS in FTLAbV (p=.02, Spearman rank correlation).

Conclusions: CS is higher in FTLAbV than in AD, mainly due to more severe behavioral abnormalities in the former group.

DIFFERENT NEUROPSYCHOLOGICAL PROFILES OF PRODROMAL AD AND VASCULAR COGNITIVE DISORDER

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Objective: To study which neuropsychological tests strongest predicted conversion to dementia in general, Alzheimer's disease (AD), and mixed dementia/vascular dementia (MD/VaD) in an MCI population.

Materials and methods: Two hundred and fifty MCI subjects were followed up after two years and 86 also after 4 years. Thus, a total of 336 follow-up examinations were carried out. The neuropsychological battery covered tests of speed and attention, learning and episodic memory, visuospatial, language and executive functions.

Results: A total of 65 subjects were diagnosed with dementia during follow-up, 27 with AD, 18 with MD, 15 with AD and 5 with other disorders. The tests that best predicted dementia in general covered the cognitive domains speed/attention, memory and executive function. Although there was some overlap, the profiles of incipient AD and MD/VaD differed quite distinctively. Memory, visuospatial and language symptoms preceded AD; speed/attention, memory and executive symptoms preceded MD/VaD. The tests that predicted MD/VaD were almost identical to the tests that predicted dementia in general.

Conclusions: The fact that the tests predicting dementia and MD/VaD were similar can be explained by the fact that a majority of the converting patients had vascular disease. The sensitivity and specificity figures were quite good for dementia in general but slightly poorer for the specific dementia diagnoses.

FOLLOW- UP STUDY OF HIPPOCAMPAL VOLUME IN PATIENTS WITH MILD COGNITIVE IMPAIRMENT USING A SEMI-AUTOMATIC INDIRECT MR METHOD

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Background: Hippocampal volumetric decline is one of the predictors of Mild Cognitive Impairment (MCI) to dementia conversion. Therefore simple methods for its volume determination are needed.

Aim: The aim of the study was to evaluate the reduction of hippocampus volume in MCI patients using a semi-automatic method. In a previous study (Lojkowska et al., Curr Alzh Res, 2011) the authors found that a poor performance in neuropsychological tests and odour identification ability was a predictor for dementia progress. The hippocampus volume measured by an operator was not different in the MCI group comparing to the controls. In the present study the reliability and accuracy of the volumetric investigations was increased using a semi-automatic procedure.

Method: 45 patients with MCI and 32 cognitively intact control subjects were investigated. All subjects underwent neuropsychological testing and MRI investigations using the semi-automatic procedure at baseline and at 24 months follow up. The procedure provides the value of the cerebrospinal fluid / brain index (CFBI), which is indicative of the degree of atrophy of the hippocampus.

Results: A significant difference was found between the CFBI in the MCI group and in the controls both at baseline and in the follow up: smaller hippocampal volume was found in the MCI group. This is contrary to the previous study, where no differences between the hippocampal volume in the two groups were detected.

Conclusions: The semi-automatic method is a simple tool for hippocampal volume assessment and may be used improve early MCI diagnosis.

CLINICOPATHOLOGIC STUDY OF ALZHEIMER'S DISEASE: ALZHEIMER MIMICS

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A definite diagnosis of Alzheimer disease (AD) can only be made at autopsy. We examined the accuracy of clinical diagnosis of AD and present a list of clinical and neuropsychological findings that could confound the diagnosis of AD. In the National Alzheimer´s Coordinating Center (NACC, U01 AG016976), data from 503 AD patients diagnosed clinically at the last visit before autopsy were reviewed retrospectively. Pathologic results of 89 subjects did not indicate definite AD, and were labeled as Alzheimer mimics. We compared the clinical and neuropsychological differences. The neuropathological diagnoses of Alzheimer mimics are dementia with lewy body (DLB, n=35, 39%), others(n=15, 17%), vasccular dementia (n=15, 17%), frontotemporal lobar degeneration (n=14, 16%), and hippocampal sclerosis (n=10, 11%), in order. Family histories of dementia are more common in confirmed AD (p=0.025 in mother and p=0.002 in father). History of cardiovascular disease, especially of pacemaker insertion(p=0.002) and congestive heart failure (CHF, p=0.005), medical conditions of active depression (p=0.006) and hypertension (p=0.039) and UPDRS score of resting tremor (p=0.003) are more prevalent in Alzheimer mimics. CDR score (2.31±0.79 vs. 1.90±0.87, p< 0.001) and some NPI-Q subitems were more severe in confirmed AD. MMSE (13.32±9.14 vs. 19.16±8.52, p< 0.001), Logical memory (1.28±2.44 vs. 3.09±3.99, p< 0.001), animal fluency (7.85±5.28 vs. 9.97±4.63, p=0.001), BNT (16.80±8.40 vs. 20.10±6.92, p=0.001) and Digit span (5.46±1.60 vs. 6.11±1.23, p< 0.001) were more severely impaired in confirmed AD. In the NACC database, the accuracy rate of clinical AD diagnosis was 82.31% and DLB was the disorder most commonly misdiagnosed as AD. Comorbidities such as depression, hypertension, CHF and resting tremor were more common in Alzheimer mimics.

NEUROPATHOLOGICAL DIVERSITY OF CORTICOBASAL DEGENERATION (CBD) IN 27 AUTOPSIED CASES

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Purpose: Clinical diagnosis of CBD is complicated. To clarify pathological spectrum of CBD and extract diagnostic problems, we investigated pathological lesions and compared to clinical diagnosis retrospectively.

Materials and methods: We evaluated 27 cases of pathologically confirmed CBD brains among 4400 autopsied cases registrated to our institute during the period 1976 to May 2011. Mean age at death was 69 years, range 54-86 yr, and mean duration of illness was 5.8 yr, range 3-13 yr. All CBD cases underwent Gallyas-Braak and tau immunostaining, to assess distributions and severity of various lesions.

Results: Of 27 pathologically confirmed CBD cases, clinical diagnosis was CBD in 8 cases (30%), PSP in 10 (37%), others in 9 (33%). Characteristic asymmetrical frontoparietal hemiatrophy, especially around the central sulcus was found in 9 (30%) cases. Twelve cases showed bilateral anterior frontal atrophy (44%), and 2 cases with frontotemporal atrophy, one case with left temporal and right precentral atrophy. Evaluation of cortical atrophy was not available in 3 cases. Laterality of cortical atrophy was relatively mild in 6 cases. In 3 cases cortical involvement was very mild. Microscopically degree of cortical atrophy was relatively correlated to density of tau-positive inclusions. Serial MRI findings revealed rapidly progressive cortical and subcortical atrophy and these findings might be one of supportive findings of CBD disease progression.

Conclusions: The pathological spectrum of CBD seems to be wider and characteristic asymmetrical frontoparietal atrophy may not be a constant feature. Clinical features of CBD should be reconsidered based on that pathological heterogeneity.

HEMISPHERE-SPECIFIC CORRELATIONS BETWEEN ISCHEMIC STROKE SEVERITY AND AUTONOMIC DYSFUNCTION

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Background: We showed correlations between autonomic dysfunction (AD) and clinical stroke severity (Hilz et al., Stroke 2011;6:1528-33). Reports about AD differences after left- or right-sided stroke are inconsistent.

Objective: To evaluate whether there are hemisphere-specific correlations between AD and stroke severity.

Methods: In 29 left middle cerebral artery (MCA)-stroke-patients (67±13years) and 27 right MCA-stroke-patients (69±15years) we assessed National Institutes of Health Stroce Scale (NIHSS)-scores and AD parameters within 24 hours after stroke onset. From five minute RR-intervals (RRI) and blood pressure (BP) recordings, we calculated spectral powers of mainly sympathetic low- (LF:0.04-0.15Hz) and parasympathetic high-frequency (HF:0.15-0.5Hz) RRI-oscillations, RRI-LF/HF-ratios indicating sympatho-vagal balance, sympathetic LF-powers of BP-oscillations, and baroreflex sensitivity (BRS) as gain between RRI- and systolic BP-oscillations for coherence >0.7. We assessed differences between left- and right MCA-stroke-patients (t-tests), and correlated AD parameters with NIHSS-scores (Spearman rank correlation test; $p< 0.05$).

Results: Left MCA-stroke-patients had lower RRIs and RRI-HF-powers but higher diastolic BP and RRI-LF/HF-ratios than right MCA-stroke-patients. In left MCA-stroke-patients, NIHSS-scores correlated directly with RRI-LF/HF-ratios and inversely with RRIs, RRI-HF-powers, and BRS. In right MCA-stroke-patients, NIHSS-scores correlated inversely with RRI-HF-powers. Spearman-Rho-values ranged from 0.38 to 0.49.

Conclusions: Correlations between stroke severity and AD are hemisphere-specific. Particularly left MCA-stroke-patients had decreasing parasympathetic tone and BRS, and more sympathetic dominance with increasing stroke severity. Stroke-induced hypoactivity of injured central autonomic structures might account for hemisphere-specific differences in correlations between stroke severity and AD.

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CLINICAL AND HISTOPATHOLOGICAL STUDY OF 102 PATIENTS WITH CONGENITAL MUSCULAR DYSTROPHY

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Background: Congenital muscular dystrophies(CMD) are heterogenous disorders with early onset weakness, hypotonia and contractures.

Objective: To study clinical and histopathological features of CMD.

Material and methods: Retrospective analysis of 102 cases diagnosed between 1997 and 2010.

Results: Age at presentation ranged from 15days to23years(70.9±56.2months). M=63%; most presented in first 5 years of life. All had symptom-onset in infancy. Maximum motor function attained: head holding-3(3%) sitting with support-17(16.8%), sitting without support-17(16.8%), standing with support-8(7.8%), walking with support-22(21.8%), walking without support-14(13.9%), climbing stairs-2(2.0%), running slowly-5(5%) and 10(9.9%) did not attain head holding. Immunohistochemistry(IHC) confirmed merosin deficiency in 9(eight-complete deficiency, 1-partial deficiency). Presenting symptom included neonatal stridor(1/9), delayed milestones(8/9). All had generalized wasting, hypotonia, multiple contractures and absent ambulation (9/9) with white matter abnormalities on brain MRI(4/4). Collagen 6A1 deficiency(UCMD)-13 All had proximal limb weakness with contractures, bifacial weakness, global areflexia, prominent calcaneum, velvety palms and soles, distal hyperextensibility. Eight had complete collagen 6A1 deficiency; remaining had sarcolemmal specific deficiency. Seven had features of UCMD but normal COL6A1 expression. Alpha-dystroglycan deficiency in three. All had globally delayed milestones, elevated serum CK and abnormal brain MRI. Two more with clinical phenotype and MRI brain findings characteristic of α-dystroglycanopathy showed normal α-dystroglycan labeling. Thirty-one showed normal expression of merosin and classified as merosin positive MDC. In 46 patients, IHC was not done.

Conclusion: The application of immunohistochemistry in CMD's is rapidly expanding and this study is a novel one in Indian scenario. We also report 3 patients with typical 'Fukuyama' type CMD from India.

PRELIMINARY RESULTS OF ANDERSEN-TAWIL SYNDROME GENOTYPE-PHENOTYPE LONGITUDINAL STUDY FROM THE CONSORTIUM FOR CLINICAL INVESTIGATION OF NEUROLOGIC CHANNELOPATHIES (CINCH)

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Introduction: ATS is a rare disorder characterized by a triad of periodic paralysis, long QT with potentially fatal cardiac arrhythmias and dysmorphic features. The natural history is not known. Phenotypic expression is variable.

Objective: To collect prospective standardized data from patients with Andersen-Tawil syndrome (ATS), define outcome measures for use in clinical trials, assess determinants of quality of life, and quantitate morbidity.

Methods: This study is an NIH funded multi-center, prospective, cross-sectional longitudinal natural history study. Participants are followed longitudinally at a yearly interval for two years.

Results: To date 23 patients have been enrolled, 12 male, age at entry range 17-82. 15 had 1 year, and 6 had 2 years follow up. KCNJ2 mutation was found in 16 (70%). Exercise test was positive in 12/21(57%), 2 refused. Periodic paralysis with onset before age 20 was the first symptom reported in 20; most common triggers were exercise, prolonged rest, and rest after exercise. Interictal fixed weakness was present in all but 2 patients and was proximal and symmetric. 18/23 had at least one of the following abnormal EKG features: ventricular ectopy (11), U wave (7) or prolonged QTC (15). Twelve patients reported psychological problems (depression, anxiety most common). 17 had pain. At least 2 abnormal skeletal features were present in 22 patients (most common: small mandible, low set ear, micromelia). Mean value in SF-36 scores was below normal average with physical functioning being lowest (37.9).

Conclusion: ATS is genetically heterogeneous and mutations for ATS 2 remain to be identified.

ALGERIAN CONGENITAL MUSCULAR DYSTROPHY (CMD) STUDY

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CMD are a heterogeneous entity regrouping many well-known disease. In the majority of cases hereditary transmission is autosomal recessive. We report on study of forty patients from 33 families with CMD phenotype. Consanguinity rate was very hight (70%). A group of 21 patients (52 %) , from 18 families, was classified as MDC1A or merosin-deficient CMD. Sixteen patients, with a total absence of laminin α2, never achieved ambulation only one, whereas 5 cases with partial absence of this protein could walk only 2. Eight child belonging 5 families had Ullrich CMD. Two new homozygous mutations in COL6A1 and COL6A2 were identified in two families and heterozygous mutation in COL6A1 in case. Four MDC1C patients had clinical picture similar to MDC1A. Three patients were harbouring two new homozygous mutations in the FKRP gene. Two unrelated RSMD patients were observed. Only one of them was linked to SEPN1 gene. One patient had a CMD with a head lag. Mental development and brain MRI were normal. Heterozygous mutation in the lamin A/C was identified in two sisters with CMD phenotype. Three patients had CMD with neuronal migration abnormalities: 2 cases had Fukuyama CMD-like, the third patient had MEB-like phenotype. They had α-dystroglycan deficit on muscle biopsy. They were not linked to POMT1, POMT2, FKRP, Fukutin and LARGE gene. In conclusion this study had contributed to international effort for the CMD better knowledge. Moreover in four different CMD phenotypes, all known CMD gene were excluded, showing that new genes remain to be discovered.

DEVELOPMENT OF APPROACHES TO ASSESS AND AMELIORATE THE MIGRATION OF THE TRANSPLANTED MYOBLASTES

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One of the major technical problems with the myoblast transfer therapy is the very limited migration of the implanted cells into dystrophic muscles. To obtain a high percentage of b-Gal positive muscle fibers following the transplantation of retro-virally labeled myoblasts, it is thus currently necessary to inject myoblasts at every mm in monkey muscles. The long-term aim of our research is, therefore, to reduce the numbers of myoblast injections required to restore dystrophin in DMD patients. The limited migration of normal myoblasts is due to the presence of connective tissue sheaths surrounding both fascicles and individual myofibers. Nevertheless, It has been reported that C_2C_{12} a myoblast cell line exhibit high migratory capacity in vivo. Understanding the mechanism underlying the C_2C_{12} high migratory capacity will be exploited for developing approaches to improve normal myoblast migration after their transplantation. Our result showed the implication of MMP and uPA proteolytic system in the migration process of myogenic cells. So far, we developed an in vivo approach that allowed us to evaluate the effect of motogenic factor on normal myoblast migration and fusion.

LATE ONSET MYASTHENIA GRAVIS (7 CASES)

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Incidence of myasthenia gravis (MG) has changed in the last years, with an increase of frequency in old patients for whom diagnosis and treatment may be difficult. We report a series of seven cases of MG diagnosed after the age of sixty years. Four female and three male patients had a mean age of 70 years [60-85], and a mean follow-up of 40 months [12-75]. Initial symptoms were ocular in four cases, bulbar in two cases, and limb weakness in one case. Two patients had respiratory signs requiring hospitalisation in intensive care unit. The mean diagnosis delay was of 11 months. All patients had post-synaptic neuro-muscular block and positive antibodies against the acetylcholine receptors (AchR). Chest CT scan was performed in all cases and thymoma was diagnosed in two. Treatment by anticholinesterase inhibitor was unsuccessful in all cases, and the use of corticosteroids and/or immunosuppressive drugs was necessary. Thymectomy was performed in two patients harbouring thymoma. All patients improved their clinical status, and became stable with treatment. Diagnosis of MG is often delayed or missed in the elderly. Concerning clinical features, there is no difference between young and old MG, although the disease appeared to be more severe in the elderly. We confirmed the high frequency of positive antibodies AchR and the low incidence of thymoma, as described in literature (Aragonés J.M., 2003). Immunosuppressive drugs are preferred to steroids in late onset MG. Thymectomy was indicated only in case of thymoma.

SOLUBLE VEGFR-1 AS A NOVEL MARKER OF ALS

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Amyotrophic lateral sclerosis (ALS) is a motor neuron disorder with multifactorial pathogenesis. We have earlier shown enhanced expression of VEGF in serum and CSF of ALS patients from North India possibly contributing towards their enhanced survival. As sVEGFR1 receptor is the scavenger of VEGF we wanted to test if there was any association between sVEGFR1 and enhanced survival of ALS patients. About 36 patients fulfilling El Escorial criteria were analysed for sVEGFR1 levels. The ELISA analysis showed that the level of serum sVEGFR1 was decreased in the ALS samples analysed when compared to controls ($p=0.039$). Significantly reduced sVEGFR1 was observed in definite ALS as compared to controls and probable ALS ($p=0.002$ and $p=0.048$ respectively), however, the difference was not significant between the probable and possible ALS when compared to controls. We also found that the VEGFA levels showed an inverse relationship with sVEGFR1 levels analysed in our patients. Since sVEGFR1 hampers angiogenesis by sequestering VEGFA, its downregulation is suggested to enhance the serum VEGFA as also reported earlier in the ALS patients. This suggests that the disinhibited angiogenesis accompanied with pronounced induction of anti-apoptotic cascade coupled with reduced glutamate excitotoxicity promotes ALS survival.

FAT EMBOLISM SYNDROME IN PATIENTS WITH DUCHENNE MUSCULAR DYSTROPHY FOLLOWING LOW ENERGY FEMUR FRACTURE

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Introduction: Patients with Duchenne muscular dystrophy (DMD) are at increased risk for fractures from low energy trauma due to immobilization and use of corticosteroids. Fat embolism syndrome (FES) requiring intensive care management is not a well recognized complication of low energy fractures in DMD.

Case report: Five DMD boys age 14, 15, 15, 19 and 20, 1 ambulatory, 4 wheelchair bound, 3 on prednisone and 1on deflazacort, all with underlying osteopenia, presented with acute hypoxia and encephalopathy after a low energy fall. 3 fell on their knees from the wheelchair, 1 had a minor fall from his shower chair and 1 fell while walking. All patients had non displaced distal femur fracture, bilateral in one. In 2 patients the fracture was missed at the time of initial presentation. Visual symptoms were reported in 2 patients; dilated eye exam showed Purtscher retinopathy with fat emboli in the vasculature in 1. Altered mental status ranged from agitation and confusion to coma. All had tachycardia and leucocytosis, 2 had petechial rash. Chest CTs showed diffuse ground glass opacifications, nodular densities and atelectasis. Brain MRI showed cortical and subcortical hyperintense foci in DWI.

Outcomes varied from permanent ventilatory dependence with a persistent vegetative state to complete recovery.

Conclusion: FES should be considered in any patients with DMD who present with acute mental status changes or sudden respiratory decompensation. In these patients low energy fractures may occur from even minor falls and even from manipulation during transfers or physical therapy and can sometimes be overlooked.

A NOVEL ANALYTICAL METHOD FOR THE DIAGNOSIS OF PAEDIATRIC MYASTHENIA USING STIMULATED SINGLE FIBRE ELECTROMYOGRAPHY

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Introduction: Childhood myasthenia, which includes the congenital myasthenic syndromes (CMS), is a rare disorder of childhood with a wide clinical phenotype. Early diagnosis of neuromuscular junction (NMJ) instability is essential to prevent life-threatening complications and diagnosis is supported by stimulated single fibre electromyography (Stim-SFEMG), where the facial nerve is stimulated at 10Hz with a needle and the motor fibre potentials recorded in the orbicularis oculi with a concentric EMG needle. The aim of this study was to assess the sensitivity of Stim-SFEMG for NMJ instability, measured by current Mean Consecutive Difference (MCD) analysis, and that of a new cross-correlation algorithm which simplifies the data analysis.

Method: Analysis of Stim-SFEMG data from 167 children referred to Great Ormond Street Hospital (December 2008 to March 2011); clinical records were later assessed for diagnosis, and defined as either: myasthenia (genetic confirmation, ACh-R antibody positive or good response to treatment) or not myasthenia (alternative diagnosis made).

Results: Outcome data was available for 74 children; 22 had myasthenia (13 genetically confirmed, 2 autoimmune and 7 treatment responders). MCD analysis was abnormal in 21/22 myasthenics and 22/52 non-myasthenics. Correlation analysis was abnormal in 22/22 myasthenics and 2/52 non-myasthenics.

Conclusion: Stim-SFEMG has been validated by this study as a sensitive test for the assessment of neuromuscular junction instability in childhood onset myasthenia, with evidence that a new, automated correlation data analysis method can improve the false positive rate of current methods of data analysis.

EPILEPSY AND VIOLENT ACTS: REVIEW OF 14 YEARS OF FORENSIC PSYCHIATRIC EXPERTISE

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Several authors have noticed a relatively high prevalence of epilepsy in people incarcerated because of violent acts.

The aim of our retrospective study was to make an epidemiological approach to epileptic patients who have been charged because of violent acts, and submitted to a forensic psychiatry examination in Sfax teaching hospital, in Tunisia, from 1996 to 2010.

Among 482 subjects submitted to the forensic psychiatry examination, 22 (4.6%) suffered from epilepsy. Nineteen have been charged because of violent acts. All patients were male. The rate of single men was 84.2%. Seventy-nine percent had not exceeded the level of primary education. Socioeconomic condition was low for 52.6%. Fifty-eight percent were taking at least two antiepileptic drugs. The compliance was sufficient in 57.9%. Thirty-two percent had judicial antecedents. Among these, 33.3% have been imprisoned at least once. Psychiatric disorders were noticed in 52.6% of cases. Mental retardation (36.8%) and personality disorders (15.8%) were the most frequent disorders. In 57.9% of cases, the subject was considered as lucid at the time of the offense.

Epilepsy appears relatively common among offenders. In fact, the offenses committed by epileptic patients are rarely directly related to the epileptic phenomenon and are rather determined by pharmacological factors, and especially general criminology ones.

RISK FACTORS FOR POST-TRAUMATIC SEIZURES AMONG PATIENTS WITH BRAIN INJURY

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Objective: Post-traumatic seizure following head trauma is a well-known and serious complication. Risk factors differ in between different study groups. In this study, main objective is to determine the risk factors in development of post-traumatic epilepsy (PTE) among patients with head trauma.

Material and method: Medical cases with head trauma, reported by 2nd Forensic Medicine Expertise Council of Forensic Medicine Institute between years 2006 and 2010 were evaluated in terms of post-traumatic seizures and epilepsy. 1346 patients between ages 0 and 85 who had serious head trauma were included in the study. CT and MRI of brain of these patients were evaluated.

Results: In 71.69% of the cases, fracture was seen and 40.93% of these were depressed fractures., Intracranial lesion was seen with a rate of 71.61% among all cases and the most common lesion type is determined to be subdural hematoma with a ratio of 23.49%. PTE was diagnosed in 101 patients (7.5% of all investigated people). The most commonly seen seizures were generalized tonic clonic, partial, complex partial, and secondary generalized with percentages of 33.66%, 10.89%, 9.90%, and 6.93% respectively. Type of seizures was not diagnosed in 39 patients (38.61%).Twenty-four patients had early seizures (23.77%) and 77 people had late seizures (76.23%). In population with PTE, fractures (68.31%), multiple lobe lesions (31.03%), and contusions (33.33%) were determined to be seen.

Conclusions: It should be careful in patients with depressed fractures, multiple lesions, and contusions for PTE development. Unconsciousness and low Glasgow Coma Score are the other risk factors.

EPILEPTIC SEIZURES IN MULTIPLE SCLEROSIS: CLINICAL AND EEG CORELLATIONS

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Purpose: Epileptic seizures occur more frequently in multiple sclerosis (MS) patients than in the general population. We evaluated clinical, electroencephalographic (EEG) and magnetic resonance imaging (MRI) findings, as well as EEG-MRI correlations and the response to antiepileptic drugs (AEDs).

Methods: In a series of 30 patients with definite MS referred to our Department, we identified eight (26,6%) patients with epileptic seizures. All patients with epileptic seizures were submitted to standard EEG and brain MRI .

Results: Eight (26,6%) subjects experienced epileptic seizures. In three cases, seizures manifested within 1-2 years ("early-onset"), and in five cases within 8-20 years ("late-onset") of MS diagnosis. Seizures were usually partial with secondary generalization.

Conclusions: Our data suggest that epilepsy usually appeared late in the course of disease. Prognosis of epilepsy during the course of MS is usually good but the choice of AEDs remains a matter of debate.

GAS GEYSER SYNDROME: AN IMPORTANT PREVENTABLE CAUSE OF DISABLING NEUROLOGICAL EVENTS

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Introduction: Liquefied Petroleum Gas (LPG) geysers are deployed very frequently for heating water due to the perennial problem of erratic electrical supply in many areas in India. This simple and economical device, used on a daily basis in many Indian households may cause certain significantly disabling neurological events. The purpose of this study is to bring to light the greatly hazardous effects of the use of flueless gas geysers in the domestic setting.

Methods: Over a period of two years (2008 to 2010) twenty six cases were documented as presenting with unexplained neurological events while bathing in an ill ventilated bathroom with a functional flueless gas geyser.

Results: The cases were mainly of three distinct prototypes namely seizure like episodes seen in 11 patients, carbon monoxide intoxication in 13 patients with near cardiac arrest in 4, and as a precipitating factor for epilepsy as seen in 2 cases. Out of the 13 cases presenting as carbon monoxide intoxication 4 had subtle cognitive defects and 2 developed early Parkinsonian features on follow up. There were 15 males and 11 females in the age group of 14 to 46 years. 17 cases were from semi-urban areas while 9 cases were from a rural setting. In all the cases recorded, consciousness was altered only transiently.

Conclusion:

1) Gas geyser induced epilepsy and associated carbon monoxide intoxication are entirely preventable conditions.

2) We also wish to emphasize the importance of stringent and universal implementation of gas geyser usage and installation laws.

SLEEP DISORDERS IN PATIENTS WITH EPILEPSY IN RIO DE JANEIRO: A SUBJECTIVE EVALUATION IN 100 PATIENTS

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Objective: The aim of this study was to estimate “sleep quality”, obstructive sleep apnea (OSA) and excessive daytime sleepiness (EDS) in patients with epilepsy from a tertiary outpatient clinic in Rio de Janeiro, Brazil.

Methods: 100 unselected patients from the epilepsy outpatient clinic were invited and their sleep-wake habits were assessed by means of a clinical interview and questionnaires that included: Pittsburgh Sleep Quality Index (PSQI), Berlin Questionnaire (for sleep apnea) (BQ), Epworth sleepiness scale (ESS), Basic Nordic Sleep Questionnaire (BNSQ), the Beck inventory for depression and anxiety. The socio-demographic information was also included, along with characteristics of the epilepsy syndrome presented.

Results: The estimations were: 67.3% (CI 95%,0.58-0.76) “bad sleepers” (PSQI>5); 55.1% (CI 95%,0.45-0.65) high risk for OSA (BQ); 47.5% (CI 95%, 37.3-57.7) EDS complaints (ESS > 10) were reported by the patients. **Discussion:** The prevalence of “bad sleepers”, high risk for OSA and EDS in our population was higher than in similar studies performed in other countries. In the studied sample, these findings do not seem to be related to epilepsy itself, but to other clinical factors and the population characteristics.

Conclusions: Psychiatric co-morbidity such as anxiety is linked to several sleep complains and should be recognized and treated. More studies based on sleep quality analysis and also polysomnographic study of the actual sleep time are needed to help elucidate potential risk factors relationships in the Brazilian population.

FREQUENCY OF SEIZURE RELATED HEADACHES IN EPILEPSY PATIENTS

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Introduction: Headache and epilepsy share many possible clinical interrelationships and may exist independently or be associated in certain syndromes. Headache is commonly associated with seizures as a preictal, ictal or postictal phenomenon, but it is often neglected because of the dramatic neurologic manifestations of the seizure. Recognition and treatment of seizure related headaches will improve the quality of life of epilepsy patients.

Aims and objectives: To study the prevalence and pattern of headaches in epilepsy patients attending neurology outpatient clinic in Enugu South East Nigeria.Methods.This is a cross sectional study involving consecutive consenting patients and or their caregivers receiving treatment in the adult neurology outpatient clinic of UNTH and Federal Neuropsychaitric Hospital Enugu.

Results: 87 consecutive consenting patients were recruited, 39(44.8%) reported a history of headache associated with seizures. Only 4.6%(4) had a history of severe recurrent headaches before the diagnosis of epilepsy. Preictal/ictal headaches occurred in 6(6.9%) and 28(32.2%) had post ictal headaches. Headaches were most commonly frontal and throbbing(35.9 and 28.2 respectively) and had migraine like characteristics in 3(3.4%).

Conclusion: Postictal headaches are common in people with epilepsy and most are severe. Treatment modalities should include treatment for headaches especially in patients with frequent recurrent to improve patients quality of life.

MRI-NEGATIVE PET-POSITIVE' TEMPORAL LOBE EPILEPSY: INVASIVE EEG FINDINGS, HISTOPATHOLOGY, AND POSTOPERATIVE OUTCOMES

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Purpose: The aim of this retrospective study was to analyze invasive EEG findings, histopathology, and postoperative outcomes in patients with magnetic resonance imaging (MRI) negative, positron emission tomography (PET) positive temporal lobe epilepsy (TLE) (MRI-/PET+ TLE).

Methods: We reviewed the data of all patients with TLE who underwent epilepsy surgery in the Brno Epilepsy Centre from 1995 to 2010 (238 patients). We identified 20 patients with MRI-/PET+ TLE (8.4%) (11 men, 9 women).

Results: Of the 20 patients, 16 underwent invasive EEG. The temporal pole and hippocampus were involved in the seizure onset zone in 62.5% of the patients. We did not identify a lateral (neocortical) temporal or extratemporal seizure onset in any patient. Of the 20 patients, 17 had > 1 year lasting follow-up. At the final follow-up, 12 out of those 17 patients (70.6%) were classified as Engel I; 1 patient as Engel II (5.8%), and 2 patients as Engel III and IV (11.8%). Histopathological evaluation showed no structural pathology in any resected hippocampus (14 patients) in 58% of all evaluated temporal poles. The most common pathology of the temporal pole was focal cortical dysplasia type IA or B.

Discussion: MRI-/PET+ TLE should be delineated from other “nonlesional TLE”. The ictal onset in these patients is always present in the temporal pole or hippocampus rather than in the lateral temporal neocortex. Standard surgery produces a good postoperative outcome, comparable to that for patients with lesional TLE. Histopathological findings are limited: the most common pathology is FCD type I.

PAROXYSMAL SYMPATHETIC STORM IN ANOXIC ISCHEMIC ENCEPHALOPATHY

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Introduction: Paroxysmal Sympathetic Storm (PSS) or diencephalic seizures, manifest themselves as periods of sympathetic hyperactivity without any evidence of epileptiform activity in the EEG. We present a case of a severe PSS in a 14 yrs old boy following anoxic ischemic encephalopathy who responded favourably to treatment with diamorphine.

Case report: A 14 yrs old boy with hypothyroidism, diabetes and intractable epilepsy suffered anoxic brain damage after sustaining a cardio-respiratory arrest following status epilepticus. Neurologic examination showed he had impaired cognition, communicate with double syllable along with spastic quadreparesis. Two months post cardiac-arrest he developed frequent episodes of dystonic posturing, with profuse diaphoresis, tachycardia(178-198/min), tachypnoea(34-40/min), decrease O2 saturation (89-88%), high temperature (40'C) and high blood sugar (648mg/dl). These would last for a few hours. MRI revealed symmetrical hyperintensities over bilateral caudate nuclei, putamen and globus pallidum typical of cerebral anoxia. EEG did not reveal any ictal discharge. In between the episodes he remained awake, but remained mute and akinetic. Patient was initially treated with bromocriptine (10mg) initially with no response followed by diamorphine (10mg) and the patient remained spell free for more than 74 days, until discharged.

Conclusion: PSS can occur after a catastrophic injury to the CNS as it is in our index patient with anoxic ischemic encephalopathy. The pathophysiology of the spells can be attributed to the paroxysmal release of catecholamine in the vascular system in absence of inhibition by viable cortical and subcortical control. Judicious use of opioid agonists can help abort these episodes.

PREVALENCE OF DEPRESSION AND ANXIETY IN PATIENTS WITH EPILEPSY

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Up to 60% of patients with epilepsy have various mood disorders including depression and anxiety, which have an important impact on quality of life of patients.

The aim of this study was to investigate prevalence of depression and anxiety in patients with epilepsy, from Transcarpathian Ukraine and to compare the prevalence of these mood disorders in patients with well-controlled seizures and refractory epilepsy.

217 subjects, mean age 39.82±8.63, diagnosed with epilepsy participated in the study. Patients received valproic acid and carbamazepine as monotherapy in standard therapeutical doses. 147 patients had well-controlled epilepsy, 70 patients exhibited drug resistant epilepsy according to ILAE criteria. Prevalence of mood disorders was assessed according to the Hospital Anxiety and Depression Scale (HADS) and Depression Scale (DEPS). For statistical analyses chi-square test was used.

Prevalence of depression according to HADS was 41.9% in the whole group of patients. In the group resistant to treatment it was 74.3% vs. 26.5% in the group responding well to treatment,$p< 0.001$. According to DEPS, prevalence of depression in the whole group was 33.2%, in drug-resistant group - 63.6%, vs. 19.0% in the group well responded to treatment,$p< 0.001$. Prevalence of anxiety according to HADS was 40.6% in the whole group, 70% in the drug-resistant group vs. 26.5% in well-controlled group, $p< 0.001$.

These findings demonstrate that depression and anxiety is a very strong correlate of poor response to treatment in patients with epilepsy. Optimal clinical management of epilepsy will need to incorporate recognition and treatment of mood disorder in clinical practice.

ANALYSIS OF VENTRICULAR LATE POTENTIALS IN SIGNAL-AVERAGED ECG OF PEOPLE WITH EPILEPSY

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Introduction: Ventricular late potentials (VLP) recorded on signal-averaged electrocardiograms (SAECGs) reflect delayed ventricular depolarization and identify the structural or functional substrate for the ventricular tachycardia in the re-entry mechanism.

The aim of this exploratory study was to screen epilepsy patients, treated with established doses of AEDs, on the presence of VLP.

Methods: Forty five consecutive patients with the diagnosis of epilepsy and 19 healthy volunteers, aged < 46 years participated in the study. Exclusion criteria included symptoms or signs of diseases other than epilepsy, in particular relating to heart disease or medication influencing cardio-vascular system as well as seizure reported by patients happening less than 3 days before the ECG examination.

Results: There were 22 (48%) patients in epilepsy group, and only 1 patient (5%) in control group, fulfilling the criteria for VLP (p=0.0005). Subsequently, epilepsy patients were divided into two sub-groups according to VLP presence. Patients with VLP had longer disease duration (p=0.03) compared to those without VLP. Similarly, VLP subjects more frequently had refractory epilepsy (p=0.03) and had higher seizure frequency per month (p=0.02). VLP patients tended to be more often on polytherapy (p=0.07) as compared to epilepsy patients without VLP. However, if the numbers of AEDs per subject were compared, patients with VLP were treated with more AEDs than patients without VLP (p=0.01).

Conclusions: Further longitudinal studies are needed in order to stratify the risk of life-threatening ventricular events in epilepsy patients with VLP. It is of prime importance in the context of sudden cardiac death.

AN AUDIT OF EPILEPSY CARE IN LOW RESOURCE URBAN AREAS OF NORTHEAST NIGERIA

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Objective of the study: To assess the present state of epilepsy care in two district tertiary care hospitals in northeast Nigeria, and to compare with modern management of patients with epilepsy.

Methods: This was a retrospective study of hospital records of 200 adults with already established epilepsy over the previous 4 years. We used a questionnaire to collect relevant data relating to diagnosis and management of epilepsy.

Results: There were 150 (75%) males and 50 (25%) females with mean age of 30.2 yrs (SD 5.8yrs). The main aetiology was post traumatic (37%), cerebrovascular disease (22.5%), partially treated meningitis (17.5%), encephalitis (12%), and alcohol (10%). The majority of reported cases (85%) were generalized tonic clonic seizures. Less than a fifth had EEG and neuroimaging before commencement of AEDs. Patients who were referred had to travel long distances for EEG, CT and MRI brain and most could not afford the high cost of these investigations. One of the hospitals had a neurologist and a psychiatrist. There was no neurosurgeon. Majority of the patients (75%) were on phenytoin capsules, followed by phenobarbitone (10%), carbamazepine (7.5%), sodium valproate (5%), and ethosuximide (2.5%). There were no facilities to monitor blood concentrations of AEDs. No patient had had a surgical intervention, even among the eligible cases.

Conclusions: This audit has enabled an examination of epilepsy management and demonstrating sub-optimal level of care in our practice. The most prescribed AEDs are the cheapest as most patients were unable to pay for AEDs from their own incomes.

EPILEPTIC SEIZURES REVEALING HYPERGLYCEMIA

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Seizures are rare complications of hyperglycemia. Few cases have been reported in the literature.

We aimed, through the study of a case series of 5 patients to describe clinical electrophysiological and radiological features of this syndrome. We also discuss the possible mechanisms underlying such seizures.

There were 4 females and 1 male aged, between 48 and 68 years, with no history of diabetes, and who presented with continuous partial seizures. CT scan and MRI were normal in all the cases. Biological tests showed increased glucose levels with no ketosis. Seizures remained unresponsive to antiepileptic drugs, but responded to Insulin and hydration. Once seizures stopped, EEG was unremarkable in all the cases. Outcome was favourable in all the cases.

We conclude that hyperglycemic seizures must be considered as a specific neuroendocrinian syndrome characterized by focal seizures, occurring in patients more than 50 years old aged, regardless of any previous history of diabetes. These seizures respond only to Insulin and hydration.

ADULT RASMUSSEN ENCEPHALITIS

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Rasmussen encephalitis (RE) is a chronic inflammatory epileptic encephalopathy of unknown origin, characterized by refractory focal seizures, progressive hemiparesis and cognitive deterioration. It is more frequent in children and usually affects one brain hemisphere. We present 2 cases of adult RE.

Case 1: A 46-year-old male, expressed right motor and visual seizures. Cerebral T2 Magnetic Resonance Imaging (MRI) revealed a left cortical parietal and occipital hyperintensity. Three months later, he had a left epilepsia continua with cortical blindness. A second cerebral MRI showed a right parietal and occipital hyperintensity and left cortical atrophy. Cerebral biopsy showed microglial activation, lymphocytary inflammation and gliosis. Despite corticotherapy, he developed a severe dementia.

Case 2: A 50-year-old male, presented an intractable right hemifacial epilepsia continua, associated with speech and visual field disturbances, leading in 2 months to an anarthria and cortical blindness. Cerebral T2/FLAIR MRI revealed a bilateral cortical temporal and occipital hyperintensity. Cerebral biopsy showed a gliosis without inflammatory findings. Steroids and intravenous immunoglobulin did not improve the clinical course.

The clinical presentation of adult RE seems to be different from RE in children. It is characterized by a bilateral hemispheric involvement, mostly in the occipital area, leading to cortical blindness (Jaillon-Rivière et al., 2007; Oguni et al., 1991). In the literature, the disease progression appears to be slower, and hemiparesis less frequent. Medical therapeutic strategy can combine steroids with intravenous immunoglobulin or plasmapheresis, but seems little effective. Hemispherotomy is not indicated in adult RE.

HIPPOCAMPAL SCLEROSIS AND IPSILATERAL HEADACHE AMONG MESIAL TEMPORAL LOBE EPILEPSY PATIENTS

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Purpose: To investigate the frequency and patterns of headache in pateints with refractory mesial temporal lobe epilepsy with hippocampal sclerosis (MTLE-HS) patients.

Methods: One hundred consecutive MTLE-HS patients under comprehensive presurgical evaluation were evaluated from May 2009 to April 2010. A standardized questionnaire was applied according to the criteria of the International Headache Society (IHS). Headache diagnosis was based on the second edition of the International Classification of Headache Disorders (ICHD-II).

Results: Ninety-two patients (92%) had at least one headache episode during the previous 12 months. Migraine occurred in 51.9% of patients and tension-type headache (TTH) in 39.1%. Patients with migraine presented higher frequency (p=0.002) and severity of episodes (p< 0.001), as well as lateralized pain (p=0.001) than individuals with TTH. MTLE-HS patients with unilateral HS and predominantly unilateral headache (irrespective of the type), presented pain ipsilateral to the HS (OR 8.5; CI 95%=2.1-35.1; p=0.003).

Conclusions: Headache is a frequent clinical symptom of lateralizing value, which may share common pathophysiology with epileptogenesis among MTLE-HS patients.

RETROSPECTIVE ANALYSIS OF PATIENTS WITH NOCTURNAL PARTIAL EPILEPSY

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Nocturnal Epilepsy (NE) is a condition that is primarily characterised by seizures exclusively or predominantly during sleep. In this study we evaluated demographic, clinical, etiologic and neuroradiologic data correlated with nocturnal epilepsy. Patients are grouped according to the frequency of nocturnal seizures (NS): exclusively 100% at sleep and predominantly (≥70% of seizures occur during sleep), EEG abnormalities (epileptiform,nonepileptiform...), type of epilepsy (frontal (FLE), temporal (TLE) and unclassified) and treatment response (refractory, seizure free...). Epilepsy outpatient files of Cerrahpasa Medical Faculty, Department of Neurology were reviewed and 145 out of 1950 patients were identified. In statistical analysis, significancy of p level is accepted as 0.05. In this study, we sought to determine characteristic features of nocturnal epilepsy. There was no significant difference between the groups with respect to age ,gender, nocturnal presence of the seizures, interictal EEG findings, hemispheric lateralization in MRI findings and febrile seizure history. Contrary to the current knowledge, nocturnal seizure is also common in patients with TLE, MR abnormality was more common in NE with TLE ,presence of MRI and EEG abnormalities were more common in NE-TLE ,treatment response was better in NE-TLE, and carbamazepine was the most common drug in monotherapy. Structural lesions were identified in 60% where majority localized in TL with favorable outcome, NE with FLE is related with drug resistancy, normal MRI findings and early age at seizure onset.Also mesial temporal sclerosis (MTS) was the commonest lesion in MRI.

COMPLEMENTARY AND ALTERNATIVE MEDICINE USE AMONG PEOPLE WITH EPILEPSY IN A TERTIARY CARE HOSPITAL IN OMAN

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Background: Examining whether demographic factors have influence on the utilization of Complementary and Alternative Medicine (CAM) would have enormous impact on understanding emerging increasing use of CAM among people with epilepsy (PWE). This would have implication to avoid side-effects as well as provision for health education.

Aim: The present study explore the factors that influence the use of CAM by PWE in Oman among attendee of neurological unit at tertiary care centre.

Method: A cross-sectional study conducted at defined among Omani patients (>18 years) diagnosed with epilepsy following up at the Neurology Out-Patient Department. Data on the use of CAM was gathered from telephonic interviews with the patients and their demographic and clinical characteristics were extracted from the Electronic Medical Records.

Result: Approximately 73.3 % of the subjects had used CAM but only 21.6% of them were satisfied with its efficacy. Belief of contemptuous envy “Hassad” as a cause of epilepsy was the only factor significantly associated with higher CAM use (p=0.037).

Conclusion: Treatments that owe their origin to socio-cultural teaching and often considered to be outside realm of allopathic medicine are commonly used among people with epilepsy (PWE) in Oman. The present discourse highlights and discusses the situation in Oman.

MODELLING OF MAGNETIC STIMULATION IN EPILEPTIC BRAIN

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Purpose: Repetitive transcranial magnetic stimulation (rTMS) widely applied like therapy of much neurology diseases. The aim of our study was to calculate the peculiarities of TMS induced currents into the model of normal brain and in brain with damage - prototype of mesial sclerosis.

Method: We used the Finite elements model with the next components: air, coil, scull bone, cerebrospinal fluid, grey and white brain matter, to estimate the distribution of TMS induced electromagnetic fields and currents. Two types of TMS coils were used: circular coils (CC) with different diameters and eight-type coils (ETC) of Neirosoft magnetic stimulator. Parameters of electric fields and TMS induced currents (induced current density (ICD) and intensity (ICI)) were estimated by COMSOL Multiphysics. ETC gives the least induction and the best focusing in the grey matter (maximal ICD and ICI are 33-36 A/m^2 and 73-80 B/m accordingly) in the normal brain model; the greatest depth and area of force has a large CC (ICD and ICI are 27 A/m^2 and 44-60 B/m accordingly). The angular ETC type applied over temporal zone produces the most intensive currents in this prototype of mesial sclerosis - 51.4 B/m which has a neuron depolarization function.

Conclusion: Modeling processes happen in TMS in brain with prototype of mesial sclerosis and combination received results with MRI data give us a key to measured and addressed magnetic fields admission for brain targets to seizure arrest or prevention by TMS, to solve problems of creation of a new coil type.

EFFECTIVITY OF DIFFERENT ONE-TIME RTMS PARAMETERS EFFECTS ON EXPERIMENTAL SEIZURES

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The aim of our study is to estimate various parameters of rTMS anticonvulsive effects in screening an experimental chemical convulsion model.

Methods: There were used TMS with various parameters of frequency (10.0, 1.0, 0.5, 0.3 and 0.1Hz), intensity (40%, 20% and 10% of maximal coil induction) at one-time procedure by magnetic stimulator Neuro-MS (Neirosoft). The pentiletetrazol model was performed at rodents. Pentiletetrazol was injected in ED_{50} dose (60mg/kg) subcutaneously which conforms to LD_{10}. All experiments were coordinated with the local ethical commission of Medical Academy.

Results: Absence of a clonic seizure phase was observed in 50% of animals in pentiletetrazol model like end point after one session of 10Hz with 40% of maximal coil induction (MCI) stimulation (near 0.5T). The first myoclonus latency was prolonged after 0.5Hz magnetic stimulation with 20% of MCI: 162.6±18.8 sec against control 92.73±12.1 sec ($p=0.027$). The degree of seizure severity decreased significantly at 1.0Hz rTMS regime with 40% of MCI ($p=0.033$). The number of 3-point seizures decreased after 10Hz and 0,3Hz rTMS with 20% of MCI ($p< 0.03$). 10Hz regime gives also the shortening of 1- and 3-point seizure durations ($p\leq0.05$). Seizure durations were reduced after 0.1Hz rTMS too: 1-point seizures - at regime with 10% of MCI ($p=0.05$), 5-point seizures - at regime with 20% of MCI ($p=0.05$).

Conclusion: Different rTMS parameters can change the structure, duration and severity of experimental seizures selectively. Herewith a high- frequency 10Hz regime gives a more manifold anticonvulsive pattern than a low-frequency magnetic stimulation.

EPILEPSY SURGERY: PRELIMINARY EXPERIENCE FROM MOROCCO

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Introduction: Epilepsy affects at least 50 million people in the world of which 10 million live in Africa. Surgical treatment is performed in growing number of patients. About half of drug resistant epilepsy may benefit from surgery.

Material and methods: Retrospective analysis of 50 patients treated between February 2005 and March 2011. Patients underwent brain MRI, inter-ictal-EEG and video-EEG. Surgery was decided based on multidisciplinary approach.

Results: There were 26 females and 24 males, mean age was 24,5 years [9 - 49 years]. Mean delay to surgery was 13, 7 years. The epilepsy was mesio temporal lobe in cases 48 (96%), only 2 cases of extra temporal (frontal) epilepsy. 89% of patients benefited from temporal lobectomy, 7% of temporal lesionectomy, and 4% of frontal lesionectomy.

Histological examination has revealed 50% of hippocampic sclerosis, 22% of DNET, 11% were benign gliomas, 9% had cortical dysplasia, 4% ganglioglioma and one case of cavernoma.

There was no mortality, we had 4 complications (9%) successfully treated. At a mean follow-up of 29,5 months [3 - 60 months] 82% of patients were classified Engel I .

Comments: Our experience shows a successful start-up of a surgery epilepsy program. This success is based on the multidisciplinary approach and support from other experienced centers. Temporal lobe epilepsy remains the major indication with a straight forward workup and surgical treatment leading to good results for most patients. Our aim is to develop this program allowing larger and earlier access to epilepsy surgery to all patients around the country.

VAGUS NERVE STIMULATION: A PROGRESSIVE INCREASE IN EFFECTIVENESS

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Objective: This retrospective study presents results of the efficacy of use of intermittent vagus nerve stimulation (VNS) in 27 patients with medically intractable epilepsy.

Method: Medical files of the patients implanted for one year or longer were reviewed for changes in seizure frequency (SF). The length of the follow-up averaged at 48 months (range 12 months - 8.75 years). SF was evaluated at one year from the implantation date and then at total follow-up time. As a result of decrease in SF, the patients were separated into five groups (G): G1 - >75%, G2 - 50-74%, G3 - 25-49%, G4 - 0-24%, and G5 - worse.

Results: At one year follow-up, G1 consisted of 1 patient, G2 - 9 patients, G3 - 9 patients, G4 - 8 patients and G5 - 0 patients. At total follow-up, G1 consisted of 13 patients, G2 of 6 patients, G3 of 3 patients, G4 of 2 patients and G5 of 3 patients. Of the 27 patients, 10 (37%) had a 50% or more reduction in SF at first year follow-up. At total follow-up this number increased to 70%. Three patients had a 10% on average decrease in SF during the first 12 months of therapy and then a reemergence of SF which brought them back to baseline or worsening of seizures.

Conclusion: This study shows there is an overall progressive increase of effectiveness over time for the largest amount of patients. VNS therapy appears to be a positive adjunct treatment for medically intractable epilepsies.

VAGUS NERVE STIMULATION (VNS) IN A PEDIATRIC POPULATION - SURGICAL TECHNIQUE CONSIDERATIONS IN YOUNG CHILDREN

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Introduction: During recent years VNS has become an accepted method of treating patients with refractory epilepsy who are not proper candidates for potentially curative epilepsy surgery, such as lesionectomies or mesial temporal lobectomies.

Purpose: To review our clinical experience with VNS in the pediatric population, surgical complications and special considerations in the pediatric age group.

Methods: Ongoing enrollment of consecutively operated patients. Concurrent and retrospective review of IPD and OPD records. Focus: qualitative evaluation of clinical and EEG seizure features, VNS adjustments and AED adjustments. We are presenting our experience with VNS therapy on 30 patients (age ranging between 1 1/12 - 20 5/12 years through the period between 2002-2006 regarding the surgical techniques, precautions and surgical outcomes.

Results: Seizure frequency: decrease in seizure frequency in 23 patients, 8 patientsà marked decrease in seizure frequency. 7 patients àsignificant seizure free period. One patient never had any seizure frequency reduction. VNS settings: progressive increase in VNS setting initially in all patients. 20 patients had extended periods of stable VNS parameters. One patient has VNS parameters reduction due to dysphonia.

Conclusions: VNS has a valuable role in decreasing seizure frequency/intensity with relatively minor complication profile. In general, all pediatric implants require special attention to surgical technique, particularly in the smallest patients. Additional factors include manipulation of the VNS implant by less-cooperative children. VNS has a valuable role in decreasing seizure frequency/intensity with relatively minor complication profile. In general, all pediatric implants require special attention to surgical technique, particularly insmaller patients.

RUFINAMIDE COULD A SECOD LINE FOR THE ADJUNCTIVE TREATMENT OF PARTIAL SEIZURES IN ADULTS?

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Rationale: Rufinamide is a triazole derivative, a novel antiepileptic drug (AED)which has been found to be effective in the treatment of drop attacks and partial seizures associated to Lennox - Gastaut Syndrome. . The aim of the study was to explore the efficacy of rufinamide as a second line adjunctive treatment of partial seizures in adult with focal epilepsy.

Methods: We describe 50 adults patients (mean age 14,5) with focal epilepsy , who developed drug resistant epilepsy. Diagnosis of epilepsy was made according to the Commission on Classification and terminology of the International League against Epilepsy .

Patients were interviewed, and general and neurological physical examination was performed.

Initial dosage and titration of Rufinamide were at discretion of epileptologist according to medical need and considering changes in the pharmacokinetics associated to concomitants AED. Efficacy was evaluated by comparing the frequency of countable seizures at baseline (4 weeks before add-on of Rufinamide) with the frequency in the last 8 weeks of observation.

Results: 35 /50 patients were responders . 35 patients experienced a greater 65% seizure reduction.

Conclusions: Our sample, althought small, was selected basing on epilepsy resistance to two first line AED drugs. This data address us to puzzle that Rufinamide used as off-label treatment in not severely affected drug-resistance epilepsy showed higher responder rate , ranging from 25 to 65%of seizures reduction. Further study are required to clearly define patient population that could benefit by Rufinamide.

BONE TURNOVER MARKERS IN EPILEPTIC PATIENTS UNDER CHRONIC VALPROATE THERAPY IN ISFAHAN, CENTRAL OF IRAN

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Introduction: Epilepsy is a common and chronic complication of nervous system that requires prolonged, even life long treatment. In this regard, the side effects of seizure controlling drugs will be of special important. Among a wide variety of different side affects, Antiepileptic drugs (AEDs) have been suspected to be associated with bone disease.

Objective: The effects of chronic valproic acid administration on bone health have been a matter of concern and controversy. In this study, the situation of bone status following valproate intake was assessed by using several bone related biochemical markers.

Materials and methods: This cross-sectional study enrolled 66 epileptic patients (51 female,15 male)and 47age-matched controls. The patients had been under chronic valproate therapy (322 ± 99mg/day) for at least the past 1 year. Serum markers of bone turnover carboxyterminaltelopeptide of type I collagen (CTX1) and Bone specific alkaline phosphatase (BALP),calcium, phosphorus, total alkaline phosphatase, PTH and valproate level were measured in both groups.

Results: The markers of bone turnover as well as other measured bone biochemical parameters, did not statistically differed between the two groups.

Conclusion: In contrast to some of the previous publications, valproate therapy doesn´t seem to change bone turnover in epileptic patients.

DOES MATERNAL LAMOTRIGINE USE INCREASE THE RISK FOR CLUB FOOT?

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In an exploratory analysis of the EUROCAT AED Database, we previously found an an association between lamotrigine monotherapy and club foot without spina bifida, based on five cases where 1.8 were expected ($p< 0.05$). (Dolk Neurology 2008). We investigated this again in an updated independent dataset. The study population of this dataset covered 757,797 births, born 2003-2008, including 19,358 malformed cases. The proportion of club foot among non-chromosomal malformed pregnancy outcomes exp. to lamotrigine (n= 20) was compared with the proportion of club foot not exposed to any AED (n= 17,897). The proportion of club foot among non-chromosomal malformed pregnancy outcomes exposed to other AEDs (n=450) in the entire dataset (1995-2008, 4,636,825 births) is also calculated. We found 3 cases of club foot among 20 lamotrigine monotherapy exposed registrations instead of the expected 1.08 ($p< 0.05$) based on the non-exposed proportion of clubfoot of 4.5%. Of the total of 8 club foot cases (old and new data), 7 were isolated and 5 were bilateral (1 laterality unknown). The proportion of club foot among pregnancy outcomes exposed to other AEDs was 4.2% in the entire dataset. We found again an association between lamotrigine and club foot. We also found it to be specific for lamotrigine, and not for other AEDs. Club foot is a complex anomaly, related to various genetic and environmental factors. This indication should be interpreted with caution. We will continue to monitor with EUROCAT data and invite responses to this signal from existing cohort studies.

BENIGN ROLANDIC EPILEPSY PRESENTED LIKE CONTINUOUS SPIKES AND WAVES DURING SLOW SLEEP AFTER TREATMENT BY CARBAMAZEPINE

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Paradoxically, an antiepileptic drug (AED) may aggravate epilepsy. The number of AEDs is steadily increasing, and the occurrence of paradoxical aggravation will probably become a frequent problem.

We describe two children aged 9 and 5 years, in whom carbamazepine (CBZ) precipitated seizure worsening and epileptic negative myoclonias (ENM). We studied clinical, morphological and topographic features of the EEG abnormalities while on CBZ and after CBZ withdrawal.

EEG in both cases showed continuous spike-and-wave discharges similar to abnormalities seen in epileptic syndrome with continuous spikes and waves during slow sleep.

Parents of both patients reported that their children first had only morpheic seizures but on CBZ seizures worsened. One of the patient even had frequent ENM.

When we stoped CBZ we noticed clinical and electroencephalographic improvement in both cases. The EEG than became typical of benign rolandic epilepsy (BRE).

In some patients with BRE, a clear aggravation may be produced by CBZ, with occurrence of ENM, atypical absences, drop attacks, or even a state of electrical status epilepticus during sleep.

Among patients with BRE, those with rolandic spike waves are more prone to have seizures worsening on CBZ, than tose with only sharp waves. If this hypothesis is confirmed, response to treatment is likely to be determined by the morphology of the EEG waveform.

EFFICACY AND TOLERABILITY OF FLEXIBLE DOSES OF PREGABALIN AS FIRST ADD-ON TREATMENT IN PATIENTS WITH FOCAL EPILEPSIES

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Objective: To evaluate efficacy and tolerability of flexible doses of Pregabalin as first add-on treatment in patients with focal epilepsies.

Methods: 29 patients (12 men, 17 women) 23-65 years old, with focal epilepsies were treated in an open label phase 4 study with first add-on Pregabalin after a first-line anticonvulsive monotherapy had failed. During a first phase of 12 weeks all patients received 75-300 mg Pregabalin/d which was uptitrated according to clinical judgement. Thereafter, in a second phase of 12 weeks, 21 of the 27 patients remained in the low-dose group (75-300 mg/d) and 6 patients received a higher dose (> 300 ≤ 600 mg/d).

Results: Of 18 patients treated with a low dose of Pregabalin,12 remained seizure-free during the first study phase, 9 during the second study phase and 9 during both phases. Of 6 patients in the high-dose group, none remained seizure-free. The responder fraction of patients with at least 50% reduction of seizure frequency was 14/17 and 10/17 in the first and second study phase respectively, in the low-dose group and 2/5 and 3/5 respectively in the high-dose group. In 5 patients the study was terminated early. 4 of these 5 patients experienced adverse effects and one withdrew consent. The only 2 serious adverse effects occurred in the high-dose group and were seizure-related. After the end of the study 21 of 24 patients continued to be treated with Pregabalin.

Conclusion: Flexibel dosing of Pregabalin is an effective and well tolerated treatment in patients with focal epilepsies.

IMPACT OF TOPIRAMATE AND VALPROIC ACID PLASMA CONCENTRATIONS ON SEIZURE CONTROL AND DRUG ADVERSE EVENT FREQUENCY, IN CHILDHOOD-ADOLESCENT EPILEPSIES

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Aim: Dose-response clinical trial on valproic acid and topiramate correlation plasma concentration - adverse effects and plasma concentration - frequency of seizures in juvenile epilepsies

Methods: Two populations of childhood or adolescent patients suffering from epilepsy were prescribed either one of these drugs : 32 patients - valproate and 26 - topiramate in full dosing regimen. Clinical follow up was done 2007 in a tertiary care university clinic. Valproate was administered 2-3 times orally 250 - 1500 mg (1046.87 +/- 282.25 mg) daily during 4 to 516 months (48.87 +/- 88.1). Topiramate was administered 1-3 times orally during 0.5 to 60 months (11.31 +/- 13.31), through daily dosage of 25 - 400 mg (186. 54 +/- 101.96 mg).

Results: Average topiramate plasma concentration was 5.67 +/- 3.70 mg/l, while valproate plasma concentration was 93.98 +/- 26.43 mg/l. Topiramate was administered in a mono-therapy more seldom (38.46%) than valproate (65.63%). We observed no statistically significant difference neither on seizure control achieved, between valproate (25.47 +/- 93.52) and topiramate (24.88 +/- 85.05) (Mann-Whitney U test=0.159; p>0.05) nor between the frequency of adverse reactions (Mann-Whitney U test=0.139; p>0.05) (average number ; valproate 5.06 +/- 4.91, topiramate 6.19 +/- 4.76).

Conclusion: Although among our research population assumed dose-response relationship turned out to be the weak one we recommend futher pharmacokinetic explorations of this kind. More individually adjusted dosing regimen would certainly provide better clinical efficacy with less adverse events.

INDIAN MULTICENTER, RANDOMIZED DOUBLE-BLIND, PLACEBO-CONTROLLED TRIAL TRIAL ON NOVEL ANTIEPILEPTIC DRUG, LACOSAMIDE (LACOSAM, TORRENT) VS. LEVETIRACETAM (TORLEVA) IN PARTIAL-ONSET SEIZURES

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Objective: To evaluate the safety and efficacy of lacosamide versus levetiracetam in patients with partial-onset seizures with or without secondary generalization.

Material and methods: This multicenter, randomized double-blind, placebo-controlled trial patients (age 17-70 years; N=216) to Lacosamide 200 mg/day (Lacosam TM, Torrent Pharma India) or levetiracetam (Torleva TM, Torrent Pharma India)1500 mg/day. The trial consisted of 1 week of titration and 8-week of maintenance period.

Results: Out of 109 patients randomized to Lacosam (Lacosamide), 64 received 100mg b.i.d throughout the trial & 36 were up titrated to receive 200mg bid.

Similarly, out of 107 patients randomized to Torleva (Levetiracetam), 72 patients received 750mg b.i.d throughout the trial & 28 patients were up titrated to 1000mg b.i.d.

The Responder rate for Lacosam (Lacosamide) vs. Torleva (Levetiracetam) was 89.72% vs. 90.57% ($p = 0.7031$).

Results of secondary efficacy parameters such as median percentage reduction in seizure frequency ($p = 0.98$), percentage of seizure free patients ($p = 0.17$), physician's and patient's global assessment to the treatment, were comparable in both the treatment groups.

Quality of life significantly improved in both the groups. The most common adverse events reported in Lacosamide group were dizziness and nausea while nausea, dizziness, drowsiness and vomiting commonly occurred in Levetiracetam group. No serious adverse event was reported in any of the treatment groups.

Conclusions: Adjunctive Lacosam (Lacosamide) is safe and effective in patient with partial onset seizures with or without secondary generalization and has comparable efficacy and safety to Levetiracetam.

Study sponsor: Torrent Pharmaceuticals Limited, India.

LEVETIRACETAM VERSUS LORAZEPAM IN STATUS EPILEPTICUS: A RANDOMIZED OPEN LABELED PILOT STUDY

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Background: For the management of status epilepticus (SE), lorazepam (LOR) is recommended as the first and phenytoin or fosphenytoin as the second choice. Both these drugs have significant toxicity. Intravenous levetiracetam (LEV) has become available but its efficacy and safety has not been evaluated in comparison to LOR.

Aim: To report a randomized, open labeled pilot study comparing the efficacy and safety of LEV and LOR in SE.

Methods: Consecutive patients with convulsive or subtle convulsive SE were randomized into LEV 20 mg/kg iv over 15 min or LOR 0.1 mg /kg over 2-4 min. Failure to control SE after 10 min of administration of one study drug was treated by the other. The primary endpoint was clinical seizure cessation and secondary endpoints were 24 hour seizure freedom, hospital mortality and adverse events.

Results: 38 patients with SE were randomized to LEV and 41 to LOR. The baseline characteristics were similar between the two groups. In the first instance, the SE was controlled by LEV in 76.3% and by LOR in 75.6% (P=1.00). In those resistant to above regimen, LEV controlled SE in 70.0% and LOR in 88.9% patients (P=1.00). 24 hours seizure freedom was also comparable; by LEV in 79.3%, LOR in 67.7% and combination in 75% (P=0.38). LOR was associated with more frequent respiratory failure (10vs5) and hypotension (8vs2) compared to LEV.

Conclusion: For the treatment of SE, LEV is as effective as LOR and may be preferred in patients with respiratory compromise and hypotension.

TARGETS OF THE ENDOCANNABINOID SYSTEM TO PROMOTE PROTECTION AGAINST EXCITOTOXIC PATHOLOGY

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New compounds targeting enzymes that degrade the endocannabinoids anandamide (AEA) and 2-arachidonoyl glycerol (2-AG) have therapeutic potential by enhancing cannabinoid responses. The compounds block endocannabinoid inactivation, thus promoting on-demand events in response to pathogenic insults. To better understand the modulatory agents, we utilized compounds AM6701 and AM6642 that block both the AEA-deactivating enzyme fatty acid amide hydrolase (FAAH) and 2-AG-deactivating enzyme monoacylglycerol lipase (MAGL) with equal potency. Also studied were compounds AM6702 and AM5206 which more potently inhibit FAAH than MAGL. AM6701 protected against the kainic acid (KA)-induced degenerative cascade in the hippocampal slice model. Cultured slice data also suggested AM6701 elicited more protection than the structurally similar AM6702 by ameliorating cytoskeletal breakdown, synaptic marker loss, and disruption of neuronal integrity, measured 24h post-insult. In vivo, KA administration induced sub-lethal seizures and the same neurodegenerative events exhibited in vitro. Protection by AM6701 and AM5206 was evident with respect to cytoskeletal damage, synaptic markers, seizure scores, and behavioral deficits. The excitotoxic rat model was also assessed for changes across 34 cytokines using a cytokine antibody array. In hippocampal supernatants prepared 24 h after mild seizure-inducing KA injections, only a few cytokines exhibited small changes. Interestingly, when the KA injection was immediately followed by a FAAH inhibitor, several cytokines were found to exhibit a significant increase, many of which are thought to be involved in cell survival. These studies characterized new-generation inhibitors of endocannabinoid-degrading enzymes which enhance cannabinergic signaling and prevent excitotoxic damage. This strategy has important implications for many brain disorders.

IS THERE ANY DIFFERENCE BETWEEN AWAKENING EEG IN BENIGN ROLANDIC EPILEPSY AND *CONTINUOUS* SPIKE-AND-*WAVES* DURING *SLEEP* SYNDROME?

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Introduction: Benign rolandic epilepsy (BRE), and continuous spike-and-waves during sleep syndrome (CSWS), are different entities. Differentiation between the two syndromes seems obvious on the recording of sleep EEG. Our study aims to find if we can set apart the two syndromes on awakening EEG.

Methods: At the Neurophysiology Department of Mohammed V Military Hospital of Rabat, 15 awakening EEG records of 9 BRE and 6 CSWS were compared. Frequency and amplitude of abnormalities were calculated through a period of 20 minutes.

Results: The 9 registered BRE includes 5 awakening EEG performed in the morning and 4 done in the evening. For the CSWS, 4 awakening EEG were recorded in the morning and 2 in the evening. Biphasic abnormalities had the same appearance in BRE and CSWS. Their average frequencies were different between the two syndromes and during the day with a statistically significant difference ($p=0.02$) between the frequency of abnormalities recorded in the BRE in the morning (91±47 anomalies in 20 minutes) and that of CSWS recorded the morning (195±58 anomalies in 20 minutes) but there were no statistical difference between the evening records. No statistical difference was found between the amplitudes of the abnormalities in the various EEG.

Conclusion: Our study suggests that diagnosis of BRE or CSWS could be established on morning awakening EEG by calculating the frequency of the biphasic spikes. However, in case of high frequency a sleep record will be needed along to confirm this hypothesis by extending the sample.

EPILEPSY REMISSION STAGE STATEMENT BY NONLINEAR METHODS FOR EEG RESULTS PROCESSING

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Purpose: Epilepsy remission stage statement and well-founded AEP dose lowering decision are the key points in epilepsy patients' treatment. We used the automatic diagnostic system (ADS) for EEG paroxysmal activity detection to estimate epilepsy remission stage.

Method: We used the Neural-Net Method to make the assistant diagnostic system and examined this system on real EEG data. The largest Lyapunov's exponent is used as a criterion for the paroxysmal activity detection. Therefore a value of the largest Lyapunov's exponent was positive for chaotic behavior of a system and decrease when the epilepsy activities occur. There were observed 36 TLE patients in remission stage by EEG sometimes during 5 years and then estimated results by created by us ADS. ADS detects parts of EEG which are not chaotic unlike normal electrical brain activity and gives 2-dimension map with colored abnormal parts red.

Results: ADS display paroxysmal activity when usual analysis EEG not detects anomalies. ADS shows periodically anomaly activity various duration in background and particularly photostimulation EEG of all patients with tendency to disappearance of it during correct therapy ($p < 0.05$). ADS revealed a growth presence of hidden paroxysmal activity near 6-12 months before exacerbation of disease.

Conclusion: Automatic diagnostic system for EEG paroxysmal activity detection can use to estimate epilepsy remission or exacerbation stage with prognosis of pre-seizure changes in the EEG signal dynamic to predict a seizure occurrence and to correct the AEP doses.

THE NOVEL APPLICATION OF SPATIO-TEMPORAL DECOMPOSITION IN THE DIAGNOSIS OF FOCAL EPILEPSY

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Introduction: The diagnosis of epilepsy is primarily clinical. A misdiagnosis of epilepsy can have a significant detrimental effect on patients' lives. Although electroencephalography (EEG) can aid the diagnosis, sensitivity is only 50-60%. Analytical techniques such as spatiotemporal decomposition; which unmixes the activities of the EEG using spatial information from the EEG itself and provides head maps showing the spread of each activity across the scalp, may enhance diagnostic performance. This decomposition is computer-based and hence observer independent.

Aim: To assess the performance efficacy of a novel automated technique for spatio-temporal decomposition of the EEG in the diagnosis of epilepsy.

Methods: A proof of concept study was undertaken utilizing six EEGs with reported unequivocal focal epileptiform abnormalities. A blind evaluation of 22 EEGs reported to show features suggestive of epileptiform activity was then undertaken.

Results: The spatio-temporal decomposition isolated and identified all 73/73 labelled epileptiform events in the six EEGs reported as showing unequivocal focal epileptiform activity and further confirmed by a consultant neurophysiologist. The technique also identified 24/24 events in the 22 EEGs reported as suggestive epileptiform activity; the morphology of the wave forms were more clearly discerned following the decomposition, allowing for better characterisation; while the head maps provided information on the spatial origins of the aberrant activity.

Conclusion: Analysis of the EEG using this novel spatiotemporal decomposition provides information which may aid in the diagnosis of epilepsy. The system could be adapted to run on routine recording equipment and the analysis is produced automatically, supplementing current reporting techniques.

FUNCTIONAL ORGANIZATION AND REORGANIZATION OF CORTICAL MOVEMENT REPRESENTATIONS IN MAN

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Behavioural, neuroimaging and neurophysiological studies showed important involvement of the human primary motor cortex (M1) in motor learning, but the exact nature of that involvement is not clear. We test the hypothesis that M1 movement representations specifically reorganize during motor learning, to optimize cortical motor output and to improve motor performance rapidly.

Normal subjects practiced either ballistic thumb extension movements or thumb pinches for a feedback guided training epoch of 20 minutes. Before and after the training, passive thumb movements evoked by transcranial magnetic stimulation (TMS) and motor evoked potential (MEP) of prime mover were simultaneously recorded, and entire directional movement-maps (TMS-mov-map) and MEP-maps (TMS-MEP-map) were generated. Feedback deprived repetitive motor execution without ballistic learning served as control.

During training, voluntary movements improved significantly in peak acceleration indicating rapid motor learning in all subjects. Motor learning was associated and significantly correlated to a gross reorganization of the functional TMS-mov-maps, whereas no clear correlation was found between motor learning and TMS-MEP-map organization. Interestingly, TMS-mov-maps had returned to baseline on follow up, when subjects showed retention of the novel skill. Repetitive execution without ballistic learning was not associated with any changes in functional movement map organization.

The results show that during motor learning, M1 movement representations specifically alter their directional tuning profile, with retuning to baseline once the novel task was firmly consolidated. The transient changes likely reflect the setting up or retention of a novel motor routine to optimize cortical motor output and motor performance rapidly.

ROUTINE ELECTROENCEPHALOGRAPHY SIMULTANEOUS ACTIVATION PROCEDURES IN PATIENTS WITH EPILEPSY

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Purpose: Routine encephalography (EEG) is habitually used interictally to assess the patient with epilepsy. Many times the EEG record is normal. Activation procedures such as repetitive photic stimulation (RPS), hyperventilation and drowsiness are used to evoke or increase EEG abnormalities. These activation procedures may or may not evoke abnormalities on the record. We decided to examine if simultaneous RPS and hyperventilation would kindle an abnormality or increase the rate of abnormalities, where RPS and hyperventilation separately could not.

Method: Patients with diagnosed epilepsy syndromes were asked for consent during their routine EEG appointment to participate in the study. 17 patients underwent a routine EEG with separate occasions of RPS ranging from 30Hz-3Hz and three minutes of hyperventilation. Patients were then allowed to relax and after twenty minutes of routine recording, simultaneous RPS and hyperventilation were induced. The patients were then divided into two groups; one of normal EEG and of abnormal EEG results and studied.

Results: There was no difference in evoking abnormalities either from individual or simultaneous activation procedures. The EEGs that were normal during the separate activation procedures and throughout remained normal during the simultaneous activations. The EEGs that were abnormal in general and during the separate activation procedures did not change during simultaneous activation.

Conclusion: Simultaneous RPS and hyperventilation did not prove to evoke abnormalities in a normal EEG or further change in an abnormal EEG.

DOES TRANSCUTANEOUS NERVE STIMULATION HAVE AN EFFECT ON SYMPATHETIC SKIN RESPONSE

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Objective: This study examined the effects of transcutaneous electrical nerve stimulation (TENS) on the sympathetic nerve system by sympathetic skin response test.

Methods: Fifty-five healthy volunteers received either: (i)30 minutes TENS (25 participants).

(ii) 30 minutes sham TENS (30 participants) and SSR test was performed pre- and post-TENS. The mean values of latency and peak-to-peak amplitude of five consecutive SSRs were calculated.

Results: A significant amplitude difference was found between TENS and sham TENS group both in right and left hand (p=0.04, p=0.01, respectively). However there was no significant latancy difference between two groups (p>0.05).

Conclusions: TENS has an inhibitory effect on elicited SNS responses when compared with sham TENS control group.

ELECTRICAL STIMULATION INDUCED SEIZURES DURING INTRACRANIAL TELEMETRY IN THE LOCALIZATION OF ICTAL ONSET ZONE IN PATIENTS WITH MEDICALLY REFRACTORY EPILEPSY

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Background: Electrical stimulation (ES) is mainly used to map the eloquent cortex in relation to the ictal onset zone in patients with medically refractory epilepsy.

Aim: To know the significance of electrical stimulation induced seizures (ESIS) in the localization of ictal onset zone and to know their potential complications.

Methods: Consecutive 14 patients who had ESIS formed the study cohort. Their demographic, electro-clinical and imaging data were systematically analysed.

Results: The mean age at evaluation was 35.5 years (range 16-56 years). Six had frontal lobe epilepsy and another six had temporal lobe epilepsy. Four had focal cortical dysplasia and another four had normal MRI. 13 had habitual seizures (93%) and one had nonhabitual prolonged secondary generalized seizure during ES. The mean current strength used was 3.4mA (seven had seizures with ≤2.5mA). Five had complex partial seizures (CPS), four had aura alone and another three had both aura and CPS during ES. ESIS were concordant with clinical seizures (n=10, 100%), imaging (n=6, 100%), and PET (n=3, 100%). Three had no seizures other than ESIS after a mean monitoring period of 17 days (range 14-20 days). 11 underwent resective surgery where ESIS was helpful to take the final decision on surgery.

Conclusions: Electrical stimulation induced seizures usually resemble habitual seizures and sometimes helpful to select patients for resective surgery even when no spontaneous seizures are recorded in the intracranial telemetry. ESIS are usually concordant with other electrical and imaging data. Nonhabitual prolonged seizures are rare.

ENDOTHELIAL DYSFUNCTION IN EPILEPTIC PATIENTS

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Introduction: Some studies have been done in animal that shown the relation between the level of Intracellular adhesion Molecule-1 (ICAM-1) and Vascular adhesion Molecule-1(VCAM-1) and blood brain barrier(BBB) dysfunction in epileptic animals. There are rare studies about endothelium dysfunction in epileptic patients. In this study we investigated the level of ICAM and VCAM as endothelial markers in control and uncontrolled epileptic patients.

Methods: This research was a cross sectional study included forty patients comprising two groups:uncontrolled and controlled epileptic patients. Uncontrolled epilepsy was defined as more than two seizures per months. We excluded all patients with structural lesion and focal neurological sign. We took blood samples randomly and measured the level of ICAM and VCAM of serumin all subjects by the method of ELISA and compared them.

Results: We defined the level of ICAM and VCAM in our 60 patients. There were not significant differences between baseline characteristics of two patients groups and control ($p< 0.001$). The mean level of ICAM and VCAM in both controlled and uncontrolled seizure patients was significant (ICAM: 85.708±9.631, 90.793±1.704; $p=0.053$) (VCAM: 69.0725±2.555, 35.014±1.461; $p< 0.001$).

Conclusions: We showed VCAM level in uncontrolled epileptic patients significantly was lower than controlled epileptic patients.It showed this group of patients has tight junction in BBB that can decrease penetrance of drugs through the BBB and lead to drug resistance. More studies are needed to confirm this hypothesis.

A EUROPEAN MULTICENTRIC EEG DATABASE FROM EPILEPSY PATIENTS

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Introduction: There is growing interest of researchgroups to apply advanced analysis methods to EEG data. So far accessible databases have been limited in size and standardization. We here report on the development of a European EEG database from epilepsy patients with standardized metadata information as part of the European Project EPILEPSIAE (www.epilepsiae.eu, EU grant 211713). This work has been approved by the ethics committees of the participating epilepsy centers.

Design: A relational database schema was developed for annotated long-term EEG data, derived features, MRI data, and clinical metadata including seizure time points, patterns and spread of ictal activity, and typical spike topographies. Data from three European epilepsy centers (Coimbra, Freiburg and Paris) are being integrated into the database. A web client was programmed for queries on predefined datasets.

Results: As of June 2011, more than 230 patients with long-term continuos EEG datasets of at least 4 days duration have been included in the database: 50 patients have intracranial recordings. In total, more than 40.000 hours of EEG recordings with 2000 ictal events as well as interictal periods of interictal EEG are included.

Conclusion: This database sets a new standard for algorithmic EEG analyses and allows for new applications, e.g. subgroup analyses of algorithms for particular EEG syndromes, and intraindividual training and testing of algorithmic performance. Access to the European database EEG database via a web client will be offered from to research groups from 2012 on.

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THE PLACE OF EEG AFTER THE FIRST EPILEPTIC SEIZURE

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Interictal EEG remains the essential tool in the diagnosis of epilepsy and monitoring of epileptic patients. However, limits of its sensitivity and specificity should be assessed.

We report a prospective study of EEG after the first epileptic seizure. This study covers the period from May 2 to the June 26 of 2011 and was conducted at the neurophysiology department of Mohamed V teaching military hospital in Rabat.

Among 189 EEG, 35 were performed in patients who presented with first clinical epileptic seizure.

21 patients were addressed for their first generalized epileptic seizure. EEG found focal abnomalities in 4 cases, generalized abnomalities in 8 cases, and was normal in 9 cases. EEG allowed syndromic diagnosis in 9 cases (7 idiopathic, 1 cryptogenic and 1 symptomatic).

5 patients had a first partial epileptic seizure. EEG showed focal abnormalities in 2 cases and was normal in the others. Syndromic diagnosis was confirmed in 2 cases: cryptogenic temporal epilepsy and cryptogenic frontal epilepsy.

9 patients presented with indeterminated semiology. Among them, EEG revealed generalized abnormalities in 2 cases, partial abnomalities in one case and was normal in the remaining cases. EEG confirmed diagnosis of idiopathic epilepsy in 2 cases and symptomatic epilepsy in one case.

Our survey shows a significant sensitivity of EEG after a first seizure, which showed epileptic abnormalities in 17 subjects (10 generalized, 7 focal). Concerning specificity, EEG confirmed the diagnosis of idiopathic epilepsy in 9 cases, symptomatic epilepsy in 2 cases and cryptogenic epilepsy in 3 other cases.

SPINAL CORD ISCHEMIA IN YOUNG ADULTS

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Introduction: Spinal cord infarction in young adults is a rare condition becoming more widely recognized. There are few cases reported in the literature.

Case report: A 20-year-old woman developed acute bilateral weakness of four limbs, sudden neck pain with radicular radiation. Examination showed a pyramidal syndrom, hemicoporel right spinothalamic sensory deficit and no proprioceptive impairment. The laboratory tests did not show any abnormalities. Cerebrospinal fluid analysis is normal. MRI showed an hypersignal from C5 to C7 suggesting an ischemic lesion in the territory of the anterior spinal artery. Etiologic assessment including immune tests were performed. The patient had a partial response to steroid therapy.

Discussion: Clinical manifestations of spinal cord infraction included motor, sensory and sphincter deficits depending on territory of infracts. Our patient had a typical clinical, imaging syndrome of acute anterior spinal cord infarct. The principal risk factors of ischemic spinal cord infarction are obstruction of blood flow and cardiovascular compromise. There are no clear guidelines for the treatment of spinal strokes. The Neurologic deficits may be partially resolved after the first few days.

Conclusion: We report a rare case of anterior Spinal Cord Ischemia with typical clinical symptoms and MRI imaging. This condition has to be known as possible cause of acute spastic paraplegia even in young patients.

ACUTE NECROSIS OF MACROPROLACTINOMA DURING PREGNANCY

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Introduction: The pituitary apoplexy is a rare and fatal complication of the pituitary adenoma, it represents 0.6 to 10%. It is a clinical syndrome resulting from a fulminant pituitary expansion due to a bleeding andor a pituitary infarcissement.

Observation: It is about a 29-year-old patient who consults for an amenorrhoea with spontaneous galactorrhea and chronic headaches evolving over 7 months. The balance sheet of the amenorrhoea discovers a hyperprolactinemia in 224ng / ml treated by Bromocriptine without étiological survey. The patient had a pregnancy, and in 19 weeks of amenorrhoea, she presents of rough installation of the rebel headaches with visual disorders (blindness of the right eye). The MRI is in favour of a stroke of the pituitary macro-adenoma. The prolactin is always brought up. The patient is treated by Cabergoline. The evolution is favorable, with complete regression of the visual disorders after 1 month of treatment. The MRI of control shows the total disappearance of the leaving expansive process place in an intracellair arachnoidocèle. The patient has completed her pregnancy.

Discussion: The clinical demonstrations of the pituitary stroke are essentially represented by the tumoral syndrome, the visual disorders and the disorders of consciousness. The MRI is the examination of choice. The surgical treatment is not systematic because the medical treatment by agonistes dopaminergiques proved a better efficiency.

Conclusion: We insist on the importance of the ethiological survey in front of any hyperprolactinemia from which the treatment blind can hide a grave pathology engaging the vital and functional forecast.

CONSIDERATION FACTORS IN THE SURGICAL MANAGEMENT OF THORACIC DISC HERNIATIONS

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Introduction: Surgical management of symptomatic Thoracic Disc Herniation (TDH) has historically been problematic and technically demanding. Numerous surgical approaches currently used for the management of TDH can be categorized as posterolateral, and anterolateral. The latter group of approaches has optimal characteristics for the resection of central or calcified TDH. However, posterolateral approaches are still widely used by neurosurgeons due to familiarity of the anatomy, despite the fact that they afford limited access to the ventral structures of the spinal channel.

Purpose: Propose selection criteria for the surgical management of TDH based on an analysis of 27 year experience in the surgery of TDH.

Material and methods: The study evaluates surgical technique and results in 76 patients with TDH operated utilizing 4 approaches: laminectomy (LE), costotransversectomy (CTE), arthropediculectomy (APE) and extrapleural thoracotomy (EPT).

Consideration factors in the selection of the surgical method included: 1. Neurological symptoms; 2. TDH consistency, size, and lateralization; 3. Extent of the spinal cord compression; 4. Comorbidities; 5. Body habitus.

Results: 34 patients managed with methods conforming the proposed strategy (EPT and APE) achieved favorable results. The clinical outcome in 42 patients managed with nonconforming methods (LE and CTE) were uneven.

Conclusion: EPT is the best choice for mediolateral, calcified TDH. APE is best suited for lateral, soft TDH or for medically compromised patients. CTE entails large osteoligamentous resection and blood loss, leading to high morbidity. The value of LE in the surgery of TDH is questionable due to high rate of neurological complications.

STRATIFYING PATIENTS AT RISK FOR NEUROLOGIC SEQUELAE AFTER CARBON MONOXIDE POISONING BY MONITORING SERUM BILIRUBIN RESPONSE

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Background: Carbon monoxide (CO) poisoning is frequent gas poisoning worldwide, and neurologic sequela is the most serious problem for survivors. Although oxidative stress may play a major role in causing neurologic damage after CO poisoning, its mechanism is still unknown. It has been recently reported that several oxidative stresses induce serum bilirubin, classically recognized as a marker of hepatobiliary function.

Objective: To evaluate whether patterns of serum bilirubin response (SBR) can predict neurologic outcome after CO poisoning.

Methods: We recruited patients with CO poisoning and measured serum bilirubin levels at the 1st point (within 12h after the last CO exposure; Bil^{1st}), the 2nd (24-48h; Bil^{2nd}), and the 3rd (48-72h; Bil^{3rd}). We defined patterns of SBR as rapid response ($Bil^{1st} < Bil^{2nd} > Bil^{3rd}$), slow response ($Bil^{1st} \leq Bil^{2nd} \leq Bil^{3rd}$), and negative response ($Bil^{1st} > Bil^{2nd}$).

Results: In 68 patients with CO poisoning [age: 2-86 (median 46), male/female: 54/14], 51 patients showed no neurologic sequelae (group N), and 17 patients had neurologic sequelae (group S: including patients with persistent consciousness disturbance and with delayed neuropsychiatric syndrome). In group N, patterns of SBR were rapid (n = 44), slow (n = 7), and negative (n = 0), meanwhile, in group S, patterns of SBR were rapid (n = 1), slow (n = 6), and negative (n = 10). The difference of SBR patterns between group N and S was statistically significant ($p< 0.0001$).

Conclusions: Monitoring serum bilirubin response is useful to stratify patients at risk for neurologic sequelae after CO poisoning.

CORRELATIVES VARIABLES IN BRAIND MAPPING AND DIGITAL EEG IN PATIENTS WITH SEVERE CRANEOENCEFALIC TRAUMA IN EARLY STATES

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Introduction: The craneoencefalics traumas are the third leading cause of death in our country, motor vehicle accidents remain the leading cause of admission to the health units. Major complications in the first few months are the bruises and post-traumatic epilepsies.

Objectives: Evaluation of quantitative EEG brain mapping in the first two weeks of trauma, with the aim of locating statisticians predictive variables of these complications and to establish an effective treatment for them in the initial stage.

Methods: We scanned 52 patients admitted to the Intensive Care Unit, 34 men and 18 women, including at ages of 18 to 65 years, with montage 10-20 in MEDICID 4.

Results: The analysis by quantitative methods CROSS and BCROSS indicated the presence of delta activity focal polymorphic frontoparietals regions in 39 patients, with areas of low density and frequency of signs of moderate cortical dysfunction being operated on 34 patients by the presence of hematoma located these levels, 11 patients showed paroxysmal activity focal centro-parietal, well defined in the analysis of maps frequently by Mahalanobis, of whom 10 patients had partial seizures in the third week of trauma. The study of evolution at the 2 and 6 months under treatment, we note only in 3 patients with delta activity and the persistence of paroxysmal activity in 15 patients, the intensity of cortical dysfunction very lightly.

Conclusions: The EEG cuantitative are very important to established a rapid and effective medical treatment in the first two weeks of severo cranial trauma and to prevent late complications.

UNUSUAL PENETRATING CRANIOENCEPHALIC INJURY BY A HARPOON IN A BRAZILIAN MAN: CASE REPORT

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Introduction: Penetrating brain injury from low energy objects is an unusual cause of head trauma, unlike gunshot wounds.

Case report: A 32-year old Brazilian man was admitted on the Emergency Department presenting a penetrating head injury on the occipital region close to the median line. The patient referred that the accident happened while working 30-minutus before presenting at the hospital. He also referred an unremarkable past medical and surgical history being a previously health man. On clinical and neurological assessment, the patient was walking and talking normal and fluently, without any visuospacial, cognitive, motor or sensitive deficits. Cranial nerve functions were found to be normal and Glasgow Coma Scale with 15 points. A small continuous bleeding on the accident site was noted. Cranial computed tomography revealed a deep penetrating foreign body lesion with little surrounding brain tissue edema. The patient was immediately taken to the operating room and submitted to an occipital craniotomy with careful dissection and remove of the harpoon. No hemorrhagic complications occurred during surgery and bleeding was controlled. The patient was maintained on clinical observation on Intensive Care Unit during 24 hours. He presented an uneventful surgical recovery and was discharged home on good clinical conditions and no neurologic deficits on the fifth postoperative day.

Conclusion: Early and appropriate neurosurgical management, on experience hands, may improve considerably the outcomes of patients presenting low-energy penetrating cranioencephalic injuries.

LEFT UNCAL HERNIATION SECONDARY TO MALIGNANT SPONTANEOUS INTRACRANIAL HYPOTENSION

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Background: Malignant spontaneous intracranial hypotension (MSIH) is an uncommon disorder that might be life-threatening.

Objective: To report a case of MISH with an excellent recovery.

Case report: A 62 year-old woman presented with 3 days of a left hemicranial headache, initially of low intensity but with progressive worsening, associated with nauseas, vomiting and visual scotomas. Physical and neurological examinations were unremarkable. A brain CT scan showed only a diffuse swelling. Over the following days she developed symptoms suggestive of intracranial hypertension (bradycardia, arterial hypertension, GCS=13-14 and anisocoria with a midriatic left pupil). Brain MRI demonstrated a left fronto-parietal subdural hematoma with uncal herniation, midline deviation, hyperintese signal of the meninges and midbrain sag with a ratio of 1.61. The hematoma was drained and intracranial pressure (ICP) was measured for the next 24 hours, ICP remained lower than 3 mmHg. Treatment consisted of vigorous fluid reposition and bed rest. After two days, the level of consciousness was recovered and both the headache and anisocoria resolved. She was discharged complete symptom-free.

Conclusion: The diagnosis of remains a difficult one, especially in the setting of atypical symptoms and signs of uncal herniation as it can be misdiagnosed as intracranial hypertension. Early brain MRI is warranted for differential diagnosis and adequate treatment.

BAROREFLEX SENSITIVITY TO PREDICT MALIGNANT MIDDLE CEREBRAL ARTERY INFARCTION

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Objectives: Hemicraniectomy has been shown to be an effective treatment of life-threatening edema (LTE) in malignant middle cerebral artery (MCA) infarction when performed early. Predicting patients who will develop LTE is therefore imperative. We hypothesize that autonomic shift toward sympathetic dominance may relate to LTE formation. We aimed to investigate the predictive potential of decreased baroreflex sensitivity (BRS) as a marker of autonomic balance for calculating the course of large MCA infarction.

Methods: Patients with MCA infarction >2/3 of the territory and BRS measurement at admission were analyzed. BRS was estimated using the cross-correlational method. Demographic, clinical, laboratory and radiologic data including stroke severity, infarct size and basal ganglia involvement were recorded. Malignant course with LTE was defined as clinical deterioration and midline shift ≥5mm in the first 48 hours.

Results*:* 18 (62.8%) patients developed LTE. Patients with LTE had lower BRS (2.3 versus 4.4 ms/mmHg, p=0.007), larger infarcts (214 versus 144 ml, p=0.03), more involvement of the basal ganglia (14 versus 4, p=0.03) and more often underwent i.v. thrombolysis combined with endovascular intervention (6 versus 0, p=0.04). In a multivariate model BRS (OR 0.36, CI =0.14-0.93, p=0.03) and basal ganglia involvement (OR 11.53, CI 1.15-115.9, p=0.04) were independent predictors for LTE. This model correctly classified 86.2% of the malignant cases.

Conclusions: Decreased BRS, mirroring sympathetic activation, and basal ganglia involvement were associated with development of malignant course with LTE in large MCA infarction. The predictive relevance of our findings needs to be confirmed in further studies.

INTRAVENOUS THROMBOLYSIS IN ACUTE STROKE PATIENTS WITH CODE STROKE

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Background and aims: Early reperfusion with thrombolytic therapy is critical for stroke recovery. A critical pathway for thrombolytic therapy in acute stroke patients is helpful to shorten the door-to-needle time. Therefore, we investigated whether the implementation of code stroke reduced in-hospital treatment interval and improved outcomes of acute stroke patients in clinical practice.

Methods: We reviewed acute stroke patients who were treated with intravenous thrombolytic therapy from January 2007 to December 2010 in stroke registry database. Code stroke protocol was developed to initiate a rapid and organized response of multi-department to acute stroke patients. Activation of code stroke appeared in order communication system and text message was sent to code stroke team personnel. We divided patients into 2 groups; before and after initiation of code stroke protocol in November 2008. We evaluated the demographic information, the door-to-needle time, and short-term outcomes.

Results: We treated 86 patients and of these, 51 patients were treated according to code stroke protocol. The door-to-needle time was significantly reduced after initiation of code stroke (69.7±30.6 min vs 55.5±16.4 min, before and after implementation of code stroke respectively, p=0.007). The NIHSS scores at admission were not different between two groups (11.7 ± 6.2 vs 11.5 ± 5.9). Patients treated with code stroke protocol were more likely to have favorable outcome (modified Rankin scale score at 3 months ≤1), (31% vs 52%, p=0.069).

Conclusion: Our study supports that implementation of code stroke significantly shorten in-hospital thrombolysis time and tend to improve short-term outcome.

SYNERGETIC EFFECT OF INTRATHECAL BACLOFEN AND DEEP BRAIN STIMULATION IN TREATING DYSTONIA

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Introduction: Dystonia is a syndrome of sustained muscular contractions of opposing muscles with various etiologies. The currently available symptomatic treatment strategies are quite effective for some of the various types of dystonia. •They help in decreasing involuntary movements, correcting abnormal posture, preventing contractures, reducing pain, and improving function and quality of life. Intrathecal baclofen (ITB) and deep brain stimulation (DBS) were proved to be fairly effective in controlling dystonia when used separately.

Objective: We are reporting a synergetic effect of ITB and DBS when used simultaneously in two cases of primary generalized dystonia with excellent control of dystonia.We are reporting a synergetic effect of ITB and DBS when used simultaneously in two cases of primary generalized dystonia with excellent control of dystonia.

Methods: Two cases with primary dystonia with strong family history of dystonia. ITB pump showed 60-70 % control of their dystonia. DBS was done after ITB pump implantation, achieving good control of their dystonia. Their dystonia became dependent on both modalities: with improvement of their dystonia up to 90 %.

Results: The dystonia movement score improved at 12 months ($P < 0.001$). The disability score improved at 12 months ($P < 0.001$). The dystonia movement score improved at 12 months ($P < 0.001$). The disability score improved at 12 months ($P < 0.001$).

Conclusions: Based on the excellent result that was achieved using both ITB and DBS, both devices ITB and DBS could be tried in patients in order to achieve higher degree of control of their dystonia.

SPEECH-INDUCED TORTICOLLIS: CASE REPORT

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Objective: To present a case with speech-induced torticollis treated successfully with botulinum toxin A (BTX-A).

Methods: Case report.

Results: We report a case of a 19-year-old female patient with a two years history of speech-induced torticollis without family history of similar disease. Her complaints started gradually: she had attacks of torticollis lasting for 10 to 30 seconds induced by every occasion of speaking. During the attacks she was unable to speak. Because of the attacks she reduced her verbal communication and became depressed. Otherwise her neurological examination was normal. Her diagnostic tests (MRI of the head, EEG, laboratory results) were negative. She was treated medically without success before she was referred to us for BTX-A treatment. She was injected with 150 units of Botox and her symptoms dramatically improved for 4 months; during subsequent treatments the dose was reduced to 100 units and she required re-treatments in every 6 months.

Conclusion: We present a case of speech-induced torticollis with remarkable response to BTX-A treatment. Speech-induced lingual and oromandibular dystonias were rarely reported in the literature, but our case with speech-induced torticollis is the first published one.

OPEN-LABEL TRIAL OF ZOLPIDEM FOR DYSTONIA: DIFFERENTIAL EFFECTS AMONG SUBTYPES

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Although there are some newly-developed options to treat dystonia, its medical treatment is not always satisfactory. Zolpidem, an imidazopyridine agonist with a high affinity on benzodiazepine subtype receptor BZ1(ω1) , was found to improve clinical symptoms of dystonia in a limited number of case reports. To investigate what subtype of dystonia is responsive to the therapy, we conducted an open label study to assess the efficacy of zolpidem (5-20mg) in 34 patients suffering from miscellaneous types of dystonia using the Burke-Fahn-Marsden Dystonia Rating Scale (BFMDRS). Patients were entered into the study if they had been refractory to other medications as evaluated by BFMDRS (no change in the previous 2 successive visits). After zolpidem therapy, the scores in the patients as a whole were decreased from 7.2±7.9 to 5.5±5.0 (P=0.042). Patients with generalized dystonia, Meige syndrome/blepharospasm, and hand dystonia improved in the scale by 27.8%, 17.8% and 31.0%, respectively, whereas no improvement was found in cervical dystonia patients. Overall response rate among patients were comparable to that of trihexyphenidyl. Zolpidem may be a therapeutic option for generalized dystonia, Meige syndrome and hand dystonia including musician's. Drowsiness was the dose-limiting factor.

CERVICAL DYSTONIA PATIENT REGISTRY FOR OBSERVATION OF ONABOTULINUMTOXINA EFFICACY (CD PROBE): INTERIM RESULTS OF PHYSICIAN- AND PATIENT-REPORTED OUTCOMES

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Objective: CD PROBE is an ongoing clinical registry of patients with CD treated with onabotulinumtoxinA (NCT00836017). We report interim results of physician- and patient-reported outcomes (PROs) with repeat injections of onabotulinumtoxinA.

Methods: Open-label, prospective, observational study of subjects with CD and botulinum toxin (BoNT)-naive, new to physician practice, or ≥16 weeks since last injection. Subjects followed over 3 treatment cycles were evaluated at time of injection and 4-6 weeks post-injection (peak effect). Toronto Western Spasmodic Torticollis Rating Scale (TWSTRS) and Clinical Global Impression of Change (CGIC) were physician assessments; PROs were CD Impact Profile (CDIP-58) and Patient Global Impression of Change (PGIC).

Results: As of March 2011, 630 patients were enrolled (75.9% female, mean±SD age 57.6±14.4, 93.3% Caucasian). Age at symptom onset was 48.3±16.2; time from CD onset to diagnosis was 5.4±8.6 years. Mean intervals between first and second and second and third injections were 103.2±30.4 and 101.9±25.9 days, respectively. At injection 3 peak effect, TWSTRS total score decreased to 28.0±15.7 (from baseline 39.8±13.0; $p< 0.0001$), 94.4% of patients improved at least minimally on the CGIC, and all subscales of the CDIP-58 significantly improved from baseline ($p< 0.0001$). On the PGIC, 90.3% had at least some improvement in peak effects from injection 1 to 3, with those much and very much improved increasing from 51.5% to 66.5%. OnabotulinumtoxinA was well tolerated.

Conclusions: OnabotulinumtoxinA resulted in improvement of CD symptoms, documented by patient- and physician-assessed measures. Benefits were sustained over the course of 3 injections given at intervals of ~100 days.

MANAGEMENT OF POST BELLS PALSY HEMIFACIAL SPASM WITH BOTULINUM A TOXIN

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Bell´s palsy is a temporary weakness or paralysis of the muscles on one side of the face and most people with Bell´s palsy recover fully within 1 to 3 month but few people are left with some facial weakness .

Hemifacial spasm is a neuromuscular disorder characterized by frequent involuntary contractions of the muscles on one side of the face The disorder occurs in both men and women, although it more frequently affects middle-aged or elderly women. The first symptom is usually an intermittent twitching of the eyelid muscle that can lead to forced closure of the eye.

some patient of Bells palsy on recovery due to abbarent nerve connection may present with Hemifacial spasm.

A series of 30 patients suffering from post Bells palsy henmifacial spasm will be presented in this study. Their clinical profile and presenting symptoms will be discussed and their result after treatment with Botulinum A toxin will be presented.

The response of therapy in all patient is effective and the doses required for post bells palsy hemifacial spasm is much less compared to hemifacial spasm due to focal dystonia will be highlighted.

DISTRIBUTION OF TORSINA IN LIVING CELLS

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Background and aims: Mutation of torsinA is responsible for DYT1 dystonia. TorsinA is one of the AAA+ protein and the mutation is thought to result in synaptic pathology. To analyze the distribution of torsinA in living cells we employed fluorescent fusion proteins.

Methods: We newly cloned wild type torsinA from cDNA library of human brain. AcGFP and DsRed-monomer (Clontech) were used for production of fusion proteins with torsinA. Golgi apparatus and endoplasmic reticulum (ER) were visualized by fluorescent proteins simultaneously. All were transfected into Cos7 cells and Neuro2a cells.

Results: TorsinA-AcGFP localized perinuclear region with small vesicular structure. Nuclear membrane was also labeled. Fluorescence of AcGFP co-localized with Golgi apparatus derived membrane structure but segregated with ER luminal protein. On the other hand, torsinA-DsRed monomer distributed nuclear membrane and ER that were mildly disorganized. Movement of labeled ER and vesicles was similar both with and without fluorescent protein labeled torsinA. EGFP labeling failed to show fluorescence.

Discussion: TorsinA-DsRed monomer showed wild type torsinA distribution, but TorsinA-AcGFP resembled mutant torsinA distribution, which was reported previously. Since AcGFP and DsRed monomer are monomeric fluorescent proteins, these results do not suggest the difference of polymerization but conformational difference of the two fusion proteins. Apparent segregation of torsinA-AcGFP from peripheral ER may suggest that the mutant torsinA disturbs initial part of ER membrane formation.

Conclusion: TorsinA-fluorescent fusion proteins are useful for following DYT1 process in the living cells.

POST STROKE EPILEPSY IN SUDAN

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Objective: The aim of this work is to study the clinical presentation of epilepsy among Sudanese patients with stroke.

Methodology: The study was conducted at Elshaab Teaching Hospital. The study population included patients with stroke referred to the hospital from August 2006 to April 2008. The total number of patients studied was 165. Full detailed history and proper clinical examinations were performed on each patient in addition to list of investigations included CT brain and EEG.

Results: Convulsions had been observed in 28 (16.9%) out of 165 patients with stroke, it was found that 21 (75%) out of 28 patients with post stroke seizures had occurred in the first two weeks. Sixteen patients had generalized seizure, while 12 patients had partial seizures, 9 of them had simple partial seizures and 3 patients had complex partial seizures. The study showed that 18 patients with ischemic stroke developed seizures while 10 patients with haemorrhagic stroke developed seizures. The EEG showed an evidence of abnormal discharge in 64% of our studied group.

Conclusion: Patients with stroke had higher incidence of epilepsy. Generalized epilepsy was commoner than the partial type among our study group. The majority of those who had epilepsy developed convulsions in the first two weeks following stroke. Seizures were found to occur more common among patients with ischemic stroke.

THE DETECTION OF MOOD DISTURBANCE PEOPLE WITH EPILEPSY USING TWO-PHASE DESIGNS IN EPIDEMIOLOGY: EXPERIENCE FROM TERTIARY CARE IN OMAN

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Background: The detection of mood disturbance is of great clinical importance in patients with chronic disease but data on the occurrence of affective dysfunction is lacking among people with epilepsy (PWE) in non-western populations. Further compounding such situation, the validity of the some of the common assessment measures has not been examined.

Objective: The study aims to investigate the application of the Hospital Anxiety and Depression Scale (HADS) by identifying patients with comorbid affective dysfunctions in an Omani population. The gold standard based on semi structured interview, Composite International Diagnostic Interview (CIDI) will be used to establish the psychometric property of HADS in the Omani population.

Methods: 150 people with epilepsy were screened with the semi-structured, (CIDI) and the HADS. A receiver operating characteristics (ROC) curve was calculated to discriminate the power of the HADS for every possible threshold score.

Results: The semi-structured interview revealed the prevalence rate of 27% for depressive disorder and 45% for anxiety disorder. The best compromise using, the cut-off score of 7 or 8, gave a sensitivity of 99% for depression and 83 to 91% for anxiety and a specificity of 87.5 to 100% for depression and 85 to 94% for anxiety.

Conclusions: Findings suggest that HADS is a useful screening tool for this particular population. This finding is discussed from the socio-cultural perspective of Omani society.

ANTHROPOLOGICAL AND EPIDEMIOLOGICAL STUDY OF EPILEPSY IN THE REGION OF TANGIER

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Introduction: Epilepsy is a chronic neurological disorder characterized by recurrent seizures. An epileptic Seizure is the manifestation of paroxysmal hyperactivity in a more or less extensive group of brain neurons.

Objective: Determine the knowledge, attitudes and beliefs of the public towards epilepsy in Tangier region.

Methods: Performed in the Neurology Department at the Hospital El Kortobi Tangier, via a standardized questionnaire about epilepsy, conducted on 180 participants

Results: The study revealed that the disease is unknown in this region because 66.1% of respondents have not "read" or "heard", about a disease called "epilepsy", 60% did not know a person with epilepsy, yet 90% of respondents attended convulsions. Concerning the public´s attitude towards epilepsy, the least we can say is that the rejection and marginalization watch with epilepsy: 70% do not allow their children to play with people who may suffer from convulsions. 80% of the participants not allow their children to marry Sometimes with people making seizures. 50.6% of respondents believed that epileptics cannot exercise any craft. Worse, 40% of respondents believed that epilepsy is a form of mental retardation. 15.6% of people interviewed believe that the main cause of epilepsy is supernatural (jinn, witchcraft) and 20.6% think it's caused by stress, 15.6% think it is related to the alcohol and drugs. As for treatment, 68.9% of our sample suggested to ask doctor advice to treat epilepsy, 46.7% using Fkih's help, 8.3% see a psychologist.

Conclusion: Epilepsy remains a misunderstood disease and still subject to wrong interpretation.

EPILEPSY AND MYASTHENIA GRAVIS

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Introduction: We present the case of coexistence of complex partial epilepsy (CPE) and myasthenia gravis (MG), and discuss about possible causes of this finding.

Case report: A 34-years -old female was diagnosed as CPE in high school.Interictal EEGs revealed epileptiform discharges over left fronto-temporal region.MRI of the brain was normal.She was successfully treated with carbamazepine and sodium valproate.The patient was hospitalized because of nasal speech,dysphagia,double vision,ptosis of the right upper eyelid and general weakness.The diagnosis of MG was made on the basis of clinical picture,positive prostigmine test,repetitive stimulation test and positive anti-AChR antibodies.

Discussion: There are three possible causes of this finding: immunological,iatrogenic and coincidence.Anti-AChR antibody is found in 80-90 % of patients with MG.Antibody response in MG is polyclonal.In an individual patient,antibodies are composed of different subclasses of IgG.In most instances ,one antibody is directed against the main immunogenic region on the alpha subunit. IgG antibodies can cross the blood-brain barrier and cause central effects such as CPE due to disturbance of adrenergic-cholinergic equilibrium. Many medications have been implicated as possibly worsening MG or inducing symptoms of MG in asymptomatic individuals.Case reports and animal studies report unmasking and induction of myasthenicsymptoms with the use of phenytoin,carbamazepine,trimethadione and gabapentin.Carbamazepine and trimethadione are thought to trigger an immune response with development of myasthenic symptoms.

Conclusion: The relationship among theese two diseases requires further investigation.

JUVENILE MYOCLONIC EPILEPSY: A FAMILY STUDY

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Introduction: Juvenile myoclonic epilepsy (JME) is idiopathic generalized epileptic (IGE) syndrome with complex inheritance. In families with JME, different IGE syndromes may occur.

Aim: To evaluate clinical features of probands with JME and affected members of their families.

Methods: Clinical and genealogic data were collected from 12 probands with JME and family members with history of seizures.

Results: Mean number of affected individuals per family was three. JME probands group consisted of 3 males and 9 females, age of seizure onset being 8 - 18 years (mean 13, 6 y.). All had myoclonic jerks and generalized tonic-clonic seizures (GTCS); absences were reported in 41%. 22 relatives were found to have seizures, 13 females and 9 males, age at onset 7-39 years (mean 16, 7 y). In half families, JME was the only clinical feature, in others there were members with other forms of IGE. Totally 13 family members had JME, epilepsy with GTCS only was diagnosed in 2, juvenile absence epilepsy in 2, adult onset myoclonic epilepsy in 1 and indeterminate type of epilepsy remained in 4 of affected individuals. In two multi-generation families, phenomenon of possible genetic anticipation was observed, i.e. the onset of disease had a tendency to decrease in age which each successive generation.

Conclusions: Substantial number of families broadly share the same phenotype , but the others appear to have a range of different phenotypes. Roughly uniform age-at-onset was found in majority of families, although phenomenon of possible genetic anticipation was observed in two.

EPILEPSY IN OLDER PATIENTS: A RETROSPECTIVE STUDY OF 38 CASES IN BELLAN HOSPITAL, PARIS

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Epilepsy is a common neurogical disease characterized by repetition of seizures. The prevalence of epilepsy in older patients is more frequent in european's countries than in Africa (increasing of life expectancy in those countries). But, it's sometime difficult to differ this epilepsies of the other neurological conditions like dementias, cerebral strokes and delirium. To determine the characteristics of this patients, the etiology and the treatment of this epilepsies, we report a retrospective study of 38 cases during the period of January 2008 to december 2009. Electroencephalography (EEG) was used to confirm the diagnosis of epilepsy. The principals results was :

- Women were dominant in that study (66 %).

- 52 % of patients were known as epileptic.

- The epileptic symptoms were atypical with confusion (21 %) and loss of conscience (47 %).

- Neuroimaging has been very important for diagnosis and etiology of epilepsy.

Leucoaraiosis (52 %), cerebral atrophy (48 %) and cerebral infarct (22%) were discovered.

- For etiology, the main vascular causes were dominant (29 %).

- Monotherapy is the treatment of epilepsia in elderly with lévericetam (48 %) and Carbamazepin (40 %).

Conclusion: Epilepsy is common in older patients. Vascular troubles is frequent.The treatment use new antiepileptic drug to reduce cognitive trouble.

PROGRESSIVE MYOCLONIC EPILEPSY SYNDROMES (UNVERRICHT-LUNDBORG DISEASE

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Progressive myoclonic epilepsy syndromes (PMES) are a heterogeneous group of neurodegenerative disorders. We report a family with three siblings who presented with history of jerky movements starting in childhood, followed by generalized tonic- clonic seizures, disturbance of gait, and slurred speech in the presence of normal cognition.

Clinical suspicion of PMES was entertained with genetic testing confirming the diagnosis of Unverricht-Lundborg Disease (ULD).

In our paper we discuss about this family stressing the following points:

a) The importance of high index of clinical suspicion in reaching early diagnosis.

b) The avoidance of certain medications that tend to aggravate the disease.

To our knowledge this is the first reported family of ULD in Emirates.

THERAPEUTIC ITINERARY OF EPILEPTIC PATIENTS IN SOUTHERN BENIN

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Introduction: Epilepsy is still seen as mystical by the majority of the population in sub-Saharan Africa. The antiepileptic drugs aren't so available.

Objective: This work aims to identify the different steps followed by epileptic patients who are looking for care.

Method: This was a cross-sectional, descriptive and analytical study. It took place from January 10th, to February 11st, 2010 in a southern town of Benin, Dangbo. It has involved on one hand, 135 epileptic patients detected at a prevalence survey and confirmed by a neurologist consultation. Epi-info version 3.2 was used for data analysis.

Results: 76.3% of patients were seeking care at the first crisis. For the initial consultation, 55.3% were seeking care from traditional healers. According to the case, the traditional treatment (58,2%) was made of potions to be taken every time, but also, allowed food and remove a spell. Phenobarbital was the most prescribed antiepileptic (38,8%). The most causes often mentioned were witchcraft (58,3%), heredity (37,6%), transgressions of taboos and prohibitions (45,1%), infectiousness (32,5%). The therapeutic itinerary began, at the first crisis, in a traditional healer. Given to the recurrence of crises, a second traditional healer is consulted and after, many others. Finally he consulted a nurse who freed him Phenobarbital.

Discussion: These results suggest that epilepsy is increasingly seen as a natural disease however the traditional healers remain most consulted by patients.

Conclusion: It is urgent to enhance awareness and to promote the use of antiepileptic drugs.

EPIDEMIOLOGY OF EPILEPSY IN BENIN

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Introduction: Epilepsy constitutes a major problem of public health in developing countries. Treatment gap reaches 90% in many countries and non-availability of drugs is the major contributing factor. Our goal is to review our experience of epidemiology research on epilepsy in Benin.

Methods: Since 2000, several epidemiological studies were carried out in Benin. Their objectives were to assess the prevalence and incidence, and to evaluate the link between epilepsy and comorbidities, like malnutrition, anxiety, and depression.

Results: Prevalence of epilepsy varied from 11 to 40‰ in focused studies in different counties but was 8.05‰ in a nationwide survey. Annual incidence was estimated to 104 per 100,000 inhabitants. Prevalence of malnutrition was significantly higher in people with epilepsy (PWE) than in controls ($p< 0.0001$). About 2 PWE out of 3 went first to the traditional healerand 1 out of 3 were highly stigmatized. They were also significantly more anxious and depressed than controls ($p< 0.05$).

Conclusion: Many studies helped us to increase knowledge about epilepsy in Benin but we were not able to move forward in the big issue of access to treatment. A recent partnership was built up between the Ministry of Health of Benin and the department of Access to Drugs of Sanofi and Aventis will contribute, at least in part, to fill this gap.

POSTSTROKE EPILEPSY:RETROSPECTIVE EPIDEMIOLOGICAL STUDY OF FIFTY CASES

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Introduction: In spite of the improvement of diagnosis and brain imaging techniques,the most of epidemiologic aspects for poststroke seizure and epilepsy are assessed very diversely.

Aim and method: 50 Patients with epileptic seizure after stroke who had been retrospectively admitted to our epidemiologic study for ten years (1997 - 2006). the objective was to determine the highest predictive risk factors of developing vascular epilepsy either erly or late seizure,to specify the role of EEG and her correlation with clinic and brain imaging data,to study the risk of seizures recurrence after stroke and to review the therapeutic management of seizures following stroke.

Results-conclusion: Our analysis have found 9,2 % of the incidence rate of poststroke epilepsy. Location and seize vascular atteinte, stroke type,vascular territory and first stroke severity are the most predictors of epileptic seizures in our stady. Hemorragic stroke give more of seizures epilepsy specially in the erly time than ischemic stroke. Atherosclerosis is the highest predective aetiology of poststroke seizures if it's compared with cardiogenic embolism. Clinically, erly seizures have usuallay partial and motor than sensitive or sensorial presentation.However, late seizures well known to be tonic-clonic generalised epilepsy.there were correlations of partial seizures with focal paroxistic abnormalities,cortical location and with small seize of vascular atteinte in comparaison with generalised late seizures.Following our experience, the classical antiepileptic drug monotherapy (valproic acid and carbamazepine) is started in the treatement of first seizure either erly or late onset and has a good tolirability in association with anticoagulants,antiplated agents or other drug.

LAFORA DISEASE TYPE 2B: A CASE REPORT

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Lafora's disease (LD) is a progressive myoclomic epilepsy, genetically heterogeneous with poor prognosis. Mutations are associated with two genes: EPM2A (Epilepsy myoclonc type 2A) and EPM2B (Epilepsy myoclonic type 2B). In West Africa, few data are available about LD.

We report the case of 17 years old boy. He is the oldest child of three siblings born from inbreed marriage. Diagnosis of LD was suspected on the basis of tonic seizures, occurrence of myoclonus, refractory response to the medical treatment and rapid cognitive impairment. EEG findings had been suggestive. The diagnosis was established based in the findings of genetic testing. A mutation was found on the gene NHLRC1.

Conclusion: Lafora disease type 2B is a severe form of progressive myoclonic epilepsy. We believe that access to genetic testing could improve diagnosis possibilities, a better understanding of the disease and help to genetic counseling.

BRAIN TUMORS ARE A RARE CAUSE OF CHILDHOOD EPILEPSY

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Aims: To determine the incidence of brain tumor as cause for childhood epilepsy.

Methods: All children (aged 1 mo-18 yrs) with newly diagnosed epilepsy in 1980-2009, while residing in Olmsted County, Minnesota, USA, were identified through the Rochester Epidemiology Project database. Patients with brain tumor as the etiology for epilepsy were identified. Tumor type and location, seizure outcome, and patient outcome were examined.

Results: Only 3 of 468 (0.64%) children with new onset epilepsy had a brain tumor as the cause. Of these 3, only 2 (0.43%) had seizures heralding the diagnosis of tumor. The third child had tumor diagnosed at 2.8 years, and seizures identified 10 years later. Median age at tumor diagnosis was 2.8 years (2.5-12.7). All three children presented with focal seizures. All tumors were benign, and located in frontal, temporal, and diencephalic regions of the brain. One child achieved seizure freedom following complete resection, and successfully discontinued AEDs. The other two have persistent seizures and residual tumor, despite second surgeries attempting to render them seizure-free. One had adjuvant chemotherapy. Those with residual disease have stable followup imaging. Tumor location prevents further resection. All patients remain alive, with median duration of followup 10.8 years (9.8-20.3). Even with persistent seizures, all patients are participating in age-appropriate activities and education/employment, with the exception of driving.

Conclusions: Brain tumors account for a reassuringly small minority of new onset epilepsy cases amongst children. Tumor types were benign. Despite the diagnoses of brain tumor and epilepsy, all have normal academic progress.

MUTATION AT VOLTAGE-GATED SODIUM CHANNEL GENE SCN4A-EXON-23 (T4126C) CAUSES THE SYNDROME OF MYOPATHY, ATAXIA, MENTAL RETARDATION, AND EPILEPSY (MAME)

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Voltage-gated sodium channel (VGSC, Nav, or SCN) gene mutations may cause a wide spectrum of neurologic and heart rhythm disorders. We herein report a 26-year-old Chinese/Taiwanese woman, presented with a syndrome of slowly progressive myopathy, ataxia, mental retardation, and epilepsy (MAME) since early childhood. Myotonia was absent. Blood biochemistry revealed persistently high plasma level of creatine phosphokinase, but normal plasma potassium levels and lactate/pyruvate ratio. MRI showed cerebral and cerebellar atrophy. Electroencephalography revealed polyspike-and-wave complexes. Mutation of the voltage-gated sodium channel gene SCN4A-exon 23 at nucleotide position 4126 with T to C substitution was encountered. The mutation causes amino acid substitution Asn1376Asp that changes the trans-membrane domain of the sodium channel, and therefore alters the sodium conductivity. To the best of our knowledge, this is the first report on SCN4A-exon 23 T4126C mutation in Han's Chinese/Taiwanese that cause a rare neurological disorder called MAME.

THERAPEUTIC ITINERARY OF PATIENTS WITH EPILEPSY IN YAOUNDE, CAMEROON

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Background and aims: Epilepsy is a chronic neurological disorder around the world. In Africa, it is still regarded by many as a supernatural disease. In Cameroon, it is a public health problem, because of its prevalence among the highest in the world. Few studies have been devoted to problems related to delayed treatment. The aim of our study was to determine the therapeutic itinerary of epileptic patients in Yaounde.

Patients and methods: This was a prospective, descriptive and cross sectional study that lasted six months, 149 patients were recruited in the Neurology Department of the Yaounde Central Hospital and the Pediatric Neurology Unit of the Yaounde Pediatric and Gynecological Hospital. We included all patients with epilepsy having a full medical records and seen by neurologist. Were excluded all patients with epilepsy who had not begun their medical treatment or not followed up in a hospital.

Results: The age ranged between 0 and 73 years; seizures most frequently encountered were generalized (76.5%). 25.5% had gone to see traditional healers as first-line, causing a delay in care, the majority of patients (59.8%) had a delay of at least 6 months before consulting a neurologist.

Conclusion: Many beliefs are responsible for the delay in care or lack of care and traditional treatments constitute the first line. A collaboration between traditional healers and modern medicine could significantly reduce morbidity and mortality due to epilepsy.

PREVALENCE OF EPILEPSY IN ALGERIA

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The prevalence of epilepsy in Algeria and the frequency of its various clinical forms are not known. Therefore, we decided to undertake a national, transversal, multicenter study to determine the prevalence of epilepsy and its characteristics in Algeria.

The studied population included a cohort of 8046 subjects aged over 2 months who attended a general practitioner or a pediatrician, in unscheduled visits in public or private clinics. The investigator had to identify patients suspected to be epileptic, and then refer them to a neurologist for confirmation or refutation of the diagnosis of epilepsy.

The prevalence of epilepsy was estimated to be 8.3 per 1000 (95% CI: 8.3 ‰ ± 2 ‰). It is not significantly different by sex (p = 0.336) and age groups (p = 0.313). The average age of epileptic patients was 31.4 ± 22.6 years. Generalized epilepsy was more common with 68.7% of cases, whereas partial epilepsy covered 29.9% of the cases. A symptomatic etiology was present in 24% dominated by neonatal anoxia (37.5%). Monotherapy was used in 74.6% of cases, combination therapy in 8.9 % and triple therapy in 4.5%.

This is the first estimation of epilepsy prevalence in Algeria in a sample closest to the general population. In North Africa there are very few epidemiological studies of epilepsy. The prevalence observed in this study is similar to the global prevalence of 4 to 10 in 1000 (WHO, 2001). This result suggests that epilepsy remains an important public health issue to consider in Algeria.

THE PREVALENCE OF RECURRENCE OF SEIZURE ATTACKS IN FASTING EPILEPTIC PATIENTS IN COMPARISON WITH NON-FASTING EPILEPTIC PATIENTS

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Introduction: Ramadan is the ninth lunar month in which the Muslims have to fast between dawn and sunset and so some changes may happen in their drug regimes and circadian rhythm. Half life of antiepileptic drugs (AEDs) is limited so because of fasting duration, their blood concentration may decrease.

The aim of this study was evaluation of seizure relapse in fasting and non-fasting epileptic patients.

Material and methods: This study was conducted on 124 epileptic fasting patients who were on treatment and their AEDs were used at nights of Ramadan. Data were collected using questionnaire filled out in epilepsy clinics of Isfahan University of Medical Sciences during Ramadan months of 2008-2010. The information about age, gender, seizure type and recurrence frequency of seizure attacks during Ramadan were registered.

Results: The mean of patients' ages was 27.98±1.15 (with a range of 11-73 years). 36 (29%) of them were males and 88 (71%) were females. The recurrence of attacks during fasting occurred in 44 (35.5%) patients (in 36.1% of males and 35.2% of females). The prevalence of different seizure types and recurrence in each type were: 85 generalized tonic clonic-25.9%, 19 complex partial seizure-68.4% and 20 juvenile myoclonic epilepsy-45%.

Conclusion: This study showed 35.5% of fasting epileptic patients had relapses. According to previous studies on general population of epileptic patients relapses occurred in about 30% of cases. So there is no significant difference between fasting and non-fasting groups (P=0.207).

SERUM LEVELS OF HEAVY METALS AND MULTIPLE SCLEROSIS

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Multiple Sclerosis is one of the most common neurologic disease among young adults. Several hypotheses have suggested for it`s etiologic factors. One of these is the role of heavy metals. Metals such as mercury-lead-zinc- manganes-chromium are proposed as etiologic factors. Among them mercury has important role for it`s presence in dental amalgam. Thus for the study of possible role of these metals, serum levels of these metals measured in two groups. One group consisted of 30 patients with Multiple sclerosis and other group 30 normal individuals. Patients randomly selected in hospital clinics and control group were from brothers or sisters of patients without known neurologic disorders. All patients with regard to history & clinical findings and results of Magnetic Resonance Imaginge and Evoked Potentials had definite Multiple Sclerosis. Blood levels of Lead-Mercury-Manganes-Zinc in two groups measured by Atomic absorption Spectroscopy. Results analysed by independent t-test and p value for Mercury-Lead-Manganes-Zinc were 0.52-0.69-0.52-0.40 respectively. Results were not statistically significant. Relation of blood levels of mercury and Multiple Sclerosis analysed by chi-square test and p was 0.58 which was not significant. This study shows no significant difference between normal subjects and Multiple Sclerosis patients for blood levels of these heavy metals. Also there is no any relation between blood mercury level and Multiple Sclerosis.

CEREBRAL MALARIA AND EPILEPSY

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Malaria, one of the most common parasitic diseases worldwide, is responsible for more than one million deaths among African children every year. Its neurological form, known as cerebral malaria (CM) is a potential cause of epilepsy in malaria-endemic regions of the world, primarily made up for the most part by the sub-Saharan Africa. We review recent African studies that examine the association between CM and epilepsy. Three studies suggest a modestly strong association between CM and epilepsy. Furthermore, there appears little doubt that this association is causal. Speculative considerations that may explain this causal association are discussed.

We have conducted two studies to assess the association between cerebral malaria and epilepsy:

In Mali we conducted a cohort study involving patients exposed or non to CM. We compared 101 children with CM as compared to 222 children suffering from malaria without cerebral involvment. There was 9.4 higher risk for epilepsy to occur after a CM as compared to non cerebral malaria (OR=9.4 ; 95%CI : 1.3-80.3 ; p=0.02) ;

In Gabon we performed a case control study. We compared 296 cases (patients suffering from epilepsy) and 296 controls (patients who were not suffering from épilepsy). The risk for epilepsy to occur was higher in cases (OR=3.9; 95%CI: 1.7-8.9 ; p=0.001).

The risk of sequellar epilepsy was significantly higher after a CM. The possible role of confusion, notably febrile convulsion due to CM and the physiopathological mechanism remains to be elucidated.

PROFILE OF POST - TRAUMATIC EPILEPSY IN BENIN CITY, NIGERIA

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Background: Posttraumatic epilepsy is recurrent chronic seizures occurring after four weeks following brain injury. It commonly occurs after road traffic accidents thus making it a preventable cause of chronic seizures. The prevalence and pattern of this disorder is not known among Nigerian patients with epilepsy.

Objective: This study aimed at determining the prevalence of and predisposing head injury to developing posttraumatic epilepsy.

Study design: We studied 244 consecutive patients with epilepsy attending the neurology clinic of a tertiary health facility in metropolitan Nigeria by analyzing the details of their demographic and clinical data obtained with the aid of a structured questionnaire and from the Epilepsy Registry of the Neurology Unit between January and December 2006.

Results: Thirty eight patients with a mean age of 38.6 ± 7.3 years (age range 15 - 75 years) had posttraumatic epilepsy comprising 15.57% of all cases of epilepsy. Thirty three (86.8%) had closed head injury. Thirty two (84.2%) of the patients had positive history of loss of consciousness. Twenty-two patients (57.9%) sustained head injury from motor vehicle accidents. Majority of the patients had secondarily generalized seizures (73.7% of the cases). Twenty seven (71.4%) of the thirty eight patients had seizure onset in the first year after brain injury. Depressed skull fracture (19/38; 50%) was the most common abnormal CT finding.

Conclusion: Posttraumatic epilepsy contributes significantly to the number of patients with epilepsy presenting to our neurology clinic. There is need to educate people on the usefulness of seatbelts and helmets while driving.

EPIDEMIOLOGICAL EVALUTION OF SOCIAL PROMBLEMS OF EPILEPTIC PATIENTS IN RANG OF 18-40 YEARS OLD (MARRIAGE, DIVORCE, EDUCATION, ADDICTION, DRIVING AND EMPLOYMENT)

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In this study 374 definite epileptic patient s in one year in Valiasr Hospital of Birjand was evaluated by two neurologist, data suggested that divorce had high prevalence in epileptic women, unemployment had high prevalence in epileptic men (1), car accident had high prevalence in un treated or bad treated patients, about addiction and history of prison we didn´t find significant data. (2)With flair treatment and good control of epileptic attack and with cultural education w e can solve social complication of epileptic patients.

EPILEPTIC SEIZURES IN SAHARAWI REFUGEE CAMPS

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Epileptic seizures in Saharawi Refugee Camps are an important cause of suffering in the population. We report the results of a study conducted on an overall period of 12 weeks. We recruited 199 patients with suspected epileptic seizures. Patients were evaluated through the collection of medical history, neurological examination, and in selected cases an EEG routine recording.

We diagnosed 134 (56 F, 79 M) patients as epileptics, according to the international criteria.

The onset of epileptic seizures was in the first two decades of life in 91.5% of cases. The mean age at onset was 12.82 years +/- 12,90 SD. 83% of episodes were generalized seizures and about a half (46%) were children under 6 years old. 15 patients referred a familiar history of epilepsy and 7 a parental consanguinity.

38 patients showed severe mental retardation and motor disabilities; 89% had a high daily frequency of generalized seizures, 63% of them were younger than 5 years old.

EEG evaluation performed in 141 cases was useful to confirm the clinical diagnosis in 62 patients.

The incidence of seizures in the camps is lower if compared with the world one, but an epidemiological research is hardly reliable, as it is unknown the exact number of people living in the camps.

The aim of our work was to support patients and to plan a long-term medical assistance for people suffering from epilepsy related problems, to manage the fragmentation of health assistance, overall pregnancy care, and to increase the availability of treatments.

EPILEPSY IN WILSON´S DISEASE: A STUDY FROM NORTHWEST INDIA

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Aim of study: To explore the relationship between Wilson's disease and epilepsy both in the literature and in this series of fifteen cases.

Study design: Fifteen patients of epilepsy with Wilson's disease were studied in detail from 2005 to 2011 in a Medical college attached tertiary care hospital of North West India.

Results: The prevalence of epilepsy in Cambridge series was ten times higher in Wilson's disease than that of epilepsy in general population. Seizures in Wilson's disease can occur at any stage of disease. Out of fifteen patients the seizures preceded the onset of characteristic features of Wilson's disease in four patients, occurring concomitantly in five and during follow-up in six. This was compared with the largest series of Wilson's published by NIMHANS, Bangluru, India. Out of fifteen patients three were not having KF ring on slit lamp examination. Urinary copper was high in all the patients.

Conclusion: The possible mechanism of seizures will be discussed. Penicillamine induced pyridoxine deficiency is probably not in many patients. It is more likely that direct effect of copper deposition is responsible for most of the seizures. Higher index of suspicion required for the diagnosis of Wilson's disease in patients of seizures with extra pyramidal features.

ASSOCIATION OF APOLIPOPROTEIN E POLYMORPHISM TO CLINICAL HETEROGENEITY OF MULTIPLE SCLEROSIS

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Introduction: Recently, APO E allele distribution has been investigated in multiple sclerosis (MS) and an association between the course of MS and the APOE e4 allele was found. The aim of our study was to explore the relationship between APOE polymorphism and clinical phenotypes of MS among Algerian subjects.

Patients and methods: 89 individuals (28 male and 61 female, mean age 37, 56 ± 10,04 years) with sporadic MS and 250 healthy controls (100 male, 150 female, mean age 38,45± 9,32 years) were included in our study.

The diagnosis of MS was made according to Mc Donald et al 2001.

APOE genotypes were determined in all the subjects (patients and controls) by validated PCR methods.

Results: At diagnosis the mean age was 37, 56 ± 10, 04 years. Homozygous E3 was the most frequent genotype (75, 3%). One patient (1, 1 %) and 2 control subjects were homozygous for E4. There were no significant differences in allele frequencies between patients and controls, although there was a trend towards lower E2 frequency in the patients (p=0.08), additionally, there was no difference in frequencies in E4 between patients and controls.

Discussion: Recently, APO E polymorphism has been investigated in MS patients and an association emerged between the APO E 4 allele and a more rapid progression of disability in MS**.** In the present study the APO E genotype frequency distribution in multiple sclerosis population analysed was not significantly different from controls population.

DERMATOLOGICAL MANIFESTATIONS OF EPILEPSY

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Dermatological manifestations of epilepsy among adult Sudanese epileptic patients

Objective: To study the pattern of dermatological changes associated with epilepsy among adult Sudanese epileptic patients.

Methods: This non interventional descriptive study, 360 adult Sudanese epileptic patients were included in the study which was conducted at El shaab Teaching Hospital during the period from Feb 2004 to Aug 2007. Full detailed history and proper clinical examination were performed by the authors. Dermatological changes were assessed by dermatologist. List of investigations were done including EEG,CT Brain and serial of drugs serum level.

Results: Out of 360 patients 31 were found to have scars due to repeated attacks of convulsions, one patient was found to have neurofibromatoma, one had Tuberous-Sclerosis, one had Sturge-Weber syndrome, one had Kaposi sarcoma, one had SLE, one diabetic patient had skin atrophy, one patient use to take phenobarbitone had skin eruption, one patient on carbamazipine had skin change while five patients on phenytoin had skin manifestations.

Conclusion: Skin changes can occur in epileptic patients as part of drugs toxicity, or as part of clinical manifestations of certain diseases that can cause secondary epilepsy eg. Neurofibroma.

PREVALENCE OF EPILEPSY IN THE 15 YEARS AND OLDER IN BENIN: A DOOR-TO-DOOR NATIONWIDE SURVEY

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Purpose: To estimate the prevalence of epilepsy in the 15 years and older in Benin.

Methods: We used a random several-stage sampling design to select a representative sample of the 15 years and older in Benin. From March to May 2010, people were screened door-to-door in twelve regions of Benin. Screening and data collection were performed using a validated standardized questionnaire of epilepsy in tropical regions. A neurologist examined all people suspected of epilepsy by the questionnaire.

Results: One hundred seventy four suspected epilepsy cases were identified from 13,044 screened subjects, and 105 were confirmed. The estimate of crude prevalence of epilepsy in the 15 years and older in Benin was 8.05/1,000 (95% CI: 6.52-9.58/1,000). The age-adjusted prevalence of epilepsy on sub-Saharan African population was 8.25/1,000 and 7.33/1000 on world population. Substantial heterogeneity was noted, with differences from a region to another. The most common seizures types were generalized tonic-clonic (80.0%), partial secondary generalized seizures (14.3%) and partial seizures (5.7%).

Discussion: This first West African nationwide large-scale study showed that it is possible to get a national estimate by simple and reproducible sampling techniques. It provided a low prevalence of epilepsy in Benin compared to small-scale studies performed previously in this country and neighboring countries. Restricted-areas studies are often motivated by the presence of specific risk factors and could overestimate the prevalence. However, the high proportion of generalized seizures in this study could also be the marker of an underestimation of partial types in such large surveys.

UNDERSTANDING THE DIFFERENCES IN PREVALENCE OF EPILEPSY IN TROPICAL REGIONS

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Epilepsy is a frequent chronic neurologic disorder that affects nearly 70 million people worldwide. The majority of people with epilepsy live in developing countries, where epilepsy remains a major public health problem. Wide prevalence differences exist among various populations across sub-Saharan Africa, Latin America, and Asia. In particular, prevalence is lower in Southeast Asia than in sub-Saharan Africa and Latin America. Methodologic problems alone do not seem to explain these differences shown in recent review papers. The distribution of numerous risk or etiologic factors such as infectious diseases with neurologic sequel, head injuries, or genetic factors could explain these differences. Stigmatization of people with epilepsy could lead to underestimating the prevalence of epilepsy, even in well-conducted studies. It is important to standardize the process of epidemiologic monitoring of epilepsy in order to improve the reliability in data comparison. Understanding the reasons for these differences is a crucial issue for eventually raising new hypotheses or prevention strategies.

LOW MAGNESIUM MODEL OF SEIZURE-LIKE EVENTS AND ACTION OF SK-CHANNEL ENHANCERS ON ORGANOTYPIC HIPPOCAMPAL SLICE CULTURE *IN VITRO*

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Low magnesium model is used to study pathomechanism of pharmacoresistant epilepsies. It is also vital in providing a model of late status epilepticus. Therefore, it can be used as an in vitro paradigm to test for drugs that may be effective in treating drug resistant epilepsies. In the present study we have evaluated actions of sK-channel enhancers on seizure-like events (SLEs) and late status epilepticus induced by application of zero magnesium in rat pharmacosensitive organotypic hippocampal slice cultures (OHSCs). p5-p7 rat pups were used for the preparation of slice cultures and field potential recordings were carried out in 7-14 days old cultures. Two newer sK-channel enhancers were used to test anticonvulsant potential against SLEs induced by zero magnesium ACSF.

SKa-31 (50 µM n=7 and 150µM n=6) failed to blocked SLEs and late status epilepticus. It only affected parameters such as duration of SLEs by decreasing duration to 50%. Whereas, seizure interval by prolonging it. On the other hand CyPPA at dose of 100microM (n=7) completely suppressed SLEs as well as late status epilepticus in 100% of slices and at 20microM (n=6) it only reduced duration of SLE events.

Our results suggest that sK-channel enhancers have potential to suppress SLEs in OHSCs, proposing its role in developing as new target for pharmacoresistant type of epilepsies. However further investigations are required to find out their precise mechanism.

CANNABINOID-SENSITIVE RECEPTOR GPR55 REGULATES NEUROTRANSMITTER RELEASE IN THE BRAIN

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The G protein-coupled receptor 55 (GPR55) is expressed in the brain, it is sensitive to certain cannabinoids and in cell cultures it induces mobilisation of intracellular calcium via an IP3-dependent mechanism. However, its pharmacology is enigmatic and its neurobiological significance is unknown. We combine patch-clamp electrophysiology with two-photon excitation microscopy in acute hippocampal slices to discover that GPR55 activation transiently increases release probability at individual excitatory synapses by triggering calcium store-dependent calcium elevations in presynaptic axonal terminals. These effects are abolished by genetic deletion of GPR55 or by the GPR55 antagonist cannabidiol, a constituent of *Cannabis sativa.* Cannabidiol also inhibits short-term synaptic potentiation and the associated long-term presynaptic calcium rises at these connections. The underlying mechanism appears to involve synthesis of phospholipids (including the GPR55 agonist lysophosphatidylinositol), but not the classical endocannabinoids 2-AG or anandamide. Our results suggest a neurophysiological role for GPR55 signalling in the brain revealing a potential molecular target for the documented link between the cannabidiol content of smoked cannabis and effects on cognitive function.

INTRACEREBROVENTRICLUAR ADMINISTRATION OF LIPOPOLYSACCHARIDE DECREASES CONNEXIN 43 PROTEIN EXPRESSION IN RAT HIPPOCAMPUS

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Objective: Epilepsy is the third most common neurological disorder after stroke and Alzheimer´s disease. Neuroinflammation facilitates seizure acquisition and epileptogenesis. Hippocampus, one of the main brain regions involved in epileptogenesis, has particular vulnerability to damage and consequent inflammation. There is a network of gap junctional communication between different cell types in the hippocampus. Gap junctional communication is involved in epileptogenesis and can be affected by changes in expression of gap junctional subunits called connexins (Cx). We studied the effect of neuroinflammation induced by the bacterial endotoxin lipopolysaccharide (LPS) on Cx36 (particularly expressed in neurons) and Cx43 (most abundant Cx in astrocytes) expression in rat hippocampus.

Method: LPS (2.5µg/rat) was infused into the rat cerebral ventricles for 14 days. After 1st, 7th and 14th injection of LPS, level of the inflammatory mediator interleukin 1-beta (IL1-β), the mRNA and the protein level of Cx36 and Cx43 were measured in the hippocampus by ELISA, real time PCR and western blot techniques.

Results: Hippocampal level of IL1-β was significantly increased after the first injection of LPS. Neuroinflammtion did not significantly alter hippocampal Cx36 and Cx43 mRNA expression. However, a selective decrease in Cx43 (but not Cx36) protein abundance in the hippocampus was observed after 7 days administration of LPS.

Conclusion: Neuroinflammation induced by LPS decreases Cx43 protein abundance at the translation or post-translation level. These findings suggest that Cx43 containing gap junctions may contribute to inhibition of inflammation propagation and thus protection of the hippocampal neurons from excitability and damages induced by neuroinflammation.

GLUCOSE-DEPENDENT INSULINOTROPIC PEPTIDE RECEPTOR EXPRESSION IN MESIAL TEMPORAL LOBE EPILEPSY

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The glucose-dependent insulinotropic peptide receptor (GIPR) has been implicated with neuroplasticity and may be related to epilepsy. GIPR expression was analyzed by immunohistochemistry in the hippocampus (HIP) and neocortex (Cx) of rats undergoing pilocarpine induced status epilepticus (Pilo-SE), and in three young male patients with left mesial temporal lobe epilepsy related to hippocampal sclerosis (MTLE-HS) treated surgically. A combined GIPR immunohistochemistry and Fluoro-Jade staining was carried out to investigate the association between the GIPR expression and neuronal degeneration induced by Pilo-SE. GIPR was expressed in the cytoplasm of neurons from the HIP CA subfields, dentate gyrus (DG) and Cx of animals and human samples. The GIPR expression after the Pilo-SE induction increases significantly in the HIP after 1h and 5 days, but not after 12h or 50 days. In the Cx, the GIPR expression increases after 1h, 12h and 5 days, but not 50 days after the Pilo-SE. The expression of GIPR 12h after Pilo-SE was inversely proportional to the Fluoro-Jade staining intensity. In the human tissue, GIPR expression patterns were similar to those observed in chronic Pilo-SE animals. No Fluoro-Jade stained cells were observed in the human sample. GIPR is expressed in human HIP and Cx. There was a time and region dependent increase of GIPR expression in the HIP and Cx after Pilo-SE that was inversely associated to neuronal degeneration.

A NOVEL SIGN TO DIFFERENTIATE NEUROACANTHOCYTOSIS FROM OTHER CAUSES OF ORO-LINGUAL DYSKINESIAS: CASE SERIES

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Background: Involuntary abnormal movements of the tongue and mouth can occur in a wide variety of neurological disorders; oro-lingual dyskinesias is the term used. The condition might be severe enough to cause severe discomfort up to self mutilation. Here, a novel sign is described and thought to be helpful in differentiating cases of oro-lingual dyskinesias due to neuroacanthocytosis.

Case series: Thirteen patients with oro-lingual dyskinesia were reviewed; 9 males, age 17-63 years. Five patients with later on confirmed hereditary neuroacathocytosis had a small cotton cloth (handkerchief) by their hands during their initial clinic assessment, to be used while not speaking trying to protect against self mutilation with severe oro-lingual dyskinesias. All of them reported there handkerchieves to be with them most of the day time. None of the other 8 patients (1 with Wilson disease and 7 with tardive dyskinesia secondary to neuroleptics) had this sign, despite their variable severity.

Conclusion: This sign might be common in hot climate countries where the use of this handkerchief is common. The small number of patients does not allow for further generalization, yet communication with other centres might provide clear evidence for its specificity and sensitivity.

PUNDING IN HUNTINGTON DISEASE

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Punding refers to stereotyped behaviours, which are prolonged, complex, repetitive and typically purposeless, occurring as a result of excessive stimulation of brain dopamine systems. It has being described recently as a feature of Parkinson disease (PD), mostly associated with high dosages of L-dopa or dopamine agonists intake.

There are a variety of neuropsychiatric disorders related to Huntington disease (HD), even in its preclinical state, but they focused in depression, mania, apathy, irritability and cognitive impairment. True obsessive-compulsive disorder in people with HD is rare, little is known about punding in cases of Huntington disease.

We describe two cases of HD confirmed genetically, a female age 36 diagnosed with HD at the age of 27, and a Male age 63 diagnosed with HD at the age of 52. Both exhibit classical symptoms of Punding years before the development of their choreaform involuntary movements. These symptoms have a major impact on their social life.

We argue that the development of these symptoms, although possibly explained by local caudate damage associated directly with the pathophysiology of HD, may alternatively arise out of disturbances to frontostriatal pathways. In view of the anatomical connections, it may turn out to be a more general principle that behavioural associations of basal ganglia disease arise variably from intrinsic basal ganglia mechanisms or from disruption to circuits incorporating these structures.

Punding symptoms could be one of the early preclinical manifestations in cases of Huntington disease.

RARE SYMPTOMATIC HEMIFACIAL SPASM

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Hemifacial spasm (HFS) is characterized by arhythmic and synchronous contractions of muscles supplied by the facial nerve on one side of the face. Rarely, HFS may be due to space occupying lesions in the cerebellopontine angle or in the brain stem.

We report a case of 64 years old woman, who developed a right-sided HFS five years prior to admission. No additional signs or symptoms were detected. T2-weighted MR images demonstrated a hyperintense tumor in the cerebellopontine angle. There was no enhancement after intravenous application of gadolinium. A vascular malformation or an anevrysm was excluded by angiography. The tumor was avascular. The patient refused surgical removal and she was treated by botulinum toxin injection.

Primary HFS is commonly attributed to vascular loops compressing the seventh cranial nerve. Symptomatic HFS secondary to posterior fossa tumors, demyelinating disorders, traumatisms and infections are rare. A neuroradiological work up including MR imaging should be mandatory in all patients with hemifacial spasm.

BILATERAL CHOREIC-BALLISM MOVEMENTS REVEALING NON KETOTIC HYPERGLYCEMIA

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Uncontrolled diabetes may be responsible for various neurological manifestations such as seizures and disorders of consciousness. A rare event is the appearance of involuntary movements, like chorea and hemiballismus.

The mechanism explaining the occurrence of these abnormal movements during hyperglycemia without ketosis remains unclear and different mechanisms are discussed as depletion in ATP and vulnerability of basal ganglia to brain-blood barrier damage caused by hyperglycaemia.

We describe a case of 56 years old women presented at neurological emergency with Bilateral Hemichorea predominant at the left side, with spontaneous hyperdensity at CT scan in the rights and left caudate and lenticular nucleus revealing hyperglycemia without ketosis.

GENDER AND WILSON´S DISEASE

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Background: Wilson's disease (WD) is a rare autosomal recessive disorder of copper metabolism. Although well documented in many neurological and liver disorders, gender has not been directly addressed in WD. Our aim was to evaluate gender related differences in WD.

Methods: We analyzed 627 consecutive WD patients entered into our registry between 1958 and 2010.

Results: We observed a male predominance in our population of WD patients (327 males vs. 290 females; $p< 0.05$). At disease diagnosis, 510/627 patients were symptomatic and most patients had the neuropsychiatric form of WD (345/510; $p< 0.01$). The neuropsychiatric form occurred predominantly in men versus women (209/278 vs. 136/232; $p< 0.01$), especially the rigidity-tremor (71/111 vs. 40/111; $p< 0.05$), rigidity (23/33 vs. 10/33; $p=0.07$), and psychiatric forms (46/71 vs. 25/71; $p=0.06$). The hepatic form occurred more frequently in women (96/165 vs. 69/165; $p< 0.01$), and women developed the neuropsychiatric form almost 2 years later then men (29.4 vs. 27.1 years; $p< 0.05$). In addition, daily urinary copper excretion was higher in women then men (382.2 ug/dl vs. 184.6 ug/dl; $p< 0.01$) in the hepatic form of WD.

Conclusions: According to our findings, the neuropsychiatric form of WD is predominant at diagnosis in both genders. The hepatic form of WD occurs more frequently in women, and women produce higher urinary copper excretion (hepatic form) and develop the neuropsychiatric form of disease almost 2 years later then men. We speculate these differences may be due to the protective effect of estrogens and iron metabolism differences.

TRACE ALTERNANS AS AN INDICATOR OF AUTONOMIC DYSFUNCTION IN A HUNTINGTON DISEASE PATIENT

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Objective: To describe a Huntington´s Disease patient with autonomic dysfunction and trace alternans on the electrocardiogram (EKG).

Background: Huntington´s disease (HD) is an inherited neurodegenerative disorder characterized by progressive motor dysfunction, abnormal involuntary movements, emotional disturbances, and cognitive decline. A few studies have shown disruptions in the function of the autonomic system. In our HD patient, the EKG revealed trace alternans, which is a condition in which there is a beat-to-beat oscillation in the strength of cardiac muscle contraction at a constant heart rate and is regulated by the autonomic nervous system.

Methods: A 49 year old male with HD and Uniform Huntington's Disease Rating scale (UHDRS) 49 presented with complaints of dizziness. Autonomic testing was performed, including measurements of heart rate and blood pressure variability during deep breathing, valsalva and tilt table testing. The patient had no history of heart disease.

Results: The autonomic testing revealed an abnormal heart rate variability with deep inspiration, valsalva maneuver and orthostatic hypotension.The EKG pattern was consistent with trace alternans. The cardiac echocardiogram was unremarkable.

Conclusions: Trace alternans is typically observed in patients with cardiac tamponade, severe heart failure and aortic heart disease. However it can also be seen in failure of the sympathetic outflow or overactivity of the parasympathetic nervous system. To our knowledge trace alternans, as a result of autonomic dysfunction in an HD patient, has never been described and could be used as a screening method for detecting autonomic disorders.

REVERSIBLE PROPRIOSPINAL MYOCLONUS DUE TO VENTRAL THORACIC DISC HERNIATION; LONG-TERM FOLLOW-UP

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Introduction: Propriospinal myoclonus (PSM) is a rare manifestation of spinal myoclonus characterized by brief, shock-like jerky movements arising in the muscles corresponding to one myelomere. There have been few reports of PSM associated with thoracic disc herniation and confirmed by conventional spinal MRI. We describe here such a case, which resolved after operation.

Case report: A 23-year-old man presented with a 3-month history of spontaneously developed involuntary repetitive shock-like jerks of the abdominal muscles followed by subjective respiratory difficulty.

Myoclonic jerk of the abdomen was observed at approximately 1~2Hz. It was semiregular, brief, continuous and persisted during sleep. Thoracolumbar spine MRI revealed that the T8-9 disc had herniated on the right side without signal change.

In polymyography with surface electrodes there were intermittent bursts initially involving rectus abdominis; these propagated to cranial and caudal muscles at 3 to 4 m/sec. Duration of the EMG bursts varied from 50 to 150msec. Diagnostic epidural block improved the symptoms to a moderate extent. After thoracic discectomy, the frequency and severity of myoclonus gradually declined over a period of months. Five years later symptoms occur only rarely.

Conclusion: Our case shows that PSM can be caused by ventral thoracic disc herniation without myelopathy. The PSM was almost completely resolved by surgical intervention with 5 years follow-up. Subjective respiratory difficulties may be the initial symptoms of ventral root irritation due to a herniated thoracic disc.

PIOGLITAZONE AMELIORATES BEHAVIORAL, BIOCHEMICAL AND CELLULAR ALTERATIONS IN QUINOLINIC ACID INDUCED NEUROTOXICITY: POSSIBLE ROLE OF PEROXISOME PROLIFERATOR ACTIVATED RECEPTOR-Γ (PPARΓ)

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PPARγis a ligand-activated nuclear receptor implicated in several human pathologies. Emerging evidence indicates that PPARγ activators attenuate neurodegeneration and related complications. Huntington's disease (HD) is one of the movement disorders having complex pathophysiology. Quinolinic acid (QUIN) is an endogenous metabolite of tryptophan at the kynurenine pathway has been reported to causes early low-grade neuroinflammation and to mimick the clinical symptoms of HD in experimental animals. Therefore, the present study focused on the neuroprotective potential of pioglitazone against Quinolinic acid (QUIN) induced neurotoxicity. Intrastriatal (unilaterally) administration of QUIN significantly altered body weight and motor function (locomotor activity, rotarod and beam walk performance). Further, QUIN treatment significantly caused oxidative damage (increased lipid peroxidation, nitrite concentration and depleted endogenous antioxidant defense enzymes), altered mitochondrial enzyme complex (I, II & IV) activities and TNF-α level as compared to sham treated animals. Pioglitazone (10, 20 and 40 mg/kg, p.o.) treatment significantly improved body weight and motor functions, oxidative defense. Further, pioglitazone treatment restored mitochondrial enzyme complex activity as well as TNF-α level as compared to QUIN treated group. While Bisphenol A diglycidyl ether (BADGE) (15 mg/kg), PPARγ antagonist significantly reversed the protective effect of the pioglitazone (40 mg/kg) in the QUIN treated animals. Further, pioglitazone treatment significantly attenuated the striatal lesion volume in QUIN treated animals, suggesting a role for the PPAR¡ pathway in QUIN induced neurotoxicity. Altogether, this evidence indicates that PPARγ activation by pioglitazone attenuated QUIN induced neurotoxicity in animals and could be an important therapeutic avenue to ameliorate Huntington like symptoms.

HYPERGLYCEMIA-INDUCED HEMICHOREA WITHOUT DIABETES MELLITUS

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A 72-year-old women was admitted for sudden onset of abnormal involuntary movement on the right side. Seven days before admission, hemichorea developed suddenly. She had no history of DM. On neurologic examination, she had no weakness, sensory deficits, or any other neurological deficits. Continuous, irregular choreic movement was observed in perioral and craniocervical area as well as her right arm. At admission, the initial blood glucose level was 98 mg/dL. In oral glucose tolerance test, fasting glucose was 99 mg/dL and post-prandial 2hrs blood glucose was 131 mg/dL. Hemoglobin A1c concentration was 5.8%, indicating no definite DM. Sodium level was 123mmol/L. Initial T1-weighted brain MR imaging revealed scattered high signal intesity in the left putamen and caudate along with old cavitary lesions. After admmision, hyponatremia was corrected with hydration and high salt diet. The choreic movement and memory function gradually improved without medical treatment. In the follow-up of one month, the choreic movement almost disappeared. In hyperglycemia-induced chorea, the glucose level was always elevated above normal and choreic movement usually fluctuate according to the blood glucose level. There has been no report where a patient had no overt DM clinically in spite of choreic movement and MRI finding which were typically seen in DM. Our patient presented hemichorea and MRI findings which was characteristic of hyperglycemia-induced chorea, but no overt DM. Is it possible that a patient can show hyperglycemia-induced chorea and MRI finding without overt clinical DM? Could these choreic movement and MRI finding herald DM in the future?

CLINICAL AND MOLECULAR STUDIES IN PATIENTS WITH PAROXYSMAL KINESIGENIC DYSKINESIA

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Introduction: Paroxysmal kinesigenic dyskinesia (PKD) is characterised by attacks of involuntary movements, initiated by sudden onset moves or startle. The diagnosis is still largely based on history and exclusion of other causes and can be difficult, especially in young patients. In 1997 the first genetic evidence of linkage on chromosome 16 for familial infantile convulsions and paroxysmal choreoathetosis was shown and later genetic heterogeneity became evident. Previous studies aimed at the identification of the PKD gene have been unsuccessful. Aberrations other than exonic mutations, such as deletion or insertion, in the promotor regions, including the 5´UTR or 3´UTR may be causative.

Objectives: To get more insight in the precise phenotype and molecular background, we reviewed the literature, developed a questionnaire, which was filled in by PKD patients and relatives, who were neurologically examined and from who blood samples were collected for DNA analysis. Also genealogical and molecular studies were performed.

Results: A linkage study in a large three-generation family, confirmed conclusively linkage at the16p-q12 locus. Additional molecular studies, including next generation sequencing, in this and smaller families and sporadic patients are in progress. The results will be presented and we will correlate geno-phenotype. Candidate genes may include those playing a role in cell signalling, neural transduction or genes coding or controlling ion channel function. Moreover, due to the frequent intra-familial co-morbidity, discovery of the PKD-causing gene might have additional important implications for understanding the pathogenesis of more common neurological diseases, such as migraine and epilepsy, which co-segregate with PKD.

HYPERGLYCEMIC HYPEROSMOLAR STATE PRESENTING AS HYPERKINETIC MOVEMENT DISORDER - A CASE SERIE

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Introduction: Various seizure types as manifestation of Hyperglycemic Hyperosmolar state (HHS) have been reported in the literature. We present the clinical, biochemical and video clipping of 9 patients with HHS. Do they differ from the classical HHS? ¨Do they have any peculiar movement? ¨Is it a different clinical/biochemical entity?

Methods: Video recording of patients with focal seizures or abnormal movements due to hyperglycemia were retrospectively analyzed. Available data on biochemistry /EEG /CT Scan/treatment record were reviewed.

Results: Nine patients were recorded and documented over 3 yrs ¨All presented either as focal seizures or abnormal movements . Presented to us within 1-3days of onset of abnormal movements. All were known known diabetic on treatment None had past history of epilepsy.Ther blood sugar range was 425 to 660mgs% ,Sr. Osmolality : 300 to340 mOsmol/L ,Sr . Sodium : 138 to150meq/L and Hco3 : 20 to24 mmol/L None had acetone positive . One patient had hyperintense basal ganglion in all others CT brain was nNormal . All had abnormal EEG-Focal slowing or generalized slowing or sharp waves. Seizures/abnormal movements were controlled within 3-7 in all. Seizures were highly recurrent -20-50 /day, as serial attacks and fully conscious in between the attacks. Movements-peculiar -phenomenologically in between hemichorea/ballismus and myoclonus.

Conclusion: Our patients had blood sugar level between DKA and HHS. All had highly recurrent seizures 20-50/day with normal mentation in between the attacks The phenomenology was distinct.

A CASE OF MISTAKEN IDENTITY: JUVENILE MYOCLONIC SEIZURES MANIFESTING AS A TIC DISORDER

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Objective: To describe a patient referred to a movement disorder specialist for twitching of the head and neck.

Background: A tic is a stereotyped repetitive involuntary movement or sound, frequently preceded by premonitory sensations or urges. Simple motor tics are single repetitive jerks and may need to be differentiated from myoclonic jerks. They also need to be differentiated from stereotypies, which are often of longerduration, or from myoclonic seizures.

Methods: A 20 year old female with no significant past medical history presented to our clinic for assessment of involuntary twitching of her neck and eyes. She had been in good health until 3 months prior when she started having twitches of her neck, occasionally accompanied by rolling of her eyes without loss of consciousness. The episodes lasted for a few seconds. Her neurological exam was unremarkable except for mild slowing of processing speed.

Results: Her biochemical work up and brain MRI were normal. A routine EEG was performed for the cognitive slowing and revealed episodes of paroxysmal generalized rhythmic sharp 3-4Hz activity, findings consistent with a juvenile myoclonic epilepsy (JME) variant. She was treated with levetiracetam and the clinical and electrographic seizure episodes were controlled.

Conclusions: JME is an idiopathic, hereditary generalized epilepsy consisting of irregular myoclonic jerks, generalized tonic clonic seizures, or absence seizures which are not accompanied by loss of consciousness. Routine or prolonged video-EEG shows typical 4-6 Hz polyspike-and-wave discharges. Treatment with anticonvulsants provides good control of JME seizures as in the case of our patient.

DEFINITION OF A STEREOTACTIC 3D MODEL OF THE INSULA FOR NEUROSURGICAL APPROACH (EPILEPSY AND STEREOTAXIC SURGERY)

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Purpose: Design a method for 3D reconstruction of the insula, including its gyri and sulci , in AC-PC reference usable individually for imaging or for epilepsy and stereotactic surgery.

Materials and methods: Morphometric study using 56 MRI of normal insular region. 26 male/30 female, 28 left/28 right hemispheres.

Stage 1: Reconstruction in AC-PC reference of the insula from 3D-T1-MRI slices 1 mm thick.

Stage 2: Digitalization and superposition of data in 3D using PhotoStudio software (Photo Editing Software) system with PC as the center of coordinates.

Stage 3: MATLAB software (Mathworks Inc.) was used to transform in color values each pixel to obtain a color scale corresponding to the probability of insula sulci localization between 0% and 100%.

Results: Demonstration of very significant correlations between the coordinates of the main insular structures and the length of AC-PC (Spearman r = 0.5; two-tailed P = 0.0001).

This close correlation allows to describe a method for 3D reconstruction of the insula on MRI slices that requires only the positions of Ac and PC and then the inter-commissural (AC-PC) length. This procedure defines an area containing insula with 100% probability.

Conclusion: 3D reconstruction of insula will be potentially useful for:

1 - To improve localization of cortical areas, allowing to differentiate insular cortex from opercular cortex during stereoelectroencephalographic exploration of patients with epilepsy or in morphological and functional imaging.

2 - For microsurgical approach of Insula using Neuronavigation techniques.

3 - Identification of Insula during stereotactic surgery.

THE PREDICTORS OF SEIZURE IN CEREBRAL VENOUS SINUS THROMBOSIS AND ITS PROGNOSTIC SIGNIFICANCE

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Background: There is paucity of information about the prognostic significance of seizure in cerebral venous sinus thrombosis (CVST).

Aims: To evaluate the predictors of seizure in CVST and its influence in mortality and functional outcome.

Methods: 85 consecutive patients with CVST were subjected to detailed history, clinical examination and laboratory tests as per fixed protocol. The diagnosis of CVST was based on MR Venography (MRV). The MRI and MRV findings were noted. The occurrence and type of seizure at presentation and during hospital stay were noted. The patients were treated with low molecular or unfractionated heparin (LMWH/UFH) for 14 days followed by oral anticoagulation. Antiepileptic drugs (AEDs) were prescribed to the patients who had seizure. Hospital mortality and 3 month outcome based on Barthel index score was categorized into poor (BI< 12), partial (BI=12-19) and complete (BI=20).

Results: Their median age was 30 (6-76) years and 47 were females. 91.9% patients presented with headache, 53.5% focal weakness, 51.2% seizure and 53.5% altered sensorium. On univariate analysis, seizures were related to parenchymal lesion (P=0.01) especially hemorrhagic infarction (P=0.01) and raised intracranial pressure (P=0.04). On multivariate analysis parenchymal lesion was independently associated with seizure (OR 0.02, 95%CI 0.07-0.60, P=0.004). Five patients died, 6 had poor, 3 partial 68 had complete recovery. Mortality (P=0.36) and 3months functional outcome (P=0.58) however were not related to seizure.

Conclusion: Seizures occur in half the patients with CVST especially in patients with parenchymal lesion. The mortality and 3month outcome however are not dependent on seizure.

DIFFUSION WEIGHTED MAGNETIC RESONANCE IMAGING IN PATIENTS WITH STATUS EPILEPTICUS

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Introduction: Diffusion weighted magnetic resonance imaging (DWI) after status epilepticus (SE) has demonstrated abnormal hyperintensities (AHI) in the regions involved by epileptic activities in some patients, but its clinical implication hasn´t been fully elucidated.

Patients and methods: We retrospectively examined all 119 patients (68 males and 51 females) over 18 years-old who admitted to our hospital between 2005 and 2010 due to SE and underwent DWI. We compared patients with obvious AHI and without AHI (no-AHI) about patient's age, sex, seizure type, modified Rankin Scale (mRS) at discharge and analyzed the features of AHI.

Results: Eighteen of 119 patients(15.1%) disclosed obvious AHI (11/57 of partial onset secondarily generalized, 7/57 of generalized onset and 0/5 unclassified). There were no difference about age, sex and seizure type between AHI and no-AHI group. The patients who revealed AHI had worse mRS at discharge than no-AHI patients *(p=0.03)*. Thirteen had AHI in unilateral cerebral cortex and 2 had bilateral cortical involvement. There were fourteen patients who had hippocampus AHI (only hippocampus: 2, unilateral cortical involvement: 9, bilateral cortical involvement: 3). Seven patients who showed pulvinar AHI had AHI in ipsilateral cerebral cortex. Extension of AHI was along the cortex and didn´t corresponded with vascular territory. Apparent diffusion coefficient was measured in 10 patients, of which 1 is low, 7 is iso and 2 is high.

Conclusions: AHI was observed in 15% of SE patients, distribution of which principally unilateral, frequently included hippocampus and didn´t respect vascular territory. It probably signifies worth outcome.

REFRACTORY EPILEPSY CHARACTERIZED BY MAGNETOENCEPHALOGRAPHY

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Introduction: Epilepsy is one of the most prevalent chronic diseases, being resistant cases a group of extraordinary clinical interest since up to 30% of epileptic patients refer seizures rebel to medical approaches. Such subgroup of patients means both a raising clinical problem and high economic burden yet to be solved (Pugliatti et al., Epilepsia 2007).

The best therapeutic approach for patients with resistant epilepsy is an emerging topic. Computer simulation models are pointing to a theoretical better outcome when medical resistant patients undergo surgery (Choi, JAMA 2008). Nevertheless, more than 50% of those patients keep on suffering seizures after surgery.

Aim: To endorse the hypothesis that conventional diagnostic techniques may fail in detecting epileptic foci, leading to surgery-resistant epilepsy because of underdiagnosed foci, we use magnetoencephalography (MEG). MEG is a promising non-invasive diagnostic technique that offers the powerful chance of real-time neural mapping when added to magnetic resonance imaging (Stufflebeam et al., Hum Brain Mapp 2009).

Patients and methods: We analyze file records of 420 medical-resistant patients studied by image fusion of MEG and magnetic resonance imaging since 2001. To our knowledge, ours is the largest series of epileptic patients characterized by MEG published to date.

Results: We found epileptic foci characterized “de novo” among 74 patients (over 17% of the cases analyzed). Such foci were undetected by conventional non-invasive functional techniques such as Video-EEG.

Conclusions: MEG is a feasible non-invasive diagnostic tool to design the most accurate surgical approach leading to remission of refractory seizures.

MRI FINDINGS IN INTRAMEDULLARY TUBERCULOMA: REPORT OF SIX CASES

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Introduction: The spinal cord is a rare location for tuberculomas. Young adults are most often affected . The essential clinical symptom is spinal cord compression. MRI allows now an exact assessment of the lesions.

Objective: To demonstrate the value of imaging in the diagnosis of intramedullary tuberculomas.

Materials and methods: This is a retrospective study of 6 cases of intramedullary tuberculoma, revealed by spinal cord compression and explored by MRI. The MRI protocol included the weighted sequences T1, T2, and T1 with gadolinium injection with axial and sagittal slices. A phthisiology and HIV serology tests were made in all patients. Five of our patients had a biopsy with histopathology study.

Results: Our study consisted on four men and two women with an average age of 26 years.The location of the tuberculoma was cervical (2cases), thoracic (2 cases) and in the conus medullaris (2cases). Signal abnormalities were different depending on the stage of the lesion. The association with para vertebral abscess and cerebral tuberculoma was identified in one case. The HIV serology test was negative in all patients. The tuberculous origin was confirmed by biopsy in five patients .

Conclusion: Intramedullary location of tuberculoma is rare and is an unusual cause of spinal cord compression in young adults, particularly immunocompetents. MRI is a useful method of investigation in the diagnosis and outcome monitoring.

KLÜVER-BUCY SYNDROME WITH ISOLATED BILATERAL HIPPOCAMPAL ATROPHY FOLLOWING STATUS EPILEPTICUS

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Background: Klüver-Bucy syndrome may result from affection of various location of brain. We report a case of Klüver-Bucy syndrome associated with isolated bilateral hippocampal atrophy without any abnormal lesion in other areas following status epilepticus.

Case report: A 31-year-old man who had no significant medical history presented with status epilepticus after encephalitis of unknown etiology. He had been recovered from status epilepticus three weeks later, but afterwards he developed Klüver-Bucy syndrome: hyperphagia, hypersexuality, hypermetamorphosis, anterograde amnesia and dysnomia. Initial brain MRI showed T2 hyperintensity and swelling of isolated bilateral hippocampus, especially CA1 region without any abnormal lesion in other areas. One month later, follow-up brain MRI showed isolated bilateral hippocampal atrophy.

Conclusion: This is a meaningful case report because this case differs from other reports of Klüver-Bucy syndrome in humans in that the anatomic abnormalities revealed by MRI were very selective. We report this case because this case is very educative for above reason. Moreover, this report would give us additional information of the relationship between human behavior and limbic system.

STUDING INTERICTAL EPILEPTIC ACTIVITY WITH EEG/FMRI IN FOCAL EPILEPSY

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Introduction: The spatial relationship between the epileptic source and irritative and ictal onset zones is difficult to obtain with EEG. A non invasive diagnostic technique that provides valuable information for localizing the brain regions generating interictal epileptiform discharge (IED) is simultaneous EEG recording and fMRI.

Materials and methods: We have selected five patients with focal epilepsy whose routine EEG recordings showed frequent IEDs. Three patients had a structural lesion on MRI (mesial temporal sclerosis - MTS; cavernous angioma; cortical damage secondary to ischemic stroke) and two patients had cryptogenic epilepsy. All patients underwent almost two 5.14min fMRI recording session (EPI sequence) simultaneously co-registered with interictal EEG.

Results: Three patients were discharged because two did not showed enough IEDs and another for movement's artifacts. The EEG/fMRI data analysis was performed in two patients (one with MTS and another with cryptogenic epilepsy). In the former, fMRI data analysis demonstrated maps that were not concordant with the electro-clinical findings. In the latter with sensitive simple partial seizure, the positive BOLD changes ($p< 0.05$, corrected for multiple comparisons) were concordant with electro-clinical findings resulting in a good spatial-temporal resolution.

Conclusions: EEG/fMRI is relevant in the presurgical evaluation of focal epilepsies. Despite difficulties to obtain clear statistical parametric maps correlated to IEDs, as described in the literature, we have recognized a good concordance between fMRI data and electro-clinical findings in one case. We think that EEG-correlated fMRI technique will shed light on the neurophysiological mechanisms underlying epileptic phenomena in the near future.

ROLE OF NEUROIMAGING IN EPILEPSY

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About one sixth of patients with focal epilepsy are resistant to current antiepileptic medications. Brain imaging, including MRI, has revolutionized the treatment of pharmacoresistant epilepsy. It play an important role in detecting and characterizing an epileptogenic lesion. The current study describes imaging features of the main brain lesions associated with pharmacoresistant epilepsy.

Methods and materials: One hundred and eight patients suffering from pharmacoresistant epilepsy seen between 2007 and 2009,were included in the study. All the patients underwent brain MRI examination performed at 1,5 Tesla. MRI protocol included sequences that provide T1 and T2 contrast in three dimensions.

Results: The etiology of the epilepsy was mesial temporal sclerosis in 20 patients, low-grade neoplasms in 18 patients, brain sequelae in 18 cases, malformations of cortical development in 16 cases and vascular malformations in 6 cases. The Fahr's disease was the cause the epilepsy in 2 patients, and neurological tuberous sclerosis complex lesions were found in a patient. In 27 patients, no focal lesion was found. Imaging features of each of this brain lesions was described with illustrative images.

Conclusion: The most frequent etiologies of pharmacoresistant epilepsy are mesial temporal sclerosis, malformations of cortical development, cavernous angiomas, and low-grade neoplasms. In up of 25% of patients, no lesion is found in conventional MRI. Developments in imaging technology may increase the yield for imaging studies to detect the epileptogenic lesion and to characterize its connectivity within the epileptic brain.

THE BURDEN OF NEUROLOGICAL DISEASES IN GHANA- 5 YEAR REVIEW OF CASES SEEN AT THE KORLE BU TEACHING HOSPITAL

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Purpose: Neurological diseases are increasingly becoming part of the noncommunicable disease burden in most developing countries. In this paper we present an overview of the neurological cases seen at the only tertiary referral point for all neurological diseases in Ghana over a 5 year period.

Methodology: Retrospective analysis of consecutive cases attending the neurology clinic from 2005-2010 were entered into a database. All Cases were coded and those with confirmed neurological diagnosis were coded using the international classification of diseases(ICD-10) system for neurological diseases and analyzed using SPSS.

Results: A total of 3294 cases (42±19 years, 56% males) have been included so far; 9% of cases remain undiagnosed whilst 0.2% of cases are due to traumatic brain injuries. Epilepsy, movement disorders and spondylolitic diseases represented 20%, 12% and 14% respectively. Overall motor neuron diseases and spinal cord paralytic diseases exhibited a common trend occurring at around 3% for both conditions. The low incidence of traumatic brain injury may be a reflection of the referral pattern and specialty practice in our institution.

Conclusions: Our data shows that epilepsy may be the most common neurological condition in our settings. Previously unknown neurologic diseases are increasingly becoming common.

NATURAL HISTORY OF AMYOTROPHIC LATERAL SCLEROSIS (ALS) IN JAPAN

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Objective: To describe the clinical characteristics (total number of patients, men/women ratio, onset age, initial symptom, and so on) of ALS patients in our hospital during the 10-year period from 2001 to 2010.

Methods: We collected retrospectively the clinical data of consecutive 229 ALS (including two familial ALS) patients who were diagnosed at the Jichi Medical University Hospital in Japan. All patients fulfilled the El Escorial Revisited criteria for clinically suspected, possible, probable and definite ALS.

Results: Total 229 patients included 119 men and 110 women, the men/women ratio was 1.08, and their mean age at onset were 62.3±10.7 years and 64.0±10.7 years respectively. The percentages of initial symptoms were: limb weakness (65%), bulbar sign (30%), dementia (3%), and respiratory failure (2%). We could follow-up 50% of the patients in our hospital, 31% of them died, and 14% of patients are now alive. 8.3% of patients had dementia during the disease course, and most of them revealed hypoperfusion in frontal and/or temporal regions by ^{123}I-IMP SPECT (single photon emission computed tomography). Almost 10% of patients underwent mechanical ventilation, and the other 10% of cases were on non-invasive positive pressure ventilation support. We performed autopsy one-third of patients who died in our hospital.

Conclusions: There were no significant sex differences in the disease onset. Almost one-third of patients had bulbar sign as initial symptom, and that was the same as another European and North American countries.

SURVIVAL ESTIMATES FOR CUBAN PATIENTS WITH SPINOCEREBELLAR ATAXIA TYPE 2

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Spinocerebellar Ataxia type 2 is a neurodegenerative polyglutamine disorder that reaches the highest worldwide incidence and prevalence rates in Holguín province, Cuba. Despite the early morbidity and mortality of SCA2, there is insufficient data assessing the disease impact on patient survival. We made use of a large cohort of 606 affected SCA2 individuals and 614 unaffected siblings from the largest SCA2 population worldwide. Estimated mean overall survival was 63.58±0.93 (95% CI: 61.76-65.39) for affected and 78.94±1.28 (76.43-81.45) for unaffected individuals ($p< 0.001$). Curves for overall survival or survival after disease onset for a given CAG repeat size were significantly different ($p< 0.001$). There were highly significant associations between CAG repeat size and mean survival estimates. All these information may be valuable in clinical assessment of affected individuals, in the planning of studies for the identification of other genetic and environmental factors as modifiers of survival, and in the design of clinical trials for affected people.

EFFECTS OF THE GENETIC DOSE ON THE CLINICAL PHENOTYPE IN SPINOCEREBELLAR ATAXIA TYPE 2

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Spinocerebellar Ataxia type 2 is a neurogenetic disorder caused by a CAG repeat expansion in ATXN2 gene which is inversely associated with the age at onset. In addition to this factor it has been suggested that double dose of the mutant allele enhances clinical severity. Here we report four clinically affected homozygous cases belonging to three Cuban families, and compare them with a total of 67 heterozygous individuals chosen from a population of 530 affected, to evaluate the significance of homozygosity for the clinical phenotype. Two of the studied homozygous cases (50%) showed significantly earlier age at onset than corresponding heterozygotes ($p < 0.05$). The only homozygous case, for whom a comparison could be made regarding life span (case 4; genotype 33/41), showed significantly earlier age at death than corresponding heterozygotes. The case with genotype 35/35 had an increased severity of the clinical phenotype evaluated in terms of the total ataxia score, the maximum saccadic velocity and the saccadic latency. The case with genotype 33/41 showed a maximum saccadic velocity greater than expected and a saccadic latency indistinguishable from heterozygous cases with the same repeat number. Finally, the case with genotype 35/35 had a bigger than expected disease progression rate, expressed as the total ataxia score/age. Taken as a whole, these observations suggest the existence of a genetic dose effect operating in SCA2, where the homozygosity for expanded alleles implies an increased severity in the clinical phenotype. However, further studies are needed to establish definitive conclusions.

EPIDEMIOLOGICAL STUDY OF PSYCHIATRIC DISORDERS IN THE REGION OF GHARB CHERARDA BENI HSEN, MOROCCO: CASE OF MAJOR DEPRESSION

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The objectives of our work was to realize an inventory of psychiatric disorders in the region of Gharb Cherarda Beni Hsen to highlight the most common diseases and to make hypothesis about the possible influence that some risk factors might have on the development of psychopathologies.The 1st axis used archived data of a primary population of 3680 patients. The 2nd axis was an epidemiological study, which focused on major depression (MD), that examined 192 patients.The first axis revealed the vulnerability of women aged between 18 and 39, from urban area, not grade level and unemployed to psychiatric disorders in general and MD in particular. it revealed the dominance of MD (27, 4%), compared to other disorders in the survey population. The second axis has confirmed the susceptibility of women (70.8%) pre-adults and adults from urban areas and unemployed towards MD. It showed that it is women in the last position among siblings (38%), married with more than two children, who received an authoritarian parenting, under the influence of disruptive events such as family problems (28%) or bereavement (27%) and judging bad their standard of living (44.27%) who are more likely to develop MD. Also, 60.41% have a family history of MD. Moreover, through this second axis, emerges the hypothesis of a possible influence of a deficient diet in certain nutrients whose antidepressant virtues are proven (tryptophan, polyunsaturated fatty acids n-3, B vitamins) in the development of MD.

BENIGN INTRACRANIAL HYPRETENSION: ASERIES OF 79 CASES

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Benign Intracranial hypertension (BIHT) can be defined by the following criteria: headaches, lack of focal neurological signs; normal neuro imaging and normal cerebra spinal fluid (CSF). CSF diversion, fenestration of the optic nerve sheath are surgical therapeutic options after failed medical treatment We describe the management of patients with benign intra cranial hypertension seen in CHU, IBN SINA of Rabat. This was a retrospective study where 52 females and 27 males with BIHT refractory to medical treatment from (1984 - 2010), were treated and their cases notes analyzed.

The mean age of presentation was 42 years (24 - 72 years). All had headaches, vomiting in 74 patients while spontaneous rhinorrhoea occurred in 05 patients. ICHT was confirmed in all patients' following measurement and manometric monitoring.

Brain IMR was performed in 74 patients while CT scan was done in all patients.

Seventy six patients had V P shunt (72 as the primary option while 04 was done after failed ETV) while 03 had ETV (endoscopic third ventriculostomy).

All patients had good clinical improvement.

The manometric (monitoring) measurement of intra cranial pressure is a useful tool for diagnosis of BIHT. In such case V P shunting improved the clinical picture in majority of our patients. In spite of new endoscopic techniques (ETV, stenting of aqueduct of sylvius), which are more physiological, the VP shunting still remain the main stay of treatment.

FORAMINAL SYRINGOMYELIA: A SERIES OF 30 CASES

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Syringomyelia is a tubular cavity in the spinal cord secondary to accumulation of fluid from various aetiologies. It has distinct clinical neurological features. The location of the cystic cavity in the spinal cord differentiates syrinx from hydromyelia in which case the cyst cavity is in the spinal canal and is lined with ependyma.

We report a retrospective study over a 30 years period from January 2000 to December 2010 where case notes of patients managed for syrinx in the CHU IBN SINA were reviewed.

There were 19 males and 11 females with an age range varying from 25- 53 years (mean 28 years).

Thermo algique dissociation and reduction of muscle power were seen in 24 patients, paresthesia and numbness in four cases. Fifty seven percent of the syrinx were from cervico occipital malformation.

Spinal MRI was done in all patients with positive diagnosis; eight patients had posterior fossa craniectomy with duroplasty, three had cysto peritoneal shunting while 02 patients were just followed up. Improvement of the clinical state was seen in 10 patients. Two patients remained the un changed clinically while 01 had worsen clinical state. The mean follow up duration was 15 months.

The posterior fossa craniectomy with duroplasty remains the surgical technique of choice for management of foraminal syringomyelia. Cysto-peritoneal shunt if indicated is a good alternative.

MANAGEMENT AND OUTCOME OF IDIOPATHIC NORMAL PRESSURE HYDROCEPHALUS: A SINGLE EXPERIENCE CENTER

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Introduction: Idiopathic normal pressure hydrocephalus(iNPH) is reported to be between 0,18 and 2,2 cases per 1.000.000 individuals. In contrast to neurodegenerative diseases, iNPH symptom's can be sometimes be completely reversed with ventriculoperitoneal shunt (VPS) .

Aim: Review our experience of iNPH patients from 1997 to 2010, 42 patients treated surgically ,with particular focus on use of continuous intracranial pressure(ICP) monitorring .

Materiel and methods: Patients with probable diagnosis of iNPH are referred for preoperative assessment based on the case history, and the clinical and the radiological findings. During the study period continuous ICP monitoring was done as part of the preoperative assessment.

Results: There were 24 men 18 women , patients were diagnosed with iNPH between the ages of 26years and 80 years. The median follow up was 1 to 10 years. 73.7% were treated with shunt, most had improvement in gait (81.1%), urinary incontinence (55,9%), and dementia(64.4%) .

Discussion: iNPH is a disorder that results in clinical triad of gait ataxia, incontinence and dementia in the setting of enlarging ventricules and normal ICP. Although the diagnosis is made based on clinical symptoms, there is a lack of consensus regarding diagnostic criteria for iNPH that includes objective modalities such as imaging studies, or ICP pattern monitoring. Surgery with VPS is successful treatment for NPH .

Conclusion: Our study suggests that CSF diversion is highly effective and safety in returning patient with NPH to a fully independent or modestly dependent status.

KNOWLEDGE ABOUT STROKE RISK FACTORS AND WARNING SIGNS

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Aim: We aimed to assess the awareness of stroke among patients in two Moscow hospitals and their relatives.

Methods: We interviewed 400 patients and their relatives (51% women; mean age 60.4±8.1 years), with questionnaire consisting of 45 questions, including 15 open-ended questions about stroke.

Results: Of these 400 interviewed, 7,5% did not know any sign or symptom of stroke. Unilateral weakness (79%) and dysphasia (20%) were the most frequently noted symptoms; 48% named 1 stroke symptom, 25% named 2 symptoms. There were a positive correlation between educational level and the number of correctly named stroke symptoms (p=0,012). Stress (51%) and high blood pressure (46%) were named most frequently as risk factors. Factors such as smoking (16%), hypercholesterolemia (7,8%), diabetes mellitus (5.1%), coronary heart disease (4.5%) were named more rarely. 38% of respondents names more than 2 risk factors. 21,2% of respondents did not name any stroke risk factor. Level of knowledge about stroke was not influenced by gender, age, cognitive status and depression level. There were a positive correlation between educational level and the number of correctly named risk factors (p=0,003). A specialized brochure (55%) and direct dialogue with the doctor (18%) were named as most preferable forms of increasing the knowledge of risk factors and stroke symptoms.

Conclusions: Future health education campaigns should provide information regarding the warning signs for early hospitalization. It is also necessary to highlight the importance of providing prophylaxis by nonsmoking, exercise, and knowledge about ideal targets of blood pressure, body mass index.

KONZO, A FORGOTTEN UPPER MOTOR NEURON DISEASE

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Konzo is a distinct neurological entity with selective upper motor neuron damage found in the poorest and remotest areas of Africa. It is characterized by an abrupt onset of an irreversible, non-progressive and symmetrical spastic para/tetraparesis. Epidemics of konzo have been reported in Cameroon, Central African Republic, Democratic Republic of Congo, Mozambique, and Tanzania. There is ecological evidence of its association with high dietary cyanogen consumption from bitter unprocessed cassava combined with a protein-deficient diet. Droughts, wars and population displacement are the main factors leading to extreme dependence on cassava. Konzo remains a neglected disease; the number of cases in reported literature is near 7000 in contrast to the 100000 from unofficial reports. The physiopathology remains obscure, but neurophysiological studies point to involvement of either the corticomotorneurons or the descending motor pathways. Familial clustering of cases is found in every reported outbreak. There is age and sex difference in the distribution of the disease. Children above the age of three and women in the fertile age group are more affected than adult males. Depending on its severity, konzo is divided into: mild when subjects are able to walk without support; moderate when they need one or two sticks; and severe when they are unable to walk. There is no treatment for konzo. Dietary diversification and multivitamins is indicated to avoid additional neurodamage secondary to concurrent vitamin deficiency. Early recognition and active case detection to reveal the extension of any konzo outbreak by local authorities is determinant to avoid further cases.

AMYOTROPHIC LATERAL SCLEROSIS AMONG AFRICANS - A REVIEW

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Aim: We reviewed the epidemiology of ALS among subjects of African origin, considering incidence, phenotype and prognosis.

Methods: We searched Medline, Scopus, Science direct, Bibliothèque Virtuelle de Neurologie Africaine (BVNA), (http://www-ient.unilim.fr/) and African journal OnLine databases using the following search terms “amyotrophic lateral sclerosis (ALS)”, “motor neuron disease (MND)” or “Charcot disease”, in combination with “Africa”, “ethnic groups”, “blacks” or “epidemiology”.

Results: A total of 35 references were retrieved: 19 reporting studies performed in the African continent and dealing with MND/ALS; four other studies focused on ALS-like syndromes; finally, 12 studies not performed in Africa but focusing on either incidence and mortality or survival of ALS in subjects of African origin were retrieved.

Conclusion: Several characteristics of ALS among Africans or subjects of African origin were identified:

(i) lower incidence rates among people of African origin living in western countries,

(ii) higher incidence among men than women,

(iii) younger age at onset.

Furthermore, we cannot draw firm conclusions about

(i) the prognosis in African ALS patients,

(ii) prognostic factors, which were not studied in this population,

(iii) genetic or behavioural factors affecting incidence or clinical phenotype.

Further multicentre prospective studies need to be performed in Africa to clarify these issues.

NEUROLOGICAL DISEASES ASSOCIATED TO HIV/AIDS IN MEXICAN PATIENTS, EPIDEMIOLOGY AND TRENDS 1995-2009

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Background: Infection with human immunodeficiency virus (HIV) has different stages and attack different organs and systems, such as the nervous system with different neurological manifestations. In Mexico, the National Institute of Neurogy and Neurosurgery is the most important reference medical center in neurological diseases, so our population is representative of the global situation at the country.

Methods: Clinical records and database of patients treated with HIV/AIDS for 15 years were reviewed in order to obtain an epidemiological overview of the behavior of neurological diseases affecting Mexican patients with HIV/AIDS along time.

Results: 320 patients were detected, mostly young males (84.7%); the main conditions detected in hospitalized patients were infectious and parasitic diseases: toxoplasmosis (42%) and cerebral cryptococcosis (28%). The main affections detected at the ambulatory clinic were toxoplasmosis (67.9 %), cognitive disturbances (65%) and those caused by antiretroviral treatment. No specific trend was detected during the period of study. Our hospitalized patients weren´t on antirretroviral therapy and most of them had a neurologic opportunistic infection as the first manifestation of AIDS.

Conclusions: In comparison with developed countries, in Mexico there is no significant change in the trend and behavior of neurological symptoms related to HIV/AIDS, which may be related to the opportunity to initiate antiretroviral therapy.

REFERRAL PATTERNS TO UK NEUROLOGISTS: PAST, PRESENT AND FUTURE

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Objective: To describe current reasons and sources for new referrals to a UK neurology outpatient service, and ask is the pattern of referral appropriate?

Method: Descriptive study of reasons for referral and source derived from 709 new referral letters received over 3 months in 2009 by a neurology department at an inner city hospital.

Results: Complete data was available for 684 (96.5%) of referrals. Headache/migraine (21%) and epilepsy/ loss of consciousness (20%) were the commonest reasons for referral, followed by peripheral neuropathy (14%), and pain (7%), with other specific causes accounting for less than 5% each. Almost two thirds of referrals were from General Practitioners (GPs) outside of the area (32%) and from specialists (31%), with 37% from local GPs.

Conclusions: Reasons for referral to neurology are similar to twenty years ago. Referrals for headache/ migraine remain the most common, despite evidence that provision of headache services can be delegated to general practitioners with special interest in headache.

The inner city area where the hospital is based has one of the highest rates of epilepsy death. Training and delegation could create capacity for neurologists to see patients, especially those at risk of death in epilepsy, where they may help improve outcomes.

NEUROLOGICAL DISEASES AMONG IMMIGRANTS IN BRESCIA, ITALY

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Even though immigration is a real challenge for the western Countries, very few data exists on causes and outcomes of hospitalization of immigrants in Italy. It is therefore urgent to understand whether and if there are differences in the demand of care between immigrants and Italian natives, and among the ethnic groups or communities. This effort might contribute to gain a better health management of the whole society.

This study was aimed to compare the patterns of hospital use by immigrants incoming to the Acute Care Department of Neurology in Brescia, Italy, with those of the resident Italian people. All immigrant patients admitted between 1 January 2007 and 30 June 2009 were included, and they were compared to a random selection of Italian patients matched by age and sex using a case-control study design.

A similar pattern of hospital use by age was observed between foreigners and Italian patients; however, average length of hospitalization was significantly longer in immigrant population: in the immigrants, the mean duration was 8.44 +/- 0.36 days, while in the Italian patients this was 6.65 +/- 0.36 days (p=0,0004). Concerning the final diagnosis, the most frequent diseases in immigrants were seizures, cerebrovascular disease, headache and negative neurological findings, these being quite similar to the dismission diagnosis in Italian patients.

Furthermore, we found that the nationality of patients was not strictly representative of the immigrant population in Brescia, because of a higher prevalence of Indians and a lower rate of Chinese patients in our departments.

MEDICOEGAL ACTS AND EPILEPSY: CASES REPORT

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Introduction: Epilepsy patients do not commit antisocial and criminal acts more frequently than other mental patients, but the crimes they commit are of a more serious and violent nature.

Cases report: Authors reports five cases of medicolegal epileptic inpatients, two of them were schizophrenic, three patients committed homicide, two patients had probably committed their crime as part of the ictal process from which they suffered. For the others, It was difficult to determine if acts were the consequence of an epileptic fury or the consequence of a delirium. All patients have been declared irresponsible.

Discussion: The violence is significantly higher (23%) during postictal psychotic episodes than during acute interictal episodes (5%) and postictal confusion (1%). The interictal violence is associated more with psychopathology and mental retardation than with epileptiform activity or other seizure variables.

Conclusion: Since epilepsy patients represent 8.5% of all mentally-ill persons who commit antisocial acts, attempts at early diagnosis of this illness should focus on school children and families with known histories of epilepsy, taking all possible precautions to prevent epileptics from harming others and themselves.

PREVALENCE OF PERSONALITY DISORDERS AMONG EPILEPTIC PATIENTS OF THE TOWNSHIP OF DJIDJA IN BENIN

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Epilepsy, a chronic and worldwide neurological disease, is often accompanied by significant psychopathological consequences on patients' quality of life.

The aim of the present study was to estimate the prevalence of personality disorders in epileptic patients in the township of Djida, in the department of Zou in Benin. It was a cross-sectional, descriptive and analytical study, conducted from April 15 to May 14, 2004, among 30 epileptics aged over 15 years, which 12 are female, 18 male with a sex ratio of 1.5. Data were collected using the French version (Pelissolo and Lépine, 1996) of the questionnaire based on Cloninger's personality test (Temperament and Character Inventory). The questionnaire was translated into the national language (Fon), tested and adapted to local specificities.

Compared with that of the general population (20%) the overall prevalence of personality disorders in epileptics was higher (53%), and included 13% of passive-aggressive patients, 10% of borderlines, 10% of cyclothymiacs, 7% of schizoids, 7% of histrionics, 3 % of passive-dependents and 3% of obsessives. These results confirm the importance of personality disorders associated with epilepsy and should be taken in account in the perspective of the comprehensive management of epileptic patients.

GENERALIZED CONVULSIVE EPILEPSY (GCE) INDUCED BY INTENTIONAL HYPERVENTILATION (HV)

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Object: To report a young woman who intentionally induces generalized seizures by HV in a neurotic attempt to control her social environment.

Method: Case Report- This 34yo female with a history of post- partum depression and headache (HA) had her first seizure at age 31. HA evaluation, age 24, included normal brain MRI and CSF analysis. The seizures are described as generalized tonic/clonic occurring once every month, preceded by a stressful personal situation. The patient's husband reports about 15 minutes of HV prior to each seizure. Her neurological examination and routine labs were normal, but CAT scan showed left frontal, post-traumatic encephalomalacia resulting from a seizure-related cerebral contusion. Routine EEG was normal. Non-epileptic events were considered, and the patient was admitted to EMU. The VEEG will be presented.

Results: The patient had an event characterized by tonic extension of arms, which evolved into generalized clonic activity, preceded by 15 minutes of HV. Interictal EEG remained normal during the 6 days of monitoring; but the ictal event showed rhythmic generalized delta activity followed by post-ictal background slowing/amplitude suppression. The patient is presently on Phenytoin and Clonazepam with complete seizure control.

Conclusions: To our knowledge, this is the first case of intentionally induced GCE utilizing HV, probably enabled by a genetically low brainstem seizure threshold. Neurotic behavior (including tendency to depression and HA) is implicated with the patient's inability to face anxiety producing situations without resorting to this atypical defense mechanism, which has caused personal injury on several occasions.

EPILEPSY AND PSYCHIATRIC COMORBIDITIES

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Objectives: Were to determine the profile of epileptic patients consulting in psychiatry and to assess the prevalence of psychiatric disorders among them.

Method: It was a retrospective study concerning 50 cases of epileptic patients referred to the psychiatric consultation at Hedi Chaker University hospital, Sfax, Tunisia. The socio-demographic, clinical and therapeutic data were collected from patient's files.

Results: Median age of patients was 44,9 years. The sex ratio (M/W) was 2,8. Educational level of patients didn't exceed the primary one in 92% of cases, while more than half were inactive and had a low socioeconomic level.

Fifth patients had a history of epilepsy in their family. Median age of epilepsy onset was 18,7 years and the diagnosis was generalised tonic-clonic epilepsy in 62% of cases.

Different reasons of consultation were noted: instability (38%), irritability (24%), sleep disorders (14%), anxiety (8%), headache (8%), fugue (4%) and suicidal ideas (4%). The majority had less than one seizure per month and 64% of patients were stabilized with a combination of antiepileptic drugs.

There were, 22% of character disorders, 20% of anxiety disorders, 18% of mental retardation, 16% of psychotic disorders, 14% of depressive disorders and 10% of personality disorders. Seventy eight percent received psychotropic drugs and only 18% had required one or two hospitalizations in psychiatric department.

Conclusion: Our study showed a great variety of psychiatric disorders in epilepsy. In particular, the clinician should be vigilant about the coexistence of character and anxiety disorders with epilepsy.

STUDY OF EXECUTIVE COMPONENTS OF THE CENTRAL EXECUTIVE IN PARKINSON'S DISEASE

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The goal of the present study was to examine the nature of the central executive (CE) deficit by assessing several processes in Parkinson's disease (PD).

Nineteen persons with PD, 19 normal aged controls, and 32 young subjects were assessed in inhibition, updating, switching, divided attention, manipulating capacities and storage capacity. Inhibition was tested with Hayling task and Stroop procedure; Updating with Update-Span; Switching capacities with Trail Making Test and Plus/Minus task. Divided attention was tested with Brown-Peterson procedure and manipulating capacities with Alpha Span procedure. Participants were also administered a classical and reverse verbal digit span test.

Patients' performance were comparable to that of control participants and young subjects on the verbal span test. However, PD patients showed a severe Inhibition deficit on Stroop procedure compared to the control participants and young subjects. Hayling Test was also impaired but only in comparison with young controls. Normal aged participants showed the same performance as PD patients. The same impairment is also observed on switching capacities with dissociation between TMT and Plus/minus task. Update Span and Brown Peterson procedure show impairment in comparison to young controls. This observation would be discussed in light of different models (Miyake, 2000) and studies on the control of attention (Belleville, 2003)

Finally, our results indicated that there is a selective executive process memory impairment in patients with PD witch depends of the executive process tested but also of the experimental paradigm.

ASSESSMENT OF DEPRESSIVE SYMPTOMS AND SUICIDE RATE IN PATIENTS WITH EPILEPSY IN ROUTINE CLINICAL SETTING

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Objective: To assess depressive symptoms and suicide rate in outpatients with epilepsy in Lithuanian population.

Methods: 849 outpatients (mean age 36.4±14.3 years, 59.1% women) with epilepsy (mean duration of illness 10.5±10.6) were assessed using a socio-demographic and clinical questionnaire and Beck Depression Inventory Scale (BDI) (individual interview, ranked as 0-13 - no/minimal, 14-28 - mild/moderate; 29-63 - severe depressive symptoms).

Results: Severe depressive symptoms were determined in 152(17.9%) of patients. 68.8% of patients with severe depressive symptoms were sent to psychiatrist consultation due to depression, and 75.3% of them used antidepressants. 21.5% of this group referred suicides in the first-line family members (9.2% in non-depressive group), and 27.9% had first-line family members with depression (12.9% in non-depressive group).

From 101 patient, with family history of suicides, severe depression was determined in 28(27.7%) patients. 58(57.5%) confessed about suicidal thoughts, and 34(33.7%) tried to commit suicide. From 110 patients with suicidal anamnesis, 33(30%) had completed suicides in family. All of them had suicidal thoughts before. 32.7% of them had severe depressive symptoms. We found statistically signifficant correlation ($p< 0.001$) between depressive symptoms and duration of epilepsy as well as frequency of seizures. Depressive symptoms were more frequent in unmarried and unemployed patients.

No correlations were found between depression and patient's age or education.

Conclusions: Depressive symptoms are common in patients with epilepsy in routine clinical setting. Depressive symptoms are more frequent in patients who have family history of suicide and depression, long duration of illness, frequent seizures, are unemployed and unmaried.

SYNTHESIS AND INFLUENCE OF SOME QUINOXALINIC DERIVATIVES ON ANXIETY- AND DEPRESSIVE-LIKE RESPONSES IN WISTAR RAT

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Objective: The goal of this study was to test the hypothesis that sub-chronic administration of quinoxalinic compounds would induce significant behavioural changes in Wistar rats.

Methodology: For this purpose, two new quinoxalinic derivatives have been synthesized adopting HONG method and investigated for some neuropharmacological effects in rats. The animals were daily injected intraperitoneally; the anxiolytic and antidepressant standard group rats were administered with diazepam (DZ) (1mg/kg) or clomipramin (CLMP) (2mg/kg) respectively. In the experiment using quinoxalinic derivatives, rats were administered with (6-nitro-2(1H)-quinoxalinone or 2(1H)-quinoxalinone) (30mg/kg). Appropriate control studies were performed administering vehicle in place of drug. The rats underwent a battery of behavioural tests to measure anxiety- and depressive-like responses. Testing occurred in the following order to minimize stress effects in the most sensitive tests: open field (OF), elevated-plus maze (EPM), Porsolt forced swim test (FST).

Results: Sub-chronic injection of 6-nitro-2(1H)-quinoxalinone showed obvious anxiolytic and antidepressant effects, respectively, measured in the behavioral tests of EPM and FST. The 6-nitro-2(1H)-quinoxalinone showed a comparative anxiolytic effect in rats as DZ and a comparative antidepressant effect as CLMP. The 2(1H)-quinoxalinone significantly reduced depressive-like responses as evaluated in FST, whereas any anxiolytic effect was shown as measured in OF and EPM. Locomotor activity levels in OFT and EPM were unaffected by treatment.

Conclusion: The results of behavioural tests seem to confirm that for the anxiolytic-like activity, an electron-withdrawing substituent in the benzene moiety is necessary. In fact the compound maintaining the electron-withdrawing group (NO_2) in the benzene moiety displayed both anxiolytic and antidepressive-like effects.

THE CHARACTERISTICS OF EMERGENCY ATTENDEES FOR EPILEPSY IN LONDON HOSPITALS

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Introduction: People with epilepsy frequently attend emergency medicine departments and are admitted. Reducing unplanned hospitalizations for chronic conditions is a U.K. health service target. Little information is, however, available on this group.

Objectives: To describe the characteristics of those attending for epilepsy and determine the factors associated with increased use.

Method: We prospectively recruited 85 patients attending emergency departments of 3 London hospitals for seizures who had been diagnosed for ≥1 year. Patients completed questionnaires on service use and psychosocial status.

Results: Mean age was 41 and 53% male. 58% had focal onset epilepsy, 20% generalized epilepsy, the predominant seizure type being generalized or secondary generalized. Median time since diagnosis was 11 years. None had been seizure-free in the prior 12 months. The mean (3.2) and median rate (2) of emergency attendances in the prior 12 months exceeded that of the general population and for those with other chronic conditions, with episodic relapse. They had poorer quality of life, psychological well-being, knowledge of epilepsy and greater perceived stigma than the wider epilepsy population. Most received epilepsy care in line with guidelines. In regression analysis, perceived stigma, epilepsy knowledge, distress and adherence (in descending order) significantly predicted number of emergency attendances - together accounting for 40% of variance.

Conclusions: People presenting to emergency medicine departments due to epilepsy re-attend more frequently than people with other chronic conditions. Interventions aiming to reduce hospital use need to take account the frequent seizures, poor well-being, and symptoms of psychological co-morbidity reported by patients.

DEPRESSIVE SYMPTOMS IN PATIENTS WITH EPILEPSY: ANALYSIS OF SELF-RATING AND PHYSICIAN'S ASSESSMENT

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Background: Depression is common in PWE and has significant negative consequences on the quality of life of patients with epilepsy (PWE).

Aims: This study assessed the prevalence of depressive symptoms among PWE and the impact of seizure variables on their depression scores.

Settings and design: A case-control study of randomly selected patients with epilepsy attending a tertiary hospital in metropolitan Nigeria.

Subjects, materials and methods: A total of 152 randomly selected subjects used the Beck's depression Inventory (BDI) for quantitative assessment of depression while the Hamilton Rating Scale for Depression (HRSD) was used by the authors.

Statistical analysis: The Student t test assessed statistical significance of differences in the BDI and HRSD scores while the scores were correlated with the Pearson's correlation coefficient. Logistic regression analysis and chi-square for trend assessed the impact of seizure variables on the scores. The level of significance was taken as P less than 0.05.

Results: The prevalence of depressive symptoms was 42.11% and 44.74% using the HRSD and BDI respectively with significant differences in the scores of the patients and controls on both scales ($p < 0.001$). The PWE scores on both scales yielded a correlation coefficient of 0.8 indicating their utility in detecting depressive symptoms. Seizure control was the most potent predictor of depression (HRSD: $p= 0.004$; BDI: $p=0.001$).

Conclusions: Depressive symptoms are common in epilepsy. Early detection and prompt management are recommended. Good seizure control with an appropriate antiepileptic drug, among other interventional measures, may contribute to prevention of depression in epilepsy.

APPLICATION OF THE EVENT RELATED POTENTIAL P300 IN ASSESSMENT OF COGNITIVE FUNCTIONS IN PATIENTS WITH EPILEPSY

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Introduction: The aim of the study was to evaluate cognitive functions in patients with epilepsy using neurophysiologic method and psychological tests. The examined group consisted of 27 patients (12 male, 15 female) with epilepsy (mean age: 35.7±16.7; mean duration of the disease: 14.2±13.3). The control group consisted of 48 healthy volunteers (mean age: 39.9±6.8 years). Cognitive functions were assessed using following.

Methods: The event related potential P300, Mini Mental State Examination (MMSE), Wechsler Adult Intelligence Scale - Revised Version (WAIS-R); Test Benton Visual Retention Test (BVRT); State-Trait Anxiety Inventory (STAI); Trail Making Test (TMT).

Results: The mean latency of P300 was significantly increased in patients with epilepsy in comparison to control group (348±38 vs 324±26; $p< 0.05$). MMSE was abnormal in 7 patients (26%), BVRT (number correct score) in 9 patients (33%), BVRT (number error score) in 11 patients (41%). TMT revealed low level of attention in 14 patients (52%). Mean intelligence quotient was 89±23. High state anxiety was observed in 7 patients (26%); high trait anxiety in 9 patients (33%). Association was observed between P300 latency and age and duration of the disease. We noticed also correlation between P300 latency and TMT score.

Conclusion: The study provides evidence for cognitive dysfunction in patients with epilepsy. The event related potential P300 could be useful in evaluation of cognitive functions in these patients. The study will be continued to obtain prospective assessment of cognitive impairment in epilepsy.

PAIN ASSESSMENT IN PEOPLE WITH DEMENTIA IN THE OLD AGE PSYCHIATRY AND MEDICINE FOR THE ELDERLY WARDS

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Introduction: Pain assessment is a great challenge in older people particularly in those with dementia. British Pain Society and British Geriatric Society guidance on assessment of pain in older people (2007) recommends routine use of a standardised scale. This study aimed to examine usefulness of these scales in pain assessment in people with dementia in different ward settings.

Method: University hospitals of Leicester NHS Trust incorporated pain thermometer and verbal rating scales into the routine observation charts of all patients. There are no similar observation charts in old age psychiatry wards.

Data on pain assessment were obtained from old age psychiatry (OAP) and Medicine for the elderly (MFE) wards from February to April 2010.

Results: Sixty patients (mean age 82±5.8 SD, 50 % female, 53 % community dwelling residents) on OAP and 63 patients (mean age 83±7.5 SD, 68 % female, 81% community dwelling residents) on MFE wards were studied. Of whom, 50% (OAP ward) and 19% (MFE ward) had dementia.

Conclusion: Though scales are used in medicine for the elderly wards in two thirds of people with communication difficulties, they fail to identify pain. Pain is recognised in one in ten people in both OAP and MFE wards by observing facial expressions. Alternative tools using facial expressions, physiological measures, vocalisation, and body language should be incorporated in the observation charts to assess pain in people with dementia.

INFLUENCE OF DEPRESSIVE MOOD ON QUALITY OF LIFE RATINGS OF WOMEN WITH EPILEPSY OF CHILDBEARING AGE

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Introduction: Depressive disorders are proved to be the most frequenly encountered psychiatric comorbidity in epilepsy. Depressive mood affects negatively quality of life (QOL) ratings, sometimes having greater impact than seizure related variables. Women with epilepsy are a specific subgroup at risk of comorbid depression in consequence of certain biopsychosocial demands.

Purpose was to assess the relative contribution of mood, some seizure-related and sociodemographic variables on QOL scores in women with epilepsy of childbearing age.

Methods: All 65 women with epilepsy aged 18-55 (mean, 37,23±11,83) underwent clinical psychiatric examination. Comorbid depressive disorder was diagnosed according to ICD-10 diagnostic criteria and followed by evaluation on Hamilton Depression Rating Scale (HAM-D-17). Self-assesment scales were administered: Seizure Severity Questionnaire (SSQ) and Quality of Life in Epilepsy Inventory-31 (QOLIE-31). A questionnaire for demographic and seizure-related variables was completed. Univariate and multivariate regression analyses were performed to explore the association between possible prognostic independent variables and QOLIE-31 overall and subscale scores.

Results: Analysis showed that sociodemographic factors: employment and education; seizure-related factors: seizure severity, seizure frequency, antiepileptic medication intake and comorbid depressive disorder were the variables significantly correlated with QOLIE-31 overall score ($p < 0.01$). A three variable model accounted for 64.8% of the variance including seizure severity, comorbid depression and seizure frequency.

Conclusions: Clinical factors are the strongest predictors of QOL of women with epilepsy in our study, seizure severity and comorbid depression being the main contributors. Paying attention to the psychological needs of women with epilepsy will have a positive effect on their QOL.

A NEW ADVERSE EVENT DUE TO ETOMIDATE USE FOR SPEECH AND MEMORY EVALUATION (ESAM)

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Introduction: Recent interruption in the worldwide supply of Amobarbital led some centres to seek out other anesthetic agents that could be used in substitution to perform the Wada's test. Etomidate seems to be a reasonable alternative as it provides adequate hemianesthesia for performance of speech and memory testing.
Objective: To report 2 cases out of three patients who underwent the Etomidate speech and memory test (eSAM), who developed ophthalmological adverse events during eSAM, an association not previously reported.
Patients and methods: All three reported subjects were enrolled in our Epilepsy Surgery Program and had a history of medically-refractory temporal lobe epilepsy, thus requiring assessment of language and memory lateralization prior to undergoing left anterior temporal lobectomy. Demographic data and the clinical features are shown in table 1. We used the same dose and concentration described by Jones-Gotman et al. Right after the carotid bolus infusion, both the first and third patients reported pain in the right eye, followed by hyperemia and scintillating scotoma, which persisted for four to five days after the procedure. Ophthalmologic evaluation disclosed a macular lesion approximately the same size as the papilla. Angioretinography showed arteriolar occlusion in the macular region as well as some edema in both patients. After six months of follow-up one patient persisted with mild visual impairment, while the other had full recovery of the visual field.
Conclusions: Were it not for visual impairment, a potentially disabling adverse event, Etomidate could otherwise be considered a rather promising alternative to the traditional Wada's test.

TABLE 1 – Demographic data and clinical features/symptoms of all three patients

	Patient 1	Patient 2	Patient 3
Gender	Female	Male	Female
Age (in years)	27	30	36
Handedness	Right	Ambidextrous	Right
Reason for test	M/D	M/D	M/D
Duration of Epilepsy (in years)	6	20	18
MRI	Left MTS	Right MTS	Left MTS
VEEG	Left temporal lobe ictal activity	Right temporal lobe ictal activity	Left temporal lobe ictal activity
Co- morbidity	Depression	None	Aplastic anemia (previously treated)
Ophtalmological Symptoms During eSAM	Pain and scintillating scotomas of right eye	None	Pain and scintillating scotomas of right eye
Angioretinography findings	Arteriolar occlusion of the macula end edema	Not performed	Arteriolar occlusion of the macula end edema
Six-month follow-up	Mild visual impairment "shadow-like" deffect	None	Complete recovery

NMR: Magnetic resonance imaging; MTS: mesial temporal sclerosis; M: memory evaluation; D: hemispheric dominance determination; IQ: Intelligence coefficient.

STIGMA AND LEGISLATION

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People with epilepsy often experience violations and restrictions of both their civil and human rights. Civil rights violations such as unequal access to health care, denial of access to education, limitations to the right to enter particular occupations and discrimination against people with epilepsy in the work place and the right to enter into certain legal agreements, in some parts of the world even marriage, are severely impacted by epilepsy. Legislation based on centuries of stigmatization existed until recently or still does in many countries.

Well crafted legislation which is based on internationally accepted human rights standards can therefore prevent violations and discrimination; promote and protect human rights; enhance the autonomy and liberty of people with epilepsy; and improve equity in access to health care services and community integration. Legislation can serve to legally enforce the goals and objectives of policies and programs related to epilepsy.

The international Human Rights system provides an important framework for protecting the rights of all people and is equally valid for people with epilepsy.

In 2008 a new convention (Convention on the Rights of Persons with Disabilities) came into force looking specifically at right of people with disabilities including people with epilepsy are exposed to in all aspects of their lives.

Conclusion: The presentation will discuss the importance of legislation, why health workers should be knowledgeable about these rights and why they should apply them to protect clients.

ACTH FOR REFRACTORY CHILDHOOD SEIZURES: A 24-WEEK TRIAL

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Childhood seizures that are refractory to conventional antiepileptic drugs (polytherapy) including infantile spasms (IS) or myoclonic epilepsy are distressing to physicians and parents. Adrenocorticotropic hormone (ACTH)) has been suggested for refractory epilepsy in young children.

Objective: The present study will assess the efficacy and tolerability of ACTH (Synactan IM injection) for the treatment of refractory seizures in a new suggested dosage.

Subjects: Young infants and children: from 6 months age up to 4 years age.

Inclusion criteria:

1- Refractory epilepsy to at least 2 anti-epileptic drugs,

2- Cases with generalize tonic- clonic epilepsy, myoclonic epilepsy, infantile spasms or mixed epilepsy.

Methods: 6-week treatment with 6 months follow up thereafter. The study will enroll male and female children up to age of 4 years old with refractory epilepsy. Patients will receive ACTH (Synactan IM* Novartis) in dosage of 1 mg every alternate daily for 4 doses then 0.5 mg every alternate daily dosage for 4 doses then gradual decrease by 0.1 mg on alternate daily dosage for 4 doses per each dose (0.4mg, 0.3 mg, 0,2 mg, 0.1mg respectively).

Investigations:

1- EEG: before and after ACTH treatment,

2- Brain MRI,

3- Neurometabolic screening (blood and urine screenings),

4- Fundus evaluation.

Results and discussion: We will discuss the results and we will try to assess the response of refractory epilepsy in infancy and young children for our suggested dose of ACTH. Side effects and follow up of studied cases will be considered in the present study.

WHEN SHOULD INBORN ERRORS OF METABOLISM BE CONSIDERED IN ABSENCE SEIZURES?

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Introduction: Various clinical and EEG patterns of epilepsy were reported in inborn errors of metabolism (IEM) ranging from epilepsy to epileptic encephalopathy. They include neonatal myoclonic encephalopathy, infantile spasms, atypical absences...

Methods: We reported two patients with IEM manifesting absence seizures. Video-EEG, brain MRI and biochemical analyses were investigated in each one.

Results:

The first case is about a 15 years old child with mental retardation (MR) presenting since the age of 7 years typical absence. Neurological examination show spastic paraplegia, cerebellar ataxia and bilateral ophthalmoplegia. Ictal EEG show bilateral 3 Hz spike and slow wave complexes lasting 12 seconds. Brain MRI show subcortical leukoencephalopathy. Urinary 2 hydroxyglutaric acid level was elevated. The molecular study confirmed L2 hydroxyglutaric aciduria (L2OHGA).

The second case is a 6 years old girl presented MR and hyperkinesia. Physical examination reveals facial dysmorphia and cypho-scoliosis. Ophthalmological exploration show lentis dislocation. Homocysteinuria was confirmed by elevated serum homocysteine concentrations. Video-EEG reveal atypical absence seizures showing 2 Hz spike and slow wave discharges.

Conclusions: As far as we know, we describe the second case of typical absence in L2OHGA, whereas an atypical absence was previously reported in some IEM such as creatine and Glut 1 deficiency. IEM should be considered in absence seizures especially if associated with neurological and physical abnormalities. We also emphasize the role of video-EEG to individualize some atypical absence seizures without clinical manifestations as in our second case.

SELECTED PREDICTORS OF DRUG RESISTANCE OF PARTIAL EPILEPSY IN CHILDREN AND ADOLESCENTS

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Introduction: Predictors of drug resistance have been searched for among clinical, morphological and genetic factors for many years. The authors assessed selected parameters taking into consideration various criteria of drug resistance.

Aim: To assess selected clinical parameters and the polymorphism of the MDR1 encoding gene

Patients and method: 225 young patients with partial epilepsy were included in the clinical factors analysis. Among them, a molecular examination of a polymorphism of MDR1 was performed in a study group composed of 85 patients. The article uses the definitions of drug resistance by Appleton, Berg, Schiller and in the proposals of ILAE. The following data of the patients were analysed: age at the time of the occurrence of seizures, pregnancy/delivery history, physical examination including a neurological examination, psychomotor/ intellectual development, type of seizures, occurrence of febrile seizures and status epilepticus. The MDR1 C345T polymorphism was assessed using the PCR-RFLP technique.

Results: A significant relationship between drug resistance and the occurrence of first epileptic seizures before the end of the age of two and drug resistance with more than one type of seizure have been concluded. A conducted statistical analysis did not reveal any differences in the MDR1 genotypes in the examined groups irrespective of the criteria of classification.

Conclusions: The time of the first occurrence of the epileptic seizure is an important predictor of drug-resistant epilepsy. The obtained results do not confirm the relationship between drug resistance and the MDR1 C3435T polymorphism.

AN EVALUATION OF QUALITY OF LIFE OF MOTHERS OF CHILDREN WITH EPILEPSY: ABOUT A COHORT OF 60 MOTHERS

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Introduction: The impact of epilepsy is not limited to the child having seizures and affects the mother as the primary caregiver and the centre of support for the child. Our aim was to assess the quality of life of mothers with children suffering from epilepsy.

Methods: Sixty mothers with an epileptic child consulting in child Neurology department of Hedi Chaker Hospital (Sfax, Tunisia) during the period of March and April 2011 participated to this study**.** We collected clinical and demographic data of the child. The quality of life was measured with the self-administered 36- item Short Form Health Survey (SF-36) translated in Arabic. Standardization of initial average scores of eight domains to an average of 50 in accordance with the study in general population (USA 98) was proceeded.

Results: Quality of life was impaired in 66, 7%. They reported diminished functioning and well-being on all domains even bodily pain. Significant correlations were found between epileptic encephalopathy and mental health domains, between antiepileptic side effects and social functioning and between poor educational level mothers and physical functioning domains.

Conclusion: As far as we know, this is the first study to evaluate the quality of life in a sample of mothers of children with epilepsies. Low educational level and the presence of a disability associated with epilepsy may make acceptance of the disease more difficult and interfere with the quality of life of mothers. Therefore, more attention should be given to mothers needs.

CHILDHOOD'S EPILEPSY IN SENEGAL

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Epilepsy is a health public problem in Senegal with an estimated prevalence of 8 to 14 percent. The purpose of this study was to evaluate etiological factors and determine clinical and electroencephalographic features of epilepsy in a cohort of senegalese infants. We conducted a retrospective study which concerned 738 children who attended the neurological outpatients clinic at the Fann University Teaching Hospital, Dakar, in Senegal, between July 2003 and December 2010. All were aged under 16 years.Non idiopathic epilepsy were predominant with about 2/3 of children. Among this group, etiological factors were predominantly pregnancy and birth abnormalities (34 percent) and central nervous system infection (13 percent). Third of patients had idiopathic epilepsy and in this group parental consanguinity and familial epilepsy were 21.79 and 17.94 percent respectively. Rolandic epilepsy and epilepsy with absences were more frequent but several infants with idiopathic epilepsy were not classified.58,75% of children started their treatment more one year after beginning the disease. Phenobarbital, valproic acid and carbamazepine were the most useful drugs. Of patients with idiopathic epilepsy, 65.18 percent were attending school versus only 9.29 with non idiopathic epilepsy. Some of children with idiopathic epilepsy had several learning difficulties. The access to the medical structures and a regular follow-up can lead to a better pronostic of epilepsy in children.

FOCAL INTERICTAL PAROXYSMAL EEG ABNORMALITIES IN CHILDHOOD ABSENCE EPILEPSY

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Introduction: Childhood absence epilepsy (CAE) is the archetype of idiopathic generalised epilepsy on the basis of clinical and EEG features. However, focal interictal paroxysmal abnormalities (FIPA) have been previously described in the EEG of patients with typical absences.

Aim: To analyse the clinical significance and the graphic features of FIPA in CAE patients.

Methods and results: We report a series of twelve children, 8 males and 4 females. The mean age was 8 years ranging from 4 to 11 years, with a mean age of onset of 5,5 years. In all patients, the clinical and the ictal EEG caracteristics were typical for CAE. The interictal EEG showed a normal background activity in all children, with FIPA in frontal areas in 5 patients, occipital in 4, fronto-occipital in one, temporal in one, and without FIPA in one case. Excellent response to treatment (valproic acid and/or ethosuximide and/or levetiracetam) was obtained in 11/12 patients, with a complete seizure control in all cases after a mean follow-up of 21 [5-48] months. One patient under levetiracetam had a clinical improvement with persistance of interictal EEG abnormalities.

Conclusion: FIPA were found in the majority of our series patients with a predominance in frontal and occipital areas, as reported in literature data. Good therapeutic response and benign evolution in our series confirms that the presence of FIPA does not impact the prognosis of CAE patients.

PERCEPTION OF EPILEPSY AMONG NIGERIAN CHILDREN

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Epilepsy is a common chronic condition among Nigerian children. These children face myriad psychological and emotional challenges that require the acquisition and use of effective coping and supportive strategies.

Objective: This study was to survey the perception of epilepsy among Nigerian children.

Methods: We used a questionnaire to determine if the children knew what epilepsy is, and if they did not know, what did they think epilepsy is. Fifty children (25 boys and 25 girls) with mean age 11 years range 10-12 years; from a sixth grade of a primary school in Yola, northeast Nigeria completed the questionnaire individually at the same time in the classroom. This took about 15 minutes.

Results: Only five (10%) children said they knew what epilepsy is; which 3 perceived as a disease of evil spirit and 2 thought as disease which is contagious and without a cure. The perception of children who said they did not know what epilepsy is was: head injury, madness, a contagious disease, spiritual control, a disease of tongue biting. Seven children knew someone with epilepsy and only three of them had said they knew what epilepsy is. Seventy percent would not like to associate with a peer with epilepsy.

Conclusions: In this study, the perception about epilepsy was poor with antecedent negative consequences. Epilepsy remains a stigmatized condition among Nigerian children. There is a need for educational programs in elementary schools which must be adapted to the specific cultural nuances of the localities.

CLINICAL AND ELECTROGRAPHIC FEATURES OF NODDING SYNDROME IN NORTHERN UGANDA

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Background: Nodding Syndrome (NS) is an unexplained illness identified in several African countries, characterized by spells of head bobbing. Illness affects children, and is associated with progressive seizures and neurocognitive decline. We investigated clinical characteristics of NS in Northern Uganda.

Methods: In December 2009, we performed clinical assessments of NS cases in Kitgum District, Uganda. A case was a defined as previously developmentally normal child aged 5-15 years with nodding and another neurologic deficit. Caregivers were questioned about nodding characteristics, and children underwent neurologic and physical examinations; a subset had electroencephalography (EEG), brain magnetic resonance imaging (MRI), and/or cerebrospinal fluid (CSF) analysis.

Results: We assessed 23 children (median age, 12 years; range 7-15). All had head nodding; 14 had additional seizure types. All but 2 children reported triggers for nodding including meals/eating and cold weather. Seven (30%) demonstrated cognitive impairment. MRI in 5 children demonstrated disproportionate generalized cerebral/cerebellar atrophy. CSF protein in 17 cases was normal. EEG was abnormal in 10 of 12 tested cases; abnormalities included disorganized generalized background slowing (n=10) and generalized 2.5-3 Hz spike and slow wave (n=10). Two children had typical nodding spells during EEG, which demonstrated electrodecrement and dropout of chin/paraspinal electromyography consistent with atonic seizures.

Conclusions: NS appears to represent a new form of cryptogenic epileptic encephalopathy. Nodding episodes were recorded with EEG, indicating that nodding is due to atonic seizures. Affected children demonstrate multiple seizure types and cerebral atrophy. The natural history, etiology, and possible treatment for NS need further assessment.

THE IMPACT OF SEIZURES ON THE SUCCESS OF TREATMENT IN CHILDREN WITH PERVASIVE DEVELOPMENTAL DISORDER

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Introduction: PDD is no longer a rare condition, now the incidence of PDD in newborn children is 1 in 91. At the same time, the incidence of epileptic seizures in PDD children is bigger. Within the diagnostic procedure of children with PDD it is necessary to perform EEG tests considering the incidence of seizures in this population is over 60%.

Objective: The goal of this research is early detection of EEG abnormalities which helps to organize and implement the treatment of the child in a better and more adequate manner.

Research methodology: The sample of research consisted of 21 children aged from 18 months to 7 years. Children underwent continued speech therapy, psychomotor reeducation, sensory integration and did a set of biological analyses. Control group was made of children with the same pathology, but regular EEG findings, and who also underwent the same continued treatment.

Results: Results show that children with pervasive elements and irregular EEG show slower progress compared to the control group. Pathological EEG should be detected as early as possible, together with the implementation of an adequate therapy, in order to have a foundation for implementation of other techniques for rehabilitation of pervasive developmental disorders.

Conclusion: Children with pervasive elements who have pathological EEG results show progress in language, speech, motor and sensory development. It is necessary to control stimulation of visual sensors. It is considered that children from this group should undergo a whole treatment including antiepileptics in order to achieve progress on bio-psycho-social level.

LONG-TERM PROGNOSIS OF CHILDHOOD EPILEPSY AFTER ONE OR MORE MEDICATIONS FAIL FOR LACK OF EFFICACY

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Purpose: To determine long-term outcome of epilepsy in children for whom at least one anti-epileptic medication (AED) has failed for lack of efficacy.

Methods: All children with newly diagnosed epilepsy between 1980-2009, while resident in Olmsted County, MN, and who were followed for a minimum of two years were identified through the Rochester Epidemiology Project database. Patients for whom one or more AEDs failed for lack of efficacy were selected for study. Seizure freedom was defined as having no seizures in the final year of follow-up. Predictors of outcome in this group were examined.

Results: Of 414 children followed for at least two years after epilepsy diagnosis, one or more AEDs failed for lack of efficacy in 134 (32%). This cohort consisted of 70 males (52%). Mean age at diagnosis was 5.6 years (SD 4.6, range 0-17) and mean duration of follow-up was 13.0 years (SD 7.9, range 2.0-29.5). Of these, 62 (46%) were seizure-free in their final year of follow-up, 29 (22%) of whom were off AEDs. Predictors of seizure-freedom in this group included genetic or unknown etiology as opposed to structural/metabolic etiology (p=0.001), absence of status epilepticus (p=0.006), normal cognition (p=0.02) and normal MRI (p=0.02). Neurological examination abnormality, mode of onset, epileptiform discharge on initial EEG and family history were not predictive.

Conclusions: Even after one or more AEDs failed, nearly half of children achieve seizure freedom long-term. However, outcome is more worrisome if there is a structural or metabolic etiology, a history of status epilepticus, developmental delay or abnormal imaging.

NON-MOTOR SYMPTOMS IN NIGERIANS WITH PARKINSON'S DISEASE: A BRIEF SURVEY

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Background: Non-motor symptoms (NMS) are an important but often under-recognized features of PD. This study briefly reports on NMS in a cohort of Nigerians with PD.

Methods: Fifty-one patients with Parkinson's disease attending the neurology clinics of two Nigerian teaching hospitals were surveyed. The presence of a spectrum of NMS (in the past 4 weeks) including cognitive, gastrointestinal, sweating, sleep and mood disturbances, and fatigue was documented by direct questioning.

Results: Mean age was 65.1 ± 9.2 years (range 42-85) and 37 (72.6%) subjects were male. Difficulty remembering recent events was reported in 32 (63%) patients, drooling of saliva was reported in 24 (47.1%) while 21 (41.2%) had persistent low mood. Sixteen (31.4%) patients reported excessive daytime sleepiness, while 13 (25.5%) had sweating disturbance. Eleven (21.6%) and 7 (13.7%) respectively had difficulty falling asleep and difficulty swallowing. Higher severity and longer duration of PD was associated with more frequent NMS ($p< 0.05$).

Conclusion: This study provides preliminary data indicating that NMS occur frequently in Nigerians with PD as in other populations. Increased focus on this outcome-modifying aspect of PD will potentially improve the quality of life of our patients.

THE PARKINSON'S DISEASE IN AFRICA COLLABORATION PROJECT IN GHANA-THE STORY SO FAR

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Introduction: Parkinson's disease (PD) is a chronic and progressive neurodegenerative disease thought to be rare in Africa. A colloborative project with the Parkinsons Institute in Milan, Italy is ongoing in Ghana.

Objectives: The socio-demographic, epidemiologic, clinical features and genetic causes of Parkinson's disease patients attending the Neurology out-patients clinic of the Korle Bu Teaching and Comboni hospitals are reviewed.

Methods: Consecutive patients clinically diagnosed with Parkinson's disease over the last year who were enrolled in the “Parkinson's disease in Africa collaboration project” were recruited. A detailed personal, family and social history was taken followed by a neurological examination, complete Unified Parkinson's Disease Rating Scale (UPDRS) assessment (part I to part IV), Hoehn and Yahr staging and initiation of treatment with Levodopa. Patients are reviewed at 3, 6 and 12 months. Brain imaging with a head CT scan is done were feasible. A saliva sample was collected after informed consent for analysis of the LRRK2-G2019S mutation amongst others.

Results: 35 subjects with Parkinsonism have been identified so far: Mean age at onset 65.7±10.5 years; disease duration 7.45±3.1 years; Hoehn and Yahr stage 2. Mean daily levodopa dosage 520+187mg. The LRRK2 exon 41 screening did not reveal the presence of any G2019S mutation in the Parkinson's disease patients studied so far. Recruitment of more patients, follow up at 6 months and 12 months as well as completion of UPDRS data are the main thrust of the study now.

Conclusions: A good response to Levedopa is seen and further genetic analysis is required.

SLEEP DISTURBANCE AND POTENTIAL INFLUENCING FACTORS IN KOREAN PD PATIENTS WITH PARKINSON'S DISEASE SLEEP SCALE

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Objectives: This cross-sectional study was designed to evaluate the extent of sleep disorder based on Parkinson's Disease Sleep Scale(PDSS, Korean version) answered by Korean Parkinson's disease (PD) patients.

Methods: The subjects were 1,563 patients with PD (mean age, 66.2±9.2 years; male, 48%). All data were collected by patients' self-reported questionnaires and physical examination by neurologists. Stepwise regression analysis identified complications of treatment, depression, age, and disease duration as significant risk factors of sleep disturbances in PD. Furthermore, this study also suggested other factors affecting sleep disorder of PD patients by using Hoehn & Yahr (H&Y) stage, Zung self-rating depression scale (SDS), and Epworth sleepiness scale (ESS).

Results: Total PDSS score was 100.6±29.8 points. Results of the analysis of PDSS score by item showed that enuresis (Item 8: mean PDSS score 3.6±3.4 points) affected sleep disorder the most. Other factors affecting sleep disorder included difficulty staying asleep (Item 3: mean PDSS score 5.3±3.4 points) and tossing and turning in bed due to restless leg syndrome (Item 5: mean PDSS score 5.7 ±3.4 points) in the order. PD patients with lower total PDSS had older age or longer duration of disease or were female. Relevant items of the PDSS correlated with SDS and ESS, respectively.

Conclusions: This study confirms that sleep disorders are common and distressing in patients with PD. The strong correlation between depression and sleep disorders in patients with PD underlines the importance of identifying and treating both conditions in these patients.

PARKINSON´S DISEASE PSYCHOSIS: THREE CASES

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Psychotic symptoms (usually visual hallucinations) are common in Parkinson´s disease (PD), generally associated with the medication used to treat the motor symptoms. Treatment of Parkinson´s disease psychosis (PDP) focuses on reducing the psychiatric symptoms load while balancing the competing problem of mobility.

Our intent in this study is to evaluate the utility and safety of atypical anti-psychotics in the treatment of psychosis in PD patients.

Our patients, three men, aged 50, 52 and 53 years, with a history of idiopathic PD and without concomitant dementia were referred for psychiatric evaluation. The first patient with a 4 years history of PD and a long-standing history of affective bipolar disorder presented persecutory delusions, delusions of stealing and being abandoned by his family. The second patient with a 2 years history of PD presented paranoid delusions, spousal infidelity and transient hallucinations. The third patient with a 4 years history of PD presented also paranoid delusions, jealousy and spousal infidelity. For all patients delusions resolved almost completely when atypical antipsychotics were introduced (Olanzapine in 2 cases and Amisulprid in 1 case - they were well tolerated without any worsening in PD. Urine analysis, blood tests and brain imaging were normal in all cases.

In our study paranoid delusions and spousal infidelity were the commonest, however in a recent meta-analysis of prospective studies, visual hallucinations were reported in 20% of cases and delusions in about 5%. 2 of our patients were treated by Olanzapine and the results reflected those reported in the literature.

THE EFFECTS OF SUBTALAMIC NUCLEUS DEEP BRAIN STIMULATION (STN-DBS) ON BALANCE AND GAIT IN PD

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Introduction: The effects of DBS on balance and gait remain unclear. A recent meta-analysis of the long-term efficacy of DBS has shown that the benefits to posture and gait function are not maintained to the same extent as are the benefits to the cardinal symptoms of PD.

Aim: The aim of this study is to evaluate the effects of STN-DBS balance and gait at one and three years after surgery, in parkinsonian patients of Movement Disorders Unit - Hospital de São João, Porto.

Methods: Between 2002 and 2007, 77 parkinsonian patients were submitted to bilateral STN-DBS at our unit. Evaluation was performed with the UPDRS III, parameter “gait” and “postural stability”, before, one and three years after surgery, on the OFF medication state. 39 patients were excluded (complications, missing complete follow up or ON medication state). For this study we used the Wilcoxon matched pairs test.

Results: We include 38 patients, 22 males and 16 females, age at surgery was 58.1 (42-70). Mean disease duration was 13.4 (7-27). DBS improved gait and postural instability at one and three years ($p < 0.01$). No significant changes from one measurement to the other.

Discussion: The effect of DBS on the progression of the symptoms of PD is revealed by motor function in the OFF medication state before and after surgery. In this series STN-DBS seems have a benefit on the progression of postural instability and gait disability symptoms up to three years. Further investigation and a long follow-up will be important.

STARTING UP A NATIONAL DEEP BRAIN STIMULATION SURGERY PROGRAM FROM SCRATCH: WHAT YOU REALLY NEED TO KNOW

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Many national neuroscience centers offer dbs surgery as part of a movement disorder program, with most dbs practitioners joining an established practice that has overcome teething problems. Approximately 30 patients travel annually from ireland to centres in the U.K. and beyond for dbs surgery, mostly for treatment of parkinsons disease. A group of interested neurologists and neurosurgeons in ireland proposed that these patients would benefit from a locally based public service, for ease of access and for cost savings to the public health service. The authors describe the complex multidisciplinary process of setting up a national dbs program, including pitching for funding, staff familiarisaton, anaesthetic challenges and imaging requirements. The authors share their experiences during the process, which can be much longer than anticipated. A frank exploration of the pitfalls and benefits of a start-up program is presented, including the adoption of a well established ´sister´ unit and collaboration with industry.

MOTOR AND NON MOTOR SYMPTOMS DURING TREATMENT WITH IMMEDIATE RELEASE AND EXTENDED RELEASE DOPAMINE AGONISTS IN PATIENTS WITH PARKINSON´S DISEASE

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Introduction: Pramipexole (PPX) extended release (ER) improved motor and non-motor symptoms in early and advanced Parkinson´s disease (PD).

Aims: To assess whether continuous dopaminergic stimulation (ER) compared to pulsatile stimulation (IR) may change motor and non-motor symptoms in PD after 6-month follow-up.

Patients and methods: PD patients (n=111) treated with IR-PPX were consecutively recruited. Inclusion criteria: disease duration >3 years, Hoehn&Yahr ³< 4, MMSE>24. Infusion therapy and/or deep brain stimulation were excluded. We used an overnight switch from IR to ER formulation.

At every evaluation we assessed:

-Motor function during best on conditions: Hoehn&Yahr, UPDRS. Motor evaluation at follow-up was performed by a blind examiner.

-Psychiatric and Behavioral functions: Hamilton Rating Scale for Depression (HAM-D) Hamilton Rating Scale for Anxiety (HAM-A), Questionnaire for Impulsive-Compulsive Disorders in PD (QUIP).

-Other investigations: Pain (VAS-P), fatigue (VAS-F), sleep disorders (PDSS, ESS), QoL (PDQ-8).

Results: Significant differences were found at the six-month follow-up (mean±SD): levodopa (mg/die) IR:457,7±223,5, ER:391,6±170,1; UPDRS-IV IR:5,4±9,3, ER:2,4±1,5. No significant differences were found in other investigations.

Discussion and conclusion: No significant differences in motor and non-motor evaluation were observed during IR and ER-PPX therapy against a reduction in levodopa dosage and UPDRS-IV score. All patients well tolerated the overnight switch and all of them continue with ER-PPX. Motor, non-motor symptoms and QoL are similar during IR and ER therapy.

NUTRITIONAL STATUS AND DIETARY HABITS IN GHANAIAN PARKINSON'S DISEASE PATIENTS

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Background: Diet is an environmental factor that may contribute to the development of Parkinson's disease (PD). The analysis of dietary habits is important also for the management of secondary manifestations of the disease (e.g. constipation).

Objectives: to describe dietary habits, calculate calorie intake and assess nutritional status of PD patients in developing countries. This study is part of a larger project designed to study PD in developing countries, which has selected Ghana as a pilot country.

Methods: we recruited 38 PD patients (23♂ , 15♀) and 12 healthy controls (6 ♂ , 6 ♀) in Ghana. We took their anthropometric measurements, assessed the prevalence of constipation and investigated their dietary habits, administering a questionnaire that we prepared specifically for the study, after having studied local dishes, and resorting to 24-hour food intake recall.

Results: Mean daily calorie intake was 1,200kcal/day both in PD patients and controls. Mean BMI was 22.2±3.3kg/m^2 in PD and 25.9±5.3kg/m^2 in controls (p=0.02). Constipation was more common in PD (36.8%). Particular dietary habits included consumption of mainly semi-solid food (thick soups and ground flour) rich in vegetable fiber, and low consumption of milk and its derivatives (about 600 mg/week).

Discussion: Notwithstanding the low daily calorie intake and the fact that PD may cause weight loss, PD patients were not malnourished. The prevalence of constipation in PD patients was lower than in Western countries (60%), probably on account of their dietary habits. The consumption of milk and its derivatives, a potential risk factor for PD, was low.

THE ROLE OF THE ALA746THR VARIANT IN THE ATP13A2 GENE AMONG CHINESE PARKINSON'S DISEASE PATIENTS

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A missense variant (Ala746Thr) in the ATP13A2 gene (PARK9) was found to be associated with early onset or familial Parkinson's disease (PD) among Chinese. We aimed to examine this association in 69 early onset PD (EOPD; ≦50 years old), 192 late onset PD (LOPD; >50 years old) patients and 180 non-diseased controls among Chinese in Hong Kong. Genomic DNA was extracted from peripheral blood from participants with informed consent, and Ala746Thr was genotyped. The mean age of disease onset for EOPD was 43.2 years and the mean age of disease onset for LOPD was 61.6 years. The 746Thr allele was present in 1 of the controls (0.6%), 1 of the EOPD patients (1.4%; odds ratio [OR] 2.63, 95%CI 0.16-43, p=0.50), and 1 of the LOPD patients (0.5%; OR 0.94, 95% CI 0.06-15, p=0.96). The 746Thr allele is unlikely to be a common risk factor for PD in Chinese population.

ARGENTINE TANGO AS THERAPY FOR PARKINSON´S DISEASE (PD)

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Objective: Evaluate changes in motor and emotional aspects in PD p that participated in Dance Therapy Program using Argentine Tango (DTPAT).

Background: Basal ganglia may be activated during rhythmic movements such as tango, improving motor control in PD patients (p).

Methods: 9 p with PD were recruited. P with H&Y IV were excluded.The following assessments were performed by MD specialists before and after DTPAT: UPDRS III; Berg Balance Scale; 15-meter walk test; PDQ39. An clinical psychologist assessed: -DTPAT patient´s experience,- experience of dancing with tango teacher,- self reported benefits of participating in DTPAT.

Intervention: Over 16 weeks, p attended 90 min weekly tango sessions. First 15´, p worked: breathing, propioception, postural correction; following 15´: relax techniques,breathing exercises; next 30´: rhythmic movements while listening to tango-milonga;during last 30´, p danced with their teachers.

Results: Seven p (2 males), mean age: 70.9, time of evolution 9.3 ys; H&Y 1-2.5; UPDRS III: 14,55.3. In the 15-MWT, decrease in time of 2,14´, step lengthing of 7,8 cm, increase of gait speed of 0.33m/seg was observed when comparing the first and last visit. These differences were not statistically significant. BBS showed substantial changes (7 points) in only p that had a moderate risk of falls. No changes were observed in PDQ39 between sessions.

Interview: All the p expressed enjoyed DTPAT , dancing with the teachers and improved organization of daily living activities.

Conclusions: Tango might be useful improving the adherence of PD p to rehabilitation programs. Benefits of DTPAT were principally shown in emotional areas.

COGNITIVE, BEHAVIORAL AND MOOD DISORDERS IN PARKINSON DISEASEV

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Objectives: To determine the prevalence of the psychotic phenomena, including depression, hallucinations, impulse control disorder and dementia, we evaluated the occurrence of these symptoms in our movement disorders clinic.

Method: A total of 253 patients with idiopathic PD underwent comprehensive evalutation by neurologists and psychologists. Psychiatric disorders were categorized in four categories: Depression, cognitive impairment - dementia, hallucinations and impulse control disorder. The stage of PD was determined by Hoehn - Yahr staging and mean UPDRS score. We used Beck depression inventory for evaluation of mood disorder. Cognitive deficit was measured by using MMSE and ACE. Psychiatric symptoms like hallucinations, delusions etc was assessed by NPI. Impulse control disorder was evaluated by history and reports from caregivers, since most patients refused completion of Minnesota questionnaire. The results were corelated to age, motor symptoms and duration of Parkinson disease in every category.

Results: Of the total sample, 52% of the patients were found to have any of above mentioned psychotic symptoms. Most common was depression nad hallutinations /both 18%/, dementia was found in 15%. Impuls control disorders occured only in 3%, which is definetely underestimated. More results are available in poster´s figures.

Conclusion: Movement disorder is the prominent feature of Parkinson disease, but psychiatric, behavioral and cognitive disorders are common symptomes in some phases of the disease and influence the quality of life much more than the motor symptoms in many cases.The psychotic phenomena we had evaluated were clinicaly significant and were disturbing for patients as well for caregivers.

DEEP BRAIN STIMULATION FOR PARKINSON DISEASE IN MOROCCO: PRELIMINARY EXPERIENCE OF A SERIES OF 9 CASES

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Deep brain stimulation (DBS) of the subthalamic nucleus (STN) is the recent surgical treatment of choice for patients with idiopathic Parkinson's disease (PD) complicated by motor fluctuation and disabling dyskinesia.We present the preliminary experience of DBS in Morocco.

Nine patients have undergone surgery for advanced PD, with 6 females and 3 males, mean disease duration was 14 years and the mean age of the operation was 53 years. The mean stage on the Hoehn and Yahr Scale was 3.5. The surgical procedure consists on radiological planning of a target using MRI first and CT scan with radionics stereotactic frame, neurophysiological recording and implantation of definitive electrodes into the STN bilaterally. After one day of external stimulation, permanent neurostimulators were implanted. Patients were evaluated (preoperatively and 6 months postoperatively) using: UPDRS III, the Hoehn and Yahr Scale and dyskenesia scale. There was no per or post surgical complication. Six months after surgery, significant improvement of all motor symptoms was found in all patients. The response to STN stimulation was excellent in 2 patients, good in 4 and moderate in 3. UPDRS III score without medication was decreased by 50%, Dyskinesias by 70% and off periods by 75%. Daily dopa-equivalent dose was reduced by 63,6%.

All our patients had significant improvement in their PD with a better quality of life.DBS is quite feasible in developing countries such as Morocco if they are following the usual selection of patients and the proper neurosurgical procedure.

PARKINSON'S DISEASE WITH DEMENTIA (PDD) AND LEWY BODY DEMENTIA (LBD) HAVE DIFFERENT COGNITIVE AND NEUROPSYCHIATRIC PROFILES AND STEREOTYPIC BEHAVIOURS

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Objectives: Whether LBD and PDD are different manifestations of the same disorder is controversial. We compared these conditions on cognitive, neuropsychiatric profiles and stereotypic behaviours.

Methods: We studied 23 DLB and 31 PDD patients. Global cognition were evaluated by Mini Mental State Exam and Frontal Assessment Battery; psycho-behavioural disturbances by Neuropsychiatric Inventory; motor impairment by Unified Parkinson's Disease Rating Scale; functional autonomy by Autonomy of Daily Living scale. Stereotypic behaviours were examined by the five-domain Shigenobu's Stereotypy Rating Inventory (SRI).

Results: LBD patients were more cognitively impaired than PDD ($p< 0.01$). Total NPI score did not differ between groups, however hallucinations, delusions and sleep disorders were higher in LBD, while depression, eating disorders and aberrant motor behaviours were higher in PDD. PDD patients had higher total score for SRI ($p< 0.01$): elementary stereotypic movements were common in both groups, while roaming ($p< 0.01$) and speaking ($p< 0.05$) were higher in PDD than LBD. In PDD, FAB, NPI and SRI scores correlated with each other. In LBD, MMSE NPI and SRI scores correlated with each other.

Conclusions: Greater cognitive impairment in LBD than PDD seems in accord with the greater disease severity and faster disease progression characteristic of LBD. Stereotypic behaviours - recently associated with dopamine-dysregulation syndrome in Parkinson´s disease - were prominent in PDD, but also common in LBD. The correlation between psycho-behavioural profile and FAB scores in PDD suggests involvement of frontal-striatal circuits, while the correlation between psycho-behavioural profile and MMSE in LBD suggests involvement of temporal-occipital areas.

RESTING TREMOR IN PARKINSON'S DISEASE: IS THE PALLIDUM THE BLAME OR AN INNOCENT BYSTANDER?

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Introduction: There are convinging evidences of the relationship among rigidity, bradykinesia and dopamine depletion in the striatum. Recently, the role of tremor driver has been attributed to pallidal dysfunction since a more severe dopaminergic degeneration has been shown in PD with rest tremor with respect to PD without tremor.

Objective: To confirm the relationship between pallidal dopaminergic degeneration and rest tremor by comparing ^{123}IFP-CIT SPECT of PD with and without tremor.

Patients and methods: 35 consecutive de novo PD patients [13 without evidence of resting tremor (T=0) and 25 with at least 1 point at the item 20 of UPDRS III (T≥1)] performed a ^{123}IFP-CIT SPECT. Individual voxels values were expressed as % of occipital mean counts. SPM2 was then used for data analysis.

Results: Two clusters, with significant ($p< 0.001$) lower binding in PD T=0 compared with T≥1 patients were found in bilateral pallida.

No voxels or clusters of lower binding in T≥1 PD with respect to T=0 were found.

UPDRS III was not statistically different between T≥1 and T=0 groups (respectively mean ±SD17.9±8.6vs16.7±7.9), T=0 patients showed a longer disease duration (mean±SD 12.7±6.7vs7.9±5.0 months) although not statistically significant (p=0.06).

Discussion: Our data do not confirm previous evidence of a functional relationship between rest tremor and pallidal dopaminergic degeneration. The different disease duration between T=0 and T≥1 could explain the finding of a pallidal dopaminergic degeneration in the former group by supporting the view that pallidal neuronal dopaminergic loss might be related to disease progression.

LIDOCAINE INJECTION INTO EXTERNAL OBLIQUE MUSCLE IMPROVES UPPER TYPE CAMPTOCORMIA IN PARKINSON DISEASE PATIENTS

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Background: We showed that camptocormia in patients with Parkinson disease (PD) can be categorized into upper and lower types according to the inflection points. Upper type camptocormia was defined as truncal flexion between Th9 and L2 that occurred while standing or walking, but disappeared when in a recumbent position. We showed single injection of lidocaine into external oblique improves upper type of camptocormia but no effects were given when injected into either rectus abdominis or internal obilique.

Methods: We performed ultrasound-guided lidocaine injections into bilateral external oblique in 13 patients with PD with upper type camptocormia. Injection was carried out for 1) single and 2) repeated (once a day for 4 or 5 days) method. The effect was evaluated by the angle of truncal flexion and the differences between pre and post treatment were analyzed by Mann-Whitney U test.

Results: All but one patient was improved by single lidocaine injection but the effect was diminished in 3-7days. All the patients were improved by repeated injections. Mean angle of truncal flexion decreased from 57.5 (SD 11.1) to 40.2 (SD 14.5) after treatment. The difference was statistically significant. Ten patients remained 80 % improvement after one month, eight patients after two months.

Conclusions: Five days repeated lidocaine injections into external oblique obviously improved the upper type camptocormia and the effect was maintained more than one month in most patients. Our data comfirmed the therapeutic effect of lidocaine injections into external oblique for upper type camptocormia in patients with PD.

REGIONAL CEREBRAL BLOOD FLOW IN PARKINSON´S DISEASE - RELATION TO COGNITIVE IMPAIRMENT

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Background: Occipital lobe hypoperfusion is one of the supported findings in dementia with Lewy bodies. Some of our patients with Parkinson's disease (PD) showed hypoperfusion in ECD although they revealed normal~high cognitive function in WAIS. The purpose of this study is to clarify the relationship between cognitive impairment in PD and occipital lobe hypoperfusion.

Materials and methods: We checked our 84cases of outpatient with PD. The diagnosis of PD was made by the British brain bank criteria for PD. Tests for cognitive functions were tested by mainly MMSE, and if possible were tested by WAIS, FAB, and RBMT. Cut off point of MMSE was 23 point according for conventional methods. Imaging studies were consisting of MR imaging and ECD. Regions of brain atrophy were checked in the frontal, parietal, temporal, occipital lobes and insular cortex by the grading scale (I, II, III).

Results: Patients with PD who showed cognitive decline in MMSE were revealed insular atrophy in MRI. Hypoperfusion of occipital lobe were shown in all patients with PD. In patients with cognitive decline group, hypoperfusion in orbitofrontall lobes was revealed in cognitive decline group.

Conclusion: Hypoperfusion of occipital lobe is a characteristic feature in PD not correlates with cognitive function.

ABLATION OF RAT SUBSTANTIA NIGRA MAY PROVIDE A GOOD ACUTE MODEL OF PARKINSON'S DISEASE FOR STEM CELL TRANSPLANTATION

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To create an animal model of Parkinson's disease (PD), several specific chemical agents, such as MPTP and 6-OHDA, have been frequently used. Although MPTP was thought to be a superior drug, we dared to design a novel animal model of PD in the present study. As transplantation of neurospheres is the main subject of our research, we tried to eliminate the harmful effect of these drugs on the transplanted cells.

The Wistar rat model was created by ablation of substantia nigra (SN) pars compacta with a high-frequency microwave coagulator. In our attempt to make an accurate ablation deep in the SN, we determined the appropriate electrical power and time necessary to place the lesion. As a result, we concluded that coagulation for a relatively long duration (15 seconds) at low power (1 W) would be the optimal setting.

By means of this system, we succeeded in creating a novel rat model of PD in which there was a rapid appearance of the symptoms, especially akinesia and postural instability. The most advantageous aspect of our animal model of PD was attained with no effect on the transplanted cells, even if the transplantation was performed immediately after induction of the disease. Other benefits of the model were rapidity and uniformity of appearance of the characteristics of Parkinsonism. Our results suggest that this model may be suitable for evaluation of the efficacy of the transplantation, and we believe it to be a good candidate for research on neuroregenerative medicine.

INTRAVENOUS AMANTADINE IS SAFE AND EFFECTIVE FOR THE PERIOPERATIVE MANAGEMENT OF PATIENTS WITH PARKINSON'S DISEASE

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Introduction: The perioperative management of Parkinson's disease (PD) patients is difficult, especially when they are on NPO (nothing per oral). Intravenous (IV) forms of levodopa, subcutaneous apomorphine, or a rotigotine patch may be considered, but these may not be available in some countries, including Korea.

Objective: We found that PD patients who were on NPO due to surgery could be successfully managed using IV amantadine.

Design: Between December 2009 and November 2010, 13 PD patients (5 males and 8 females) underwent surgery and received IV amantadine during the perioperative period.

Result: The mean age of the subjects was 68.7 years (range from 52 to 82 years), and their mean duration of PD was 7.6 years (range from 1 to 15 years). The levodopa equivalent daily dose before surgery was 789.6±347.5 mg (mean±SD). The types of surgery comprised six cases of abdominal surgery , one of thyroid surgery , one of breast surgery, three of orthopedic surgery, one of spinal surgery, and one of gynecologic surgery. The mean overall duration of amantadine use was 3.0 days. The total amantadine dose in individual patients varied from 400 to 2400 mg. Only one patient complained that IV amantadine was less effective than oral medication, but it was still tolerable. Some patients experienced improvement in their dyskinesia and off symptoms. No patients experienced severe worsening of parkinsonian features, including neuroleptic malignant syndrome, or Parkinsonism hyperpyrexia syndrome.

Conclusion: IV amantadine is safe and useful for the perioperative management of PD patients when medications cannot be administered orally.

THE EFFECT OF IV AMANTADINE ON FREEZING OF GAIT (FOG) RESISTENT TO DOPAMINERGIC THERAPY

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Aim: We designed this study to know the effect of IV amantadine on Freezing of gait(FOG) which is unresponsive to dopaminergic drugs.

Methods: Intractable FOG was defined as an FOG questionnaire (FOG-Q) score of ≥10 in spite of all medications. Our standard regimen was IV amantadine at 200 mg in 500 cm^3 of saline solution given over a 3-h period, twice a day for 2 days. The clinical characteristics of the good responders to IV amantadine (i.e., those whose FOG-Q score improved by at least four points after IV amantadine) were compared with those of the nonresponders.

Results: Among total 15 patients, 7 patients were IPD, and 8 patients were Parkinson-plus (including 3 MSA, 2 PSP, 3 PPFG). Change in FOG score ranged from 1 to -9. Improvement in FOG≤ -4 was seen in 6 (5 PD, 1 PPFG). No change or worsening in FOG was seen 7(all Parkinson-plus). The remaining two PD patients showed -1 and -2 in FOG score but reported subjective lasting improvement. The disease duration, the duration and severity of FOG, HY staging, UPDRS motor score, and MMSE were not different between the good responders (N=6) and non-responders (N=7). Improvement in UPDRS motor score after IV amatadine did not predict improvement in FOG score.

Conclusions: IV amantadine may be effective in FOG resistant to dopaminergic drug. The improvement was seen mainly in PD. The fact that FOG which was refractory to dopaminergic medications improved by amantadine suggests that amantadine exerts its benefit independent of dopaminergic mechanism.

BICYCLE SIGN IN PARKINSONISM

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Introduction: Bicycle and Parkinson's disease have a strong association in neurorehabilitation. It is well known fact that in spite of severe freezing and axial stiffness patients preserved the ability to ride a bicycle. Bicycle sign uses the simple clinical question" can you still ride a bicycle?".(1) The answer to this simple question offers valuable information in differentiating typical from atypical Parkinsonism.[2]

Materials and methods: We conducted single point cross sectional observational study in the Madras Institute of Neurology. 90 Parkinson patients who know Bicycling before the onset of disease are selected for this study. The patients are interviewed about bicycling.

Results: Total 90 patients. 60 are idiopathic Parkinson's, 30 are atypical Parkinson.

In Parkinson patients:

1. 36(60%) are still riding Bicycling without any problem.

2. Among patients who are not riding 16(60%) out of 24 had disease duration more than 5 Years.

In Atypical Parkinsonism

1. 24(80%) are not able to ride, 6 are able to ride.

2. Those who are not able to ride are having only 1 year duration of onset of disease. In atypical Parkinson disease there is very early loss of bicycle riding.

Conclusion:

1. Comparisons between Parkinson and atypical Parkinson patient who are unable to ride bicycle is statistically significant (p= 0.05) and it is a red flag to atypical Parkinson.

2. Regression analysis reveal that the answer to the Simple question, can you ride a bicycle is independent risk factor for the diagnosis of atypical Parkinsonism.

Reference:

1. Snijders Cycling for freezing of gait. *NEJM* 2010; **362:** e46.
2. www.thelancet.com **January 8, 2011**

BLOOD PRESSURE FLUCTUATION IN PATIENTS WITH PARKINSON DISEASE AND ITS RELATED DISORDERS

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Among various autonomic dysfunctions in Parkinson disease and its related disorders (PD), blood pressure (BP) abnormalities such as orthostatic hypotension, postprandial hypotension and nocturnal hypertension have been known. Medical personnel often identify extreme BP fluctuations in PD patients and are troubled by excessively high or low BP. Therefore, in order to determine how the BP of PD patients fluctuate in a day, we performed 24-hour ambulatory blood pressure monitoring (ABPM). Examined were 34 PD patients and 24 other disease (OD) patients, all of who were inpatients and monitored every 30 minutes. In those PD patients and OD patients, nocturnal hypertension was observed in 59% and 12.5%, postprandial hypotension in 52% and 43%, BP fluctuation of over 100 mmHg in a day in 68% and 12.5%, and BP fluctuation of over 50 mmHg in one hour period in 65% and 25%, respectively. These results not only confirmed that PD patients tend to have nocturnal hypertension and postprandial hypotension, but also indicated that BP of many PD patients fluctuates greatly in a short period of time. A sudden change and fluctuation of BP during the 24-hour monitoring period suggest that BP control by autonomic nervous system is impaired in PD patients and is easily influenced by the environment in and outside the body. Such 24-hour ABPM, not BP measurement once a day, enables us to determine actual BP in PD patients, so that we can treat hypertension which causes a cardiovascular event, apoplexy and/or organopathy.

PARKINSONISM AS FIRST MANIFESTATION OF LUPUS

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Introduction: Involvement of the nervous system by systemic lupus erythematosus (SLE) includes a wide variety of neurologic and psychiatric manifestations. However, movement disorders complicating lupus are uncommon and particularly parkinsonism has been reported only in a few cases. The pathogenesis of basal ganglia injury in SLE is mutifactorial including autoantibodies, vasculopathy and thrombosis related to antiphospholipid antibodies. Our objective is to report a case of parkinsonism as first manifestation of systemic lupus erythematosus.

Case report: Our patient, a 43 year-old woman, presented with bradykinesia, hypomimia, hypokinesia and rest tremor of the right arm and leg. On neurological examination, her gait was stooped and shuffling, lacking upper limb reciprocation during walking and cogwheel rigidity was noted. Parkinsonian syndrome was associated with cutaneous, heamatologic and renal manifestations of lupus. Brain MRI was normal. Immunologic disorder subsequently confirmed the diagnosis of systemic lupus erythematosus. Management relied on symptomatic treatment along with corticosteroids, chloroquine and cyclophosphamide. There was a partial clinical response of parkinsonism and regression of systemic signs.

Conclusion: Parkinsonism can be a revealing sign of lupus and should be considered especially when systemic manifestations are associated.

PROFILE OF MULTIPLE SYSTEM ATROPHY IN MOROCCAN PATIENTS FROM MOVEMENT DISORDERS CONSULTATION IN UNIVERSITY HOSPITAL OF RABAT

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Objective: To report our experience in movement disorders consultation concerning the clinical presentation and the course of multiple system atrophy (MSA) in Moroccan patients.

Background: MSA is a sporadic and rapidly progressive neurodegenerative disorder of poor prognosis, characterised clinically by any combination of parkinsonian, autonomic, cerebellar, or pyramidal signs. Two major motor presentations are distinguished clinically: parkinsonian subtype MSA-P and cerebellar subtype MSA-C.

Methods: A retrospective review of the medical records of 17 patients with diagnosis of MSA seen in our outpatient clinic from January 2007 to December 2010.

Results: In our 17 patients, 76.5% were men and the mean age of onset was 52 ±9 years. MSA-P was the major clinical phenotype (82.4%). Eleven patients (64.7%) were classified as having possible MSA and the diagnosis of probable MSA was made in 6 patients (35.3%). Dysautonomic features were detected in all patients of which urinary symptoms were found in 76.5% of patients and orthostatic hypotension in 64.7% of patients. Treatment regimen included L-Dopa with a mean daily dose of 621.4 ±346.8mg/d and symptomatic treatment of dysautonomia. The mean duration of disease evolution was 4.7 ±1.9 years. For disease evolution, 7 patients improved with treatment, 5 patients remained stable and 2 patients accused severe worsening of their condition.

Conclusions: Our results are similar to the european MSA series but is limited by the small number of patients which is probably due to the rarity of the MSA. Therefore, multicentre studies are needed to better characterise MSA in Morocco.

POPULATION STUDY OF (CAG/CAA)N ALLELE VARIATION IN THE TATA BOX-BINDING PROTEIN AND ATXN2-TBP MUTATIONS IN A FAMILIY WITH TYPICAL PARKINSON

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Introduction: Parkinson disease is very frequent in Cuba, altogether with expansions causing SCA2; however, the aetiology is unknown.

Aims:

1) To determine the variation of TBP gene in the healthy and SCA population.

2) To determine the frequency of inherited Parkinson disease caused by expansion in the TBP gene.

3) To report a familiy with typical Parkinsonism with CAG expansions in TBP and ATXN2.

Methods: CAG expansions were determined in the TBP and ATXN2 gene of chromosomes (48 unrelated controls and 240SCA).

Results: CAG in the TBP gene was higher in SCA population than in control group (t-test, $p< 0.05$). When SCA sample was distributed by CAG expansions in the major SCA causing genes, expansions in the ATXN2 gene was associated ($\chi 2$: 4.41, $p< 0.05$) with large normal TBP alleles (>38CAG/CAA). A typical PD familiy with anomalous CAG expansions in the TBP (38/42 repeats) and ATXN2 (36 repeats) was found. Somatic mosaicism was higher in affected cases in this typical PD familiy than in pure SCA2 population with the same CAG. A genetic interaction of both mutations caused an ALS-like phenotype in carriers of such mutations. Detailed clinical characterization in this familiy and electrophysiological studies are provided delineating differences between typical PD with imperfect mutations in the ATXN2 gene respecting pure SCA2.

Conclusions: TBP and ATXN2 CAG expansions interact genetically. Somatic mosaicism is a rationale modifier of the PD onset and the phenotype of carriers of ATXN2 CAG expansions. Large normal alleles in the TBP are susceptibility factors for PD.

SEMI-QUANTIFICATION OF ^{123}I-FP-CIT (DATSCAN™) UPTAKE IN PARKINSONIAN SYNDROME

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Aim: ^{123}I-FP-CIT SPECT (DaTSCAN) is a marker of nigrostriatal neuronal integrity, allowing differentiation of Parkinsonian syndrome (PS) from non-Parkinsonian tremor syndromes (TS).

Materials and methods: In this retrospective study we investigated 185 patients (pts) with DaTSCAN and compared the findings with the primarily assumed clinical diagnosis of PS (130 pts) or TS (55 pts). Striatal radioligand uptake was graded visually and semi-quantitatively by the calculated ratio of caudatus and putamen to background (occiput), and the ratio of putamen to caudatus. The diagnosis could verified by a clinical follow-up over 2 years in 113 patients.

Results: Five from 130 pts with a clinical diagnosis of PS showed visually a negative finding in the SPECT and 2 from 55 pts with TS pts have a false positive finding (sensitivity 96%, specificity 97%). The mean striato-occipital ratio were significantly lower in PD (1.52±0.54) compared to ET (2.37±0.39) ($p>0.001$). Similar lower uptake in putamen was found in PD (1.22±0.53) compared to ET (2.25±0.41) ($p>0.001$). Also the ratio of uptake in putamen versus caudatus was lower in PD (0.69±0.18) compared to ET (0.90±0.13) ($p>0.001$). The clinical diagnosis was confirmed in all 113 pts with a 2 years follow-up.

Conclusion: DaTSCAN showed a high sensitivity/specificity in the diagnosis of PD. There were significant differences in the semi-quantification of uptake in the striatum between patients, which have PS and TS. The semi-quantification of uptake gaves addiotional informations for the differential diagnosis between PS and TS.

ANALYSIS OF GWAS-LINKED GAK LOCUS IN ETHNIC CHINESE

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Introduction: Recent genome wide association studies (GWAS) studies in Parkinson disease (PD) in Caucasians have identified the cyclin-G-associated kinase GAK as a susceptibility locus (variant rs 1564282). The role of GAK in ethnic Chinese has not been clarified. Microarray expression analysis of post-mortem frontal cortex from PD and control brains demonstrates a significant association between rs1564282 and higher α-synuclein expression.

Objective: To examine the association of GAK variant rs1564282 with PD in an ethnic Chinese population.

Methods: We included consecutive patients with PD and controls who presented to a tertiary referral center and examined by movement disorder neurologists. Genotyping of the sequence variant rs rs1564282 at the GAK locus was carried out.

Results: Clinically diagnosed PD patients and healthy controls who were examined by the authors were recruited and a total of 800 subjects (400 PD patients and 400 controls) were included. The frequency of the minor T allele was 11.2% in PD and 10.2% in controls (OR1.1, 95%CI 0.8-1.6, p=0.5). The genotype frequency in PD vs controls for homozygotes, heterozygotes and wildtype was 1.3% vs 0.3%, 18.8% vs19.8% and 78.9% vs 79.9% (p=0.25).

Conclusions: We were unable to demonstrate a significant association of the GAK variant rs1564282 with PD in our ethnic Chinese population.

ASSESSMENT OF DEPRESSION IN PARKINSON DISEASE PATIENTS

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Objective: Depression is one of the most common conditions that accompany Parkinson´s disease (PD) but it is often under recognized and poorly treated.

Aim: Aim of the study was to assess the occurrence of depression in PD patients. Symptoms of PD were evaluated using Hoehn and Yahr (H&Y) scale. Montgomery Aasberg (MADRS) scale was used to assess the level of depression and correlated with Activities of Daily Living (ADL) scale.

Methods: There were 30 PD patients (9 women, 21 men; mean age 64.6 years). According to H&Y, patients were divided into 2 groups: H&Y< 3 and H&Y>3. In relation to ADL, there were 3 groups: ADL=80-100%, ADL=60-79% and ADL< 60%. According to MADRS, patients were divided into 3 groups: MADS< 19, MADRS=10-20 and MADRS>20.

Results: There were 12 patients (55-65 years) with H&Y< 3: 5 patients had MADRS=10-20, 7 had MADRS< 19. There were no patients with severe depression. There were 18 patients (>65 years) with H&Y>3: 4 patients had MADRS>19, 12 had MADRS=10-20 and 2 had MADRS< 19. In relation to ADL, there were 5 patients with mild, 11 with moderate and 14 with severe disability. Five patients with ADL=80-100% had mild or moderate depression. In the group with ADL=60-79%, 6 patients had mild, 4 had moderate and 1 had severe depression. In a group with ADL< 60%, there were 11 patients with moderate and 3 with severe depression.

Conclusions: Our data indicate that depression in PD patients might occur as a result of disease progression and also as a consequence of gradual development of disability.

FRONTAL SYSTEMS BEHAVIOURAL SYNDROMES IN OLDER PARKINSON'S DISEASE (PD) PATIENTS: COMPARISON WITH A (NON-PD) DEPRESSED SAMPLE

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Objective: To investigate and compare the frontal systems behavioural syndromes in Parkinson's disease (PD) and (non-PD) depressed patients and its association with caregiver distress.

Method: Ninety-six PD patients (71.9% male, mean age 74.8 ± 5.4 years) and 42 depressed patients (64.3% female, mean age 72.90 ± 5.01) and their caregiver spouses were referred to the studies by their consultant. Besides socio-demographic and clinical data, the patients completed measures of depression and their caregivers completed measures of patient frontal function (Frontal Systems Behaviour Scale, FrSBe -Family form), neuroticism and distress arising from caregiving. Data analyses included descriptive statistics and correlation coefficients.

Results: Scores on the FrSBe (for both samples) *before* the diagnosis of PD/Depression were not significantly different from the norm population. However, paired t-tests found large and statistically significant increases on all three subscales (apathy, disinhibition and executive dysfunction) and the overall total. 'Present' apathy scores for both samples indicated significant impairment, whereas the executive dysfunction scores indicated borderline impairment for both samples. FrSBe 'total' scores were strongly associated with caregiver distress in both samples (PD:$r=.50$, $p< .001$; Depressed: $r=.46$, $p< .01$), even when caregiver neuroticism was controlled for.

Conclusion: Overall, the participants in the two studies were significantly different from the normal population in terms of levels of apathy and executive dysfunction and the presence of these behaviours was associated with increased caregiver distress. This study shows that 'apathy' is a feature of both PD and depression, and therefore extra effort should be made to identify older depressed PD patients.

CLINICAL-PATHOLOGICAL DISAGREEMENT IN PARKINSON DISEASE (PD) AND MULTIPLE SYSTEM ATROPHY (MSA)

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Objective: Our aim is to point out the limitation of clinical diagnosis in parkinsonism.

Background: PD and MSA are commonly considered in patients with parkinsonism. However, diagnosis can be challenging, mainly due to the lack of in vivo markers of either disease. Clinical diagnosis is based on levodopa response and duration of illness to a great extent.

Design and methods: We report the clinical history, videotaped examinations, ancillary testing, and autopsy results in three patients with parkinsonism, who were followed by experienced movement disorder neurologists.

Results: Both cases 1 and 2 were female, met clinical diagnostic criteria for PD (UK Brain Bank), had their first parkinsonian symptoms at age 48 and 47, respectively. Both had prominent levodopa response and levodopa-induced dyskinesias. Dyskinesias were particularly severe in case 2, where deep brain stimulation (DBS) of the subthalamic nucleus (which was clinically beneficial) also triggered dyskinesias. They deceased 10 and 8 years after onset, respectively, and both had pathological diagnosis of MSA, not PD. Case 3 was a 68 year old man at initial presentation, with an akinetic-rigid syndrome, imbalance, and non-sustained levodopa response. Progression to generalized rigidity and dystonia was rapid. His clinical diagnosis was MSA. Seven years later he deceased with pathological diagnosis of PD, not MSA.

Conclusions: Clinical presentation can be misleading even when using the most rigor applying available clinical diagnostic criteria, even in the hands of movement disorder experts. This further underlines the critical need for biomarkers in parkinsonism.

GAMMA KNIFE RADIOSURGERY FOR TREMOR PRELIMINARY EXPERIENCE FROM MOROCCO

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Introduction: Movement disorders such as tremor are quiet common in the elderly. They can be related either to Parkinson disease or to essential tremor. For some selected cases of drug resistant tremor (DRT) surgery can improve quality of life. Beside classical approaches such as Deep brain stimulation and thermocoagulation, Radiosurgery represents a less invasive procedure. The authors present their experience with a review of the literature.

Material and methods: We present a preliminary prospective series of 6 patients with Parkinsonian drug resistant tremor who underwent Gamma Knife radiosurgical thalamotomy of the ventral intermediate nucleus of thalamus (VIM) based on a standardized radiosurgical method using MRI and CT guidance. A three months clinical and imaging follow up is then instituted.

Results: At a mean follow up period of 1 year all patients presented with clinical improvement ranging from 50 to 80% regarding the intensity of tremor. This improvement started as early as 3 months post operatively and was stable with time. No adverse effects were observed.

Conclusions: A VIM thalamotomy with the Leksell Gamma Knife offers a safe and effective alternative for surgical treatment of DRT. this has been demonstrated in this series and confirms data of the literature. It is particularly applicable to patients who are not ideal candidates for deep brain stimulation but can be offered to all patients who are considering surgical intervention for DRT.

DEPRESSION IMPAIRS LEARNING WHEREAS ANTICHOLINERGICS IMPAIR TRANSFER GENERALIZATION IN PARKINSON PATIENTS TESTED ON DOPAMINERGIC MEDICATIONS

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In a study of acquired equivalence in Parkinson disease (PD), in which patients were tested on normal dopaminergic medication, we found that comorbid clinical depression impairs initial acquisition, whereas the use of anticholinergic therapy impairs subsequent transfer generalization. In addition, this study provides a replication of the basic finding of Myers et al (2003) that patients with PD on dopaminergic therapy are impaired at initial acquisition, but normal at subsequent transfer generalization, generalizing these results to an Arabic-speaking population including many participants with no formal education. These results are consistent with our past computational modeling, which argues that acquisition of incrementally acquired, feedback-based learning tasks is dependent on cortico-striatal circuits, whereas transfer generalization is dependent on medial temporal (MT) structures. They are also consistent with prior computational modeling, and with empiric work in humans and animals, suggesting that anticholinergic drugs may particularly impair cognitive abilities that depend on the MT lobe.

ACTIGRAPHIC STUDY OF TREMOR BEFORE AND AFTER TREATMENT WITH ZONISAMIDE IN PATIENTS WITH PARKINSON'S DISEASE

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Objectives: To quantitatively evaluate tremor by actigraphy in patients with Parkinson's disease (PD) before and after treatment with zonisamide. Subjects: 10 healthy controls (mean age, 71.3 years) and 9 patients with PD (71.9 years; Hoehn & Yahr stage, 1.7; disease duration, 5.6 years).

Methods: An actigraph was attached to the wrist to evaluate the motor count (MC) of the hand during the finger-to-finger test (FFT) and at rest for 60 seconds each. The mean MC per 10-second interval was calculated. The MC after 1, 3, 6 months of treatment with zonisamide (Treleif®) was compared with that before treatment.

Results:

1) The MC was 40.6 times during the FFT and 0.3 times at rest in the controls.

2) In patients with PD during FFT, the mean MC was 51.7 before treatment, 43.5 after 1 month of treatment, 43.6 after 3 months, and 40.9 after 6 months.

MC before treatment was slightly, but not significantly higher in the patients than in controls. After 3 and 6 months of treatment, the MC was significantly lower than that before treatment.

3) In patients with PD at rest, the MC was 48.4 before treatment, 8.7 after 1 month of treatment, 6.9 after 3 months, and 2.8 after 6 months. Before treatment, the MC was significantly higher in the patients than in controls. After 1, 3, and 6 months of treatment, the MC was significantly lower than that before treatment.

Conclusion: Zonisamide is promptly effective for the management of tremor in patients with PD.

VALIDATION OF 24-HOUR AMBULATORY GAIT ASSESSMENT IN PARKINSON´S DISEASE WITH SIMULTANEOUS VIDEO OBSERVATION

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Introduction: We have previously described a small device worn on the shank that uses triaxial acceleration and angular velocity to calculate stride length (SL) and identify freezing of gait. In this study we validate the gait monitor in patients with Parkinson´s disease over a 24-h epoch.

Methods: A sleep laboratory was adapted to perform 24-hr video monitoring of patients while wearing the device. Continuous video monitoring of the sleep lab, hallway, kitchen and conference room was performed using an integrated security system and recorded to hard disk. Subjects wore the gait monitor on the left shank (just above the ankle) for a 24-h period beginning around 5pm in the evening. Accuracy of stride length measures were assessed [1] at the beginning and end of the 24-h epoch. Two independent observers rated the video logs to identify when subjects were walking or lying down.

Results: The mean error in SL at the start of recording was 0.05 m (SD 0) and at the conclusion of the 24 h epoch was 0.06 m (SD 0.026). There was full agreement between observer coding of the video logs and the output from the gait monitor software; that is, for every video observation of the subject walking there was a corresponding pulse in the monitor data that indicated gait.

Conclusions: The accuracy of ambulatory stride length measurement was maintained over the 24-h period. There was 100% agreement between the autonomous detection of gait by the gait monitor and video observation.

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FREQUENCY AND CLINICAL FEATURES OF PARKINSON´S DISEASE IN MALIAN PATIENTS

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Parkinson´s disease (PD) is a chronic neurodegenerative disorder characterized by a broad variety of both motor and non-motor symptoms. There is few data on Parkinson´s disease in West Africa, specifically in Mali. Aim of this study was to describe frequency and clinical features of PD in Malian patients.

Methods: During the period from January 1st,2001 and December 31st,2010,40337 patients were screened at the Department of Neurology in Bamako. Diagnosis was based on the UK Parkinson´s Disease Society Brain Bank criteria.The subtypes were identified on clinical and demographic variables.

Results: 85 consecutive PD patients were recruited. The frequency of PD was 0.21%. A positive family history was present in14%. The male preponderance was noted: 48 men and 37 women.Mean age at onset of PD was 61.3 (95% confidence interval: 30 to78). PD subtype was mixed (MT) 45.88%, akinetic-rigid (AR) 43.52% and tremor-predominant (MT) 10.58%. In familial form, PD was mixed in 58.3% and akinetic-rigid 41.7%. It was associated with younger at onset 55.0. The mean time interval from onset of motor-symptoms to diagnosis of PD was 28.5 months. The most common non-motor symptoms was sleep disorders 33%.

Conclusion: This study documented PD subtype, both lower frequency and a delay in diagnosis. The presence of familial PD will later allow us to carry out genetic investigation among Malian population.

HYPERPROLACTINEMIA AND GYNECOMASTIA INDUCED BY BENSERAZIDE

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Benserazide is commonly used for Parkinson's disease in combination with L-DOPA as a peripheral aromatic L-amino acid decarboxylase (AADC) inhibitor. However, some studies indicate that it also acts in the central nervous system and can lead to changes in central dopaminergic metabolism and thus in prolactin secretion.

We report a case of benserazide induced hyperprolactinemia and consequently gynecomastia in a 67-year-old parkinsonian men and give pathophysiological explanations to the relationship between benserazide, dopamine and prolactin. The literature review found two other similar reports.

REPETATIVE TRANSCRANIAL MAGNETIC STIMULATION AS A TREATMENT FOR DYSARTHRIA IN PARKINSON´S DISEASE

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Background: Neuroimaging has demonstrated that improved speech outcomes in Parkinson's Disease (PD) subsequent to behavioural treatment approaches is associated with increased activity in the motor and premotor cortex. High frequency repetitive transcranial magnetic stimulation (rTMS) is capable of modulating cortical activity and has been reported to have significant benefit to general motor function in PD. It is possible that high frequency rTMS may also have beneficial outcomes on speech production in PD.

Methods: High frequency (5 Hz) rTMS was applied to 10 active stimulation and 10 sham placebo patients diagnosed with idiopathic PD for 10 min. per day (3000 pulses), for 10 days and speech outcome measures and lingual kinematic parameters recorded at baseline and 1 week, 2 months and 12 months post-stimulation.

Results: The findings demonstrated positive treatment-related changes observed in the active rTMS group when compared to the sham placebo control group at 2 months and 12 months post-stimulation in speech intelligibility, communication efficiency ratio, maximum velocity of tongue movements and distance of tongue movements.

Conclusion: The results support the use of high frequency rTMS as a therapeutic tool for the treatment of articulatory dysfunction in PD.

COMPARATIVE LONGITUDINAL STUDY OF MOTOR PARAMETERS OF THE LRRK2 G2019S AND GENETICALLY UNDEFINED PATIENTS IN TUNISIA

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Objective: To report longitudinal comparative analysis of motor parameters of the LRRK2 G2019S patients compared to genetically undefined PD in Tunisia.

Methods: A total of 122 patients with PD, 61 with G2019S mutation and 61 genetically undefined, were analyzed from PD database of the national institute of neurology from 2003-04 to 2009-10.

For each patient a pre-established CRF was filled. The CRFs include clinical features, demographic data, Hoehn and yahr scale stage, Schwab and England scale, part I, II and III of the UPDRS and treatment modality.

Results: Age and age at onset were lower in genetically undefined patients compared to the G2019S patients while disease duration was longer (14, 67 years).

Patients carrying LRRK2 G2019S display less severe motor phenotype (median UPDRS motor score=60, 5 vs. 61, 67), lower rate of dyskinesia (OR=0,843), less postural instability (OR=0,710) and lower Hoehn and yahr score.

However G2019S patients carriers were more likely to have the freezing of gait (OR=1,401).

Tremor was the most common presenting symptom in both groups (60% of patients with mutation and 68% of negative mutation).

Conclusion: This preliminary longitudinal study of LRRK2 compared to the genetically undefined patients, show a less severe motor worsening.

TITLE: THE MANAGEMENT OF LRRKE G2019S AND MOTOR COMPLICATIONS: TUNISIAN EXPERIENCE

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Objective: To report the characteristics of the management and its motor complications in LRRK2 G2019S Parkinson's disease compared to genetically undefined patients in Tunisia.

The purpose is to try to define the proper management protocol for each PD subtype.

Methods: The management of 57 patients with G2019S mutation and 59 genetically undefined was analyzed from PD database of the national institute of neurology in Tunisia.

Results: After a mean disease duration of 12, 17 years in LRRK2 G2019S patients and 15, 10 years in genetically undefined, the dopaminergic therapy was used for 52 carriers' mutation and 57 genetically undefined patients.

The levodopa equivalent dose was calculated in the tow groups and was 867, 84 mg in LRRK2 G2019S patients versus 800, 61 mg in the genetically undefined group.

The use of dopamine agonists and anti cholinergic drugs was higher in the genetically undefined patients, contrary to the use of amantadine (75% in mutation carriers).

Levodopa induced dyskinesias were present in 27% of LRRK2 G2019S patients. Genetically undefined patients had more motor fluctuations (89%) and less off-dystonia.However, there was no significant correlation between the two groups, who had a similar rate of dyskinesias (p-value=0, 38 > 0, 05), and dystonia (p-value=0,239>0, 05).

Conclusion: Although the sample size is too small to draw conclusive results, LRRK2 G2019S and genetically undefined patients appear to have similar motor complications of treatment. We need an effective management of PD to minimize disability and improve long term outcomes according to the genotype-phenotype relation of PD.

SERUM LEPTIN LEVELS INCREASE IN ADVANCED MULTIPLE SYSTEM ATROPHY PATIENTS WITH AUTONOMIC FAILURE PROGRESSION

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Background: We previously reported that multiple system atrophy (MSA) patients at the stage of respiratory or swallowing deterioration showed marked malnutrition, whereas the advanced patients with tracheostomy and gastrostomy showed significantly higher fat accumulation even under low calorie intake.

Objective: To investigate the disease specific mechanism of the fat accumulation in MSA patient and clarify the suitable nutritional intervention.

Methods: We analyzed the anthropometric and biochemical data including plasma leptin and adiponectin concentrations on 23 hospitalized MSA patients. Differences of these parameters between three subgroups (ADL1, ADL2, ADL3) classified by their activities of daily living were evaluated by Kruskal-Wallis test.

Results: Mean plasma level of leptin was 9.5 ± S.D. 8.2 µg/l, and mean plasma level of adiponectin was 15.2 ± 9.3 mg/l in the total 23 MSA patients. There were statistically significant positive and reverse correlations between body mass index, and the plasma level of leptin and adiponectin, respectively. Triceps skin fold thickness, an indicator of fat accumulation, and plasma level of leptin were significantly higher in the advanced group ADL3. Meanwhile, the plasma levels of total cholesterol and albumin were significantly lower in ADL3 than those in ADL1. In a stepwise forward multivariate regression analysis, the strongest predictor of plasma leptin concentration was the duration of autonomic failure.

Conclusions: These results demonstrate that serum plasma leptin increases in the advanced MSA patients, and the duration of autonomic failure is highly associated with high-plasma leptin levels.

COGNITIVE AND LANGUAGE DISTURBANCES OF GREEK PARKINSON'S DISEASE DEMENTED POPULATION

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Background: The current study copy cognitive and language disturbances for Greek Parkinson's disease demented patients (PDD).

Material and methods: To 30 normal subjects and 24 patients with Parkinson's disease dementia (PDD) seven scales were administrated: Arizona Battery of Communication Disorders of Dementia (ABCD), Mini Mental Status Examination (MMSE), Abbreviated Mental Test Score (AMTS), Instrumental Activities of Daily Living (IADL), Geriatric Depression Scale (GDS), Neuropsychiatric Inventory (NPI), and Clock Test. The aspects of mental status, episodic memory, linguistic expression and comprehension, as well visuospatial construction were assessed. Also extra analyses in all variables of language were done.

Results: Statistical analysis of data revealed significant differences in all tests that were administrated. In all aspects that were assessed statistically significant differences were observed. Also in the variables of language that were assessed statistically significant differences were observed as well. Relative to controls, PDD patients performed significantly worse on most cognitive measures. However, further analysis revealed that group differences in cognitive performance could mainly be explained by measures of immediate memory and executive function. Comparison with normative data showed that impairments were most frequent on measures of memory speed and language expression.

Conclusion: Cognitive impairments are common even in newly diagnosed Parkinson's disease patients, with deficits being most prominent in the domains of memory and language functions. Older age at disease onset is likely to be an important determinant of cognitive dysfunction in Parkinson's disease. Depressive symptoms and the severity of motor impairment were not predictive of dementia in PDD.

ROTIGOTINE IN PARKINSON'S DISEASE: COMPARISON OF DOSAGE, EFFICACY, ADVERSE EVENTS, PHARMACOKINETICS IN CLINICAL TRIALS IN EUROPE, US AND JAPAN

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Objective: Rotigotine is efficacious for patients with Parkinson's disease in some pivotal trials in Europe, the US and Japan. Dose ranges of rotigotine varied in these trials. The objective of this research was to estimate the effective dose range of rotigotine.

Methods: The efficacy and sefety of rotigotine was studied in comparison to placebo, pramipexole or ropinirole in randomized, double-blind, parallel-group trials in patients with de-novo or advanced PD in Europe (2 trials), the US (3 trials) and Japan (3 trials). We reviewed and compared all across the eight pivotal trials of rotigotine.

Results: Three placebo-controlled clinical trials have been performed with rotigotine up to 16 mg/24hr in de novo or advanced PD patients in Japan. UPDRS score reduced in a dose dependent manner individually. There were no significant safety issues up to 16 mg/24hr. While, the trials in Europe and the US showed that rotigotine was efficacious and well tolerated up to the doses of 8 or 6 mg/24hr in de-novo PD patients and 16 or 8 mg/24hr in advanced PD patients, respectively. Plasma consentration at each maintenance dose was similar to the one in Europe, the US, and Japanese trials.

Conclusion: According to clinical trials conducted in Japan, higher doses of rotigotine therapy were also efficacious and well tolerated in de-novo and advanced PD patients.

TMAMOXIFEN SUPPRESSES OPENING ATP-SENSITIVE K^+ CHANNELS ENHANCED HYDROXYL RADICAL GENERATION BY 1-METHYL-4-PHENYLPYRIDINIUM ION IN RAT STRIATUM

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The present study was examined the antioxidant effect of tamoxifen, a synthetic non-steroidal antiestrogen, on cromakalim or nicorandil (ATP-sensitive K^+ (K_{ATP}) channels opener)-enhanced hydroxyl radical (•OH) generation induced by 1-methyl-4-phenylpyridinium ion (MPP^+) in extracellular fluid of rat striatum. Cromakalim (100 mM) or nicorandil (1 mM) enhanced the formation of •OH trapped as 2,3-dihydroxybenzoic acid (DHBA) induced by MPP^+ (5 mM). Concomitantly, these drugs enhanced dopamine (DA) efflux induced by MPP^+. Tamoxifen (30 mM) significantly decreased the level of DA enhanced by cromakalim or nicorandil. When iron (II) was administered to cromakalim or nicorandil treated animals, a marked elevation of DHBA was observed, compared with MPP^+-only treated animals. Tamoxifen significantly suppressed DHBA formation induced by MPP^+ and cromakalim or nicorandil. These results indicate that the effects of tamoxifen on opening of K_{ATP} channels enhances •OH generation in the extracellular space of striatum during of DA release by MPP^+. These results indicate estrogen protects against neuronal degeneration by as an anti-oxidant.

THE ROLE OF INTRAOPERATIVE MICRORECORDING IN PARKINSON'S DISEASE ON THE SAFETY AND EFFICACY OF SUBTHALAMIC NUCLEUS STIMULATION

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Objects: Microelectrode recording (MER) and macrostimulation are well known methods to identify the optimal sites for implantation of the lead for deep brain stimulation (DBS). The aim of our study was to determine the impact of intraoperative MER, the number of MER passes on the accuracy of identifying subthalamic nucleus (STN) and rate of hardware-related complications of DBS.

Methods: We analysed data of 23 patients who underwent bilateral DBS for treatment of Parkinson's disease in our department between September and December 2009. We used 5 microelectrodes to identify STN in 82.5% of patients and 4 microelectrodes in 17.5% of patients. Patients were assessed in UPDRS score before surgery in the on and off-medication states and 3 months after surgery with DBS switched off and on without medication.

Results: Average active span of STN at the optimal trajectory was 5.5 mm (range: 3.5-8).We achieved a reduction in motor UPDRS score by 62% and reduction in daily levodopa-equivalent dose by 71% with the following DBS parameters: monopolar stimulation, pulse width (PW): 60 microseconds, frequency: 130 Hz, mean amplitude: 2.6 V (range: 2-3.6 V). Time in the operating room in our series was 2 hrs 15 min per lead. Adverse effects in our series: infections (4%), improper lead position (2%), intracranial bleeding (0%).

Conclusions: The procedure with five or four microelectrodes is safe (0% bleedings), is not longer than with fewer microelectrodes and allows better anatomical and physiological identification of STN.

TRACE METALS IN PATIENTS WITH PARKINSON'S DISEASE: A MULTI-CENTER CASE-CONTROL STUDY OF NIGERIAN PATIENTS

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Background: The roles of environmental factors in the etiologic consideration of Parkinson's disease need investigation and clarification, especially in sub-Saharan Africa where genetic mutations are rare. Evidence are associating trace metals toxicity with the pathogenesis of neuro-degeneration including Parkinson's disease.

Methods: PD patients presenting to three tertiary health facilities located in the south-west, south-south and central Nigeria were studied and compared with age and sex matched controls from the same regions by the Neuroscience Parkinson Disease Study Group using a protocol containing a structured questionnaire, diagnostic criteria based on the UKPDS brain bank and atomic absorption spectrophotometry method for analysis of trace metals - copper, zinc, magnesium, manganese and iron.

Results: Sixty eight consecutive PD patients with a mean age of 65.7±7.29 years and a male preponderance (Male (46)/Female (22) = 2.1:1) had significantly elevated trace metals (namely copper, zinc, magnesium and iron) compared to controls ($P< 0.0001$). The level of manganese was elevated in PD patients residing in the southern part of the country but there was no difference between the PD patients and controls in central region ($P=0.29$).

Conclusion: This study demonstrated the presence of elevated plasma levels of trace metals in patients with Parkinson's disease residing in the central, south west and south-south Nigeria. The elevation of plasma manganese level observed in the southern regions was not observed in the central part of the country. There is need for further study to elucidate the role of these trace metals in the etiology of PD.

PD PATIENTS AND THEIR NEUROLOGISTS DISAGREE OVER THE IMPORTANCE OF MOTOR AND NON-MOTOR SYMPTOMS. THE UNIVERSITY OF MONTREAL EXPERIENCE

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PD is characterized by motor and non-motor symptoms (NMS). Although still poorly detected, it is agreed that NMS have a high incidence in PD and are associated to significant morbidity.

The UMMDC is composed of 5 MDS and of an evaluation program (EP) composed of a general practitioner and an interdisciplinary team. Patients evaluated at the UMMDC (> 5000) can be referred to the EP.

We reviewed the reasons for referral by MDS to the EP and compared them with the problems reported by patients.

Between October 2009 and June 2010, 63 patients were referred to the EP. 38 charts with complete data were included in this analysis. The mean age of patients was 69 years, disease duration was 10 years, there were 45% women, 75% had PD and 25% atypical parkinsonism.

The most frequent reasons for referral by MDS were mobility issues and falls (60%), ADL limitations (67%), cognitive dysfunction (60%), psychosocial problems (23%), hypophonia and dysarthria (23%).

The main problems reported were mobility problems (43%), neuropsychological problems (16%), ADL limitations (8%), communication problems (8%).

MDS and patients diverge in their assessment of patients problems. Patients underestimated their cognitive impairment and ADL limitations. MDS may still not be aware enough of the importance of NMS. Patients may underreport their NMS. Also, patients may not recognize the risk of some motor symptoms (eg. falls) and NMS (eg. cognitive impairment). There is a need for systematic review of NMS. Education on PD and its complications are important for better prevention.

AGGRESSIVE BEHAVIOR AS A RARE SIDE EFFECT OF DEEP BRAIN STIMULATION OF SUBTHALAMIC NUCLEUS IN PARKINSON'S DISEASE

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Introduction: Although deep brain stimulation (DBS) seems to be a promising therapy in Parkinson's disease it may be connected with some side effects, which are usually transient. We present a patient with advanced Parkinson's disease (PD), successfully treated by bilateral stimulation of the subthalamic nucleus (STN), who developed attacks of aggressive behavior.

Material and methods: The procedure for DBS was a one-stage bilateral stereotactic approach using the Leksel G stereotactic frame, 1 mm axial MRI scans and 1,25mm CT scans. For STN identification microrecording technique was applied (5 microecectrodes). The anterior electrode was chosen for macrostimulation bilaterally, what allowed best control of parkinsonian symptoms. 4 weeks after surgery STN stimulation was switched on. With increasing the amplitude of stimulation on the right above 3,2 mA (active contacts 1 and 2) the patient experienced severe dyskinesia in left limbs as well as transient episodes of aggression. Change of stimulation (active contacts to 0 and 3) on the right led to withdrawal of all side effects.

Results: We hypothesize that aggression episodes in the patient were caused by stimulation of medial limbic part of STN, with possible simultaneous stimulation of neighboring posteromedial hypothalamic area (triangle of Sano).

Conclusions: The study highlights the fact that STN DBS may affect not only motor symptoms but also behavior of PD patients. Aggression episodes are rare side effect of STN DBS, however in more medial placement of the stimulating electrode in STN, these side effect may be expected.

PARKINSONIAN SYNDROME AS A MANIFESTATION OF SYSTEMIC LUPUS ERYTHEMATOSUS: A CASE REPORT

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A parkinsonian syndrome as a manifestation of systemic lupus erythematosus (SLE) is extremely rare . We report a 33 year-old morrocan women with systemic lupus erythematosus who developed bradyphrenia, hypophonia, rigidity, tremor, akinesia, and abnormal gait progressively. Magnetic resonance studies were completely normal. Following treatment with Steroid pulse therapy and cyclophosphamide without improvement. Additional anti-Parkinsonian drugs were not required. We considered whether the rigidity-akinesia-tremor syndrome might have been secondary to systemic lupus erythematous, due to a probable pathological focus of cerebral vasculitis, in this clinical case which we report . Involvement of the central nervous system in systemic lupus erythematosus has been well described. Movement disorders are less common, chorea being the one most frequently described. A parkinsonian syndrome may be an extremely rare manifestation of cerebral lupus.We report on a case of parkinsonism as a manifestation of SLE and review the literature. We considered whether the rigidity-akinesia-tremor syndrome might have been secondary to systemic lupus erythematous, due to a probable pathological focus of cerebral vasculitis, in this clinical case which we report.

PROFILE OF IDIOPATHIC PARKINSON'S DISEASE IN MOROCCAN PATIENTS

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Mains: To characterize clinical aspects of Idiopathic Parkinson's disease from a movement disorders consultation in a University Hospital of Rabat.

Methods: Retrospective review of the medical records of 117 patients with diagnosis of Idiopathic Parkinson's disease seen in our outpatient clinic from 2006 to 2011.

Results: Mean age was 64±10 years with predominance of men (61.5%). Mean age at disease onset was 57+/-11 years. Early onset Parkinson's Disease was recorded in 12.8%. The median duration of disease was 5 years. Initial symptom appeared on the right side in 56.5%. Tremor presentation was the most frequent (40.2%). Symptom severity was mild to moderate in 80% of cases (UPDRS < 30).

Forty four per cent of patients were receiving both Dopamine Agonists and Levodopa and in 69% of cases Levodopa was introduced within the first year following onset. The mean Levodopa Equivalent Doses (LED) was 667±446 mg/day.

Motor complications were found in 42% with motor fluctuations in 28.7% and dyskinesias in 26.7%. Nonmotor complications are represented mainly by autonomic disorders(44%). There were no differences in the clinical presentation related to the age at onset. Age of onset < 45 and LED>600mg are identified as risk factors for motor fluctuations whereas duration of L-dopa treatment is a risk factor of dyskinesias.

Conclusion: Our patients are younger compared to most series with high prevalence of early onset forms. In the majority of cases, Levodopa was introduced within the first year following onset which expose patients to dyskinesias early in the course of the disease.

QUALITY OF LIFE IN A MOROCCAN POPULATION WITH PARKINSON'S DISEASE

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Aims: To identify factors that influence Parkinson's disease (PD) QoL in Moroccan patients.

Methods: Transversal study of 40 PD patients recruited in Movement Disorders Outclinic in University Hospital of Rabat. Patients were assessed using PDQ39 along with motor clinical (UPDRS, Hoehn et Yahr(H&Y), Schwab and England) and non motor scores (MADRS, Hamilton, Pittzburg, FSI, SCOPA AUT). We also assessed patients for their religious believes. The association between these measures and each domain of PDQ39 was estimated by generalised linear model taking into account demographic and clinical data.

Results: The most impaired domains of PDQ39 was mobility (39,02 % ± 25), Activity of Daily Living (ADL) (25[8-37,5]) and cognition (25[12,5-37,5]).

Stage of disease (H&Y) had a great impact on mobility items (p: 0.0001, B: 25.4, CI [12.7-38.07] and UPDRS II score altered the total score of PDQ39 (PDQ39 SI) (p:0.01, B: 1,19, CI [0.15-1.7]. Non motor symptoms influence strongly PD QoL. Depression worsened PDQ39 SI(p: 0.001, B: 1.10, CI [0.4-1.9] and emotional well being domain (p: 0.006, B: 2.07, CI [0.6-3.5]). Dysautonomic symptoms were the strongest predictors of QoL as a whole, especially cardio-vascular items (p: 0.03, B: 2.19, CI [0.19-4.19]). Fatigue had a great impact on communication (p: 0.002, B: 4.5, CI [1.6-7.5]) whereas religious believes improved PDQ39 domains mobility and ADL (p: 0.001, B: -2.9, CI:[-4.6,-1.2; p: 0.01, B: -1.5, CI: [-2.8, - 0.2]).

Conclusion: Non motor symptoms are predictors of QoL in our patients. Religious believes seem to have quite good impact on QoL.

LEVODOPA INDUCED MOTOR COMPLICATIONS IN PATIENTS WITH SHORT AND/OR LONG DURATION OF PARKINSON´S DISEASE

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Background: Treatment with levodopa (LD) is complicated by the development of motor response fluctuations that become evident as the disease progresses. It is related to peripheral factors, LD dosing and the magnitude of dopamine denervation.

Objective: To investigate and compare the development of levodopa induced motor complications in de-novo Parkinsonian patients with short and long disease duration.

Patients and methods: Forty-seven patients who had been diagnosed for the first time with PD were enrolled into 5 years duration prospective study. Patients were divided into 2 groups according to disease duration and HY stage. First group included drug naive PD patients with 9-18 months duration of clinical symptoms (HY 1-2), and second group included drug naive patients with 18-36 month disease duration (HY 2-3). Combination therapy with LD and agonists was introduced for the first time in all patients. UPDRS with dyskinesias score, MMSE, BDI and Non-Motor Symptoms Questionnaire (NMS Quest) were performed in all patients before treatment and every 6 month during 5 years follow-up.

Results: Forty-five patients finished the study (23 in first group and 22 in second group). Total daily dose of LD was not significantly different between groups. According to follow-up examination motor complications develop in both groups of patients 28-36 months after combination therapy was introduced. There was not significant difference ($p>0.5$) between 2 groups of patients in development of motor fluctuations.

Conclusions: Results of this study indicate that LD induced motor complications and dyskinesias are not likely related only to severity of dopamine denervation.

THE INFLUENCE OF NEUROTRANSMITTERS ON P300 PARAMETERS IN PARKINSON'S PATIENTS

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The main cause for the occurrence of symptoms in Parkinson's disease is explained by dopamine deficiency, also noradrenergic and serotonergic systems play a role in the degenerative process. The most frequently investigated whether endogenous event-related potentials (ERP) component of P 300 is the easiest and the largest traded endogenous ERP components. In this study we aimed that component of the ERP effect on symptoms of Parkinson´s disease and other parameters, investigate the relationship between other components. A total of 39 patients with a mean age of 58.8 years and a total of 39 volunteers with a mean age of 63.5 years as control group in the study. Neuropsychological evaluation was performed by UPDRS, Beck Depression Scale and MMSE. Electrophysiological evaluation performed P300 . There was no statistically significant association between tremor, rigidity, bradykinesia and P300 latency and amplitude levels, but when those with and without postural instability were compared, while there were no differences between P300 latencies, amplitudes were found to be significantly lower (p=0.010). When cardinal symptoms of Parkinson's disease and P300 latencies and amplitudes were compared individually in Parkinson's patients the association observed between the presence of postural instability and low P300 amplitudes was noteworthy. Apart from the dopaminergic structure involved in the generation of postural reflexes as indicated in the literature, this can be explained by the fact that noradrenergic-serotonergic components are also affected. P300 amplitudes resulting predominantly from the non-dopaminergic system affected and prolonged P300 latencies from the dopaminergic system affected.

RELEVANCE OF AERODYNAMIC EVALUATION IN PARKINSONIAN DYSARTHRIA

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Background: Among Parkinsonian axial signs, dysarthria represents an important disabling symptom able to lead towards a significant reduction of oral communication. Several methods of dysarthria assessment have been used but aerodynamic evaluation is rare in the literature.

Objective: To highlight the importance of aerodynamic parameters measures in assessment of parkinsonian dysarthria.

Patients and method: Using a dedicated system (EVA2), 24 parkinsonian patients were recorded after withdrawal of L-dopa for at least 12 h (condition called OFF DOPA) in order to evaluate intra-oral pressure (IOP), mean oral air flow (MOAF) and laryngeal resistance (LR) on six /p/ during realization of the sentence "Papa ne m'a pas parle´ de beau-papa" ("Daddy did not speak to me about daddy-in-law") which corresponds to a breath group. 50 control subjects were recorded in parallel in order to define reference measurements.

Results: It appeared that there is in Parkinson´s disease aerodynamic impairments which were evidenced by the fall in IOP and that of MOAF in patients compared with control subjects. The difference between the two groups was statistically significant. In addition a greater instability of LR in patients compared with control subjects was also noted.

Conclusion: Our results show that measurements of aerodynamics parameters, by reflecting the dysfunction induced by disease, may well be relevant factors in parkinsonian dysarthria evaluation.

IS MEASUREMENT OF OLFACTORY BULB VOLUME USEFUL FOR THE DIAGNOSIS OF PARKINSON'S DISEASE?

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Background and purpose: Olfactory dysfunction is an early sign of Alzheimer's disease and Parkinson's disease (PD). We studied whether the measurement of olfactory bulb (OB) volume is useful for the diagnosis of PD.

Methods: MRI-based morphometric analyses and results of the Odor Stick Identification Test Japan (OSIT-J) and ^{123}I-MIBG scintigraphy were used to evaluate olfactory volume and function in 15 patients with PD (Hoehn-Yahr stage 1 in 6, stage 3 in 6, stage 4 in 2, and stage 5 in 1) and 3 with multiple system atrophy parkinsonism (MSA-P; stage 1 in 1, stage 3 in 1, and stage 5 in 1).

Results: OB volume was significantly smaller in the PD group than in the MSA-P group (212.611±77.230 pixels^2 versus 327.082±57.117 pixels^2, $p< 0.001$). The OSIT-J scores in the PD and MSA-P groups (4.9±2.8 versus 9.3±2.9) were respectively related to the heart/mediastinum ratio of cardiac ^{123}I-MIBG uptake in each group (1.25±0.14 versus 1.70±0.36).

Conclusions: OB volume is smaller in patients with PD, including those with early clinical stage, than in patients with MSA-P. Since olfactory tests are not useful for bedridden patients, the measurement of OB volume may be of value in such patients.

EFFECT OF GAIT REHABILITATION IN PARKINSON DISEASE: VARIABILITY OF STRIDE TIME AND SWING TIME AFTER THE KINETIC PROGRAMME

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Background: The ability to maintain a steady gait rhythm is impaired in patients with Parkinson´s disease (PD). This aspect of locomotor dyscontrol, can be quantified by measuring the stride-to-stride variability of gait timing. We intended to examine the relationship between walking speed and gait variability.

Methods: Stride time variability and swing time variability were measured in 36 patients with PD and 30 healthy controls who walked at four different speeds: 1) Comfortable walking speed (CWS), 2) 80% of CWS 3) 90% of CWS, and 4) 110% of CWS.

Results: Increased variability of stride time and swing time was observed in the patients with PD in CWS, compared to controls. In both groups, there was a small but significant association between gait speed and stride time variability such that higher speeds were associated with lower (better) values of stride time variability ($p = 0.0002$). In contrast, swing time variability did not change in response to changes in gait speed.

Conclusion: We believe the time variability is independent of gait speed, and that it may be used as a speed-independent marker of rhythmicity and gait steadiness. It also suggests that the increased gait variability in PD is disease-related, and not simply a consequence of bradykinesia.

PARKINSON´S DISEASE CHARACTERISTICS IN SOUTHERN TUNISIA

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Background: Parkinson´s disease (PD) is a common neurodegenerative disease in Tunisia. It is a progressive disorder that can cause significant disability and decreased quality of life.

Objective: To describe epidemiological, clinical and genetic characteristics of Parkinson´s disease in southern Tunisia.

Methods: Our study included Tunisian patients with idiopathic PD found in the records of the Neurology department (Habib Bourguiba University Hospital, Sfax) and fulfilling the diagnostic criteria of the UKPDSBB.

Results: We report epidemiological, clinical and genetic data of a large Tunisian cohort with idiopathic PD including 94 patients (52 men and 42 women) with a mean age of 65 years (39-86 years). Familial cases were present in 38.3% and consanguinity was noted in 54 patients (57.4%). Inheritance mode was autosomal recessive in 84% and autosomal dominant in 16%. The mean age at onset was 57 years (25-75 years) and only 11 patients (11.7%) had a juvenile form. Various clinical forms were observed and clinical presentation was suggestive of Tremo-akineto-rigid form (87.2%), Akineto-rigid form (9.6%) and Tremor form (3.2%). All patients, except one, were treated by Modopar. Motor complications were observed in 25.5% and were represented especially by ON/OFF phenomena (14.9%) and dyskinesia (10.6%).

Conclusions: Tunisian Parkinson´s disease patients were sporadic, predominantly men frequently associated with consanguinity, an age of onset after 50 years and Tremo-akineto-rigid clinical presentation. Familial PD is frequent and autosomal recessive transmission represents the most common mode of inheritance.

CLINICAL PAIN AND EXPERIMENTAL PAIN SENSITIVITY IN PROGRESSIVE SUPRANUCLEAR PALSY

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Objective: We aimed to assess spinal nociception and experimental pain sensitivity in progressive supranuclear palsy (PSP) compared to patients with Parkinson's disease (PD) and healthy controls (HC).

Methods: Spinal nociception as measured by the nociceptive flexion reflex (NFR) and experimental pain sensitivity as measured by heat and electrical pain thresholds were determined in non-demented, non-depressed, probable PSP patients (N=8), PD patients (N=19) and 17 HC.

Results: PSP patients exhibited lower electrical pain thresholds and a tendency for lower NFR thresholds as compared to HC. No significant differences between PSP and PD patients were found with respect to experimentally-induced pain. However, significantly less PSP than PD patients reported disease-related pain.

Conclusions: Degeneration of the descending inhibitory control system within the brainstem in PSP might lead to increased experimental pain sensitivity while frontal cortical deterioration may alter self-estimation of pain.

MEMORY, VISUOSPATIAL, AND LANGUAGE DISTURBANCES FOR GREEK PARKINSONIAN POPULATION

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Background: The study had purpose to copy probable memory, language and visuospatial and disturbances in Parkinson's disease patients (PD).

Material and methods: To 30 normal subjects and 17 Parkinsonian patients (age and education equivalent) seven scales were administrated: Arizona Battery of Communication Disorders of Dementia (ABCD), Mini Mental Status Examination (MMSE), Abbreviated Mental Test Score (AMTS), Instrumental Activities of Daily Living (IADL), Geriatric Depression Scale (GDS), Neuropsychiatric Inventory (NPI), and Clock Test. The aspects of mental status, episodic memory, linguistic expression and comprehension, as well visuospatial construction were assessed. Also extra analyses in all variables of language were done.

Results: Statistical analysis of data revealed significant differences in all test's that were administrated. In all aspects that were assessed statistically significant differences were observed as well. In the variables of language that were assessed statistical significant differences were observed in some of them. Relative to controls, PD patients performed significantly worse on most cognitive measures.

Conclusion: Speech, language, and certain memory skills are examples of dissociable differences, especially in the early stages of the disease. It is probably premature to categorize all of the cognitive changes in patients with Parkinson´s disease as subcortical, however. Some skills, such as visuospatial and executive functions, are impaired. This research suggests that occurrence of cognitive impairment in patients with Parkinson´s disease is possible. Defining it offers an opportunity for further study of cognitive impairment in PD and targets for earlier therapeutic intervention.

THE RAPHE NUCLEI IN PARKINSON´S DISEASE AND PARKINSONISM

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Parkinson´s disease(PD), multiple system atrophy(MSA), corticobasal degeneration (CBD), and progressive supranuclear palsy(PSP) exhibit unique personality respectively, namely nervousness and delicateness in former 3 diseases, indifference and nonchalance in latter one. Recently, there have been several reports concerning the relationship between personality and neurotransmitters. In the present study, we paid attention to a kind of neurotransmitters, that is serotonin, then observed the raphe nuclei with ascending fibers, that is the dorsal raphe nucleus (DRN) and the median raphe nucleus(MRN) in these diseases. Subjects were 10 cases of PD, 15 MSA, 9 CBD, 15 PSP, and 9 normal controls without neurological disease. The sections (10-µm-thick) involving the lower midbrain and the upper pons were stained routinely with hematoxylin-eosin, Klüver-Barrera, Holzer, and Bodian. For immunohistochemical studies, a panel of antibodies against serotonin and tryptophan hydroxylase antigens was employed. We estimated neuronal loss, neuropil sparseness, and gliosis, and then counted immunohistochemical positive neurons in the DRN and the MRN, respectively. In the DRN of PD and MSA, there was neuronal loss significantly. In the DRN of CBD, tryptophan hydroxylase-positive neurons tended to be reduced but not significantly. On the other hand, the DRN was not remarkable in PSP, although neuronal loss was observed in the MRN of PSP. The degree of degeneration in the raphe nuclei might cause the difference of personality between PSP and the other degenerative disease. The upper raphe nuclei degeneration is noteworthy neuropathological finding in PD, MSA, and CBD.

CLINICO-ELECTROPHYSIOLOGICAL CORRELATION IN PATIENTS WITH CORTICOBASAL SYNDROME

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Background: Corticobasal syndrome (CBS) is characterized by slowly progressive asymmetric cortical and extrapyramidal dysfunction. Neuropathology of CBS is diverse including tauopathy such as corticobasal degeneration, progressive supranuclear palsy and TDP-43 proteinopathy. The aim of this study is to determine whether somatosensory evoked potentials (SEP) and motor evoked potentials (MEP) are useful tool for diagnosis of CBS.

Methods: We analyzed 20 patients with early stage of CBS (disease duration < 5yrs.), who admitted in our hospital between 2003 and 2010. Of those, both SEP and MEP were performed in 10 patients. Clinical features and central conduction time (CCT) were analyzed.

Results: Subjects include 8 male and 12 female with mean age of 68.7 years. Dominantly affected side was right in 9, left in 11. Limb apraxia was observed in all patients. Cortical sensory loss in 3 (15%), ailien hand in 3 (15%), and myoclonus in 2 (10%) were observed. Parkinsonism was seen in 17 (85%), and dystonia in 5 (25%). In 8 out of 10 patients, CCT evaluated from MEP was more prolonged (>1ms) or not evoked at the affected side compared with that at the other side, while CCT from SEP was more prolonged (>1ms) at the affected side only in 3 of 10 patients.

Interpretation: The abnormal degree of SEP or MEP was different in each patient; however, right-left difference in MEP is more correlated with the laterality of clinical features appropriately.

NEUROMELANIN-RELATED CONTRAST (NRC) IN THE SUBSTANTIA NIGRA SEMIQUANTITAVELY EVALUATED BY 3T MRI: COMPARISON BETWEEN NORMAL AGING AND PARKINSON DISEASE(PD)

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Fast spin-echo T1-weighted MRI at 3T, which was optimized to detect NRC, was applied to quantitative estimation of signal alterations in the substantia nigra pars compacta (SNc) of 72 normal volunteers and 59 patients with PD. We examined relationship between NRC in SNc and clinical parameters. NRC showed significant positive correlation with normal aging and was slightly higher in women than in men. Significant reduction in NRC was found in PD as compared with 59 age- and sex-matched normal volunteers. NRC in PD was negatively and significantly correlated with disease duration and severity assessed by UPDRS and Hoehn & Yahr stage. Significant reduction of the NRC was demonstrated in patients with visual hallucinations as compare with patients without the symptoms. REM-related sleep disorder also contributed reduction of NRC although it did more mildly than visual hallucination. Anosmia or hyposmia had no statistical relationship with the amount of NRC in PD. The overall visual inspection indicated that the reduction of NRC in PD should start at the ventrolateral portion of SNc and advance medially. Additionally, we studied dementia with Lewy body disease (DLB). NRC was reduced more significantly in DLB patients with PD symptoms than in those without them who also showed a significant reduction compared with normal controls. Quantification and distribution of NRC obtained by 3T MRI was well correlated with pathological findings reported previously and clinical parameters in this study. Visualization and quantification of NRC provide some parts of clinical and diagnostic information about pathologic condition of SNc.

DEPRESSION IN THE PARKINSON´S DISEASE

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Background: Parkinson´s disease (PD) is a chronic neurodegenerative disease which affects about 1% of the population aged 60 and over as a result of degeneration of nigrostriatal dopaminergic neurons. Along with motor symptoms, most of PB patients experience non-motor symptoms, especially depression.

Objective: The aim of the study was to determine the incidence of depression in patients with PD.

Patients and methods: The study included 64 PD patients who were followed-up in the out-patient unit for movement disorders and fulfilled the decisive criteria for the diagnosis of PB (by the United Kingdom Parkinson´s Disease Society Brain Bank Clinical Diagnostic Criteria). All participants completed the questionnaire - Beck Depression Inventory II (BDI). The total BDI score of 14-19 points included mild depression, 20-29 points moderate, and ≥30 points severe depression.

Results: The mean age of the patients (M=38, F=26) was 63.2±5.8 yrs. The mean duration of PD was 8.9±4.5 yrs, the mean Hoehn & Yahr stage was 3.2±5.2. Analysis of BDI showed symptoms of depression in 48 (75%) participants; 10 of them showing mild, 26 moderate, and 12 severe depression.

Conclusion: Depression is found in a high percentage in PD patients. BDI could be a very useful method for detecting and grading depression in PD patients. Along the anamnestic data and complete clinical examination, BDI could be an additional indicator of necessity to initiate a specific antidepressant therapy.

EFFECTS OF TARGET CELLS, VARIOUS TROPHIC FACTORS, AND CYTOKINES ON CELL SURVIVAL AND APOPTOSIS OF EMBRYONIC DOPAMINERGIC NEURONS (EDAN)

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Objectives: The influence of embryonic striatal target cells (EST) on ventral mesencephalic tegmental (EVMT) cells, supplementation of placental-cord serum (HPCS), brain-derived neurotrophic factor (BDNF) and glial-cell derived neurotrophic factor (GDNF), interleukin-2 (IL-2), transforming growth factor beta-1, and lipid peroxidation inhibitor on EDAN survival were examined.

Methods: EVMT and EST cells were obtained from Spraque-Dawley rat embryos E-14 (+ 2d). Dissociated EVMT cells were stored in hibernation buffer (HB) alone or in conditioned-HB (CHB) for 3 days prior to co-culture. The CHBs are HBs supplemented with various factors of interest. Following 3 days of EST-EVMT co-culture, tyrosine hydroxylase immunoreactive cell density was measured. Apoptosis was measured by use of TACS 1 Klenow in situ apoptotic kit (Trevigen). One-way analysis of variance was used for statistical analyses.

Results: The initial cell viability of harvested EVMT and EST cells was 0.71 ± 0.07, and 0.80 ± 0.10, respectively. The % viability of EVMT cells continue to decline over time in cold storage. Cell viability improved in CHB supplemented with BDNF or GDNF or placental cord serum ($p < 0.001$). Even better cell survival in the EST-EVMT co-culture. Apoptosis decreases in the CHB in dose-dependent manner.

Conclusions:

(1) protective effects of HPCS, BDNF, GDNF, IL-2, LPIs are dose-dependent. It is in part due to anti-apoptotic effect;

(2) EST cells provide the strongest supportive elements for EDAN survival;

(3) we postulate that concomitant transplantation of both EVMT and EST cells to the recipient parkinsonian brain may be a plausible alternative way to increase graft survival.

AN A-SYNUCLEIN 3´-FLANKING REGION SNP INTERACTS WITH PARKINSON´S DISEASE SUSCEPTIBILITY VIA ALLELE-SPECIFIC BINDING OF A TRANSCRIPTION FACTOR

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We and others identified SNCA as a susceptibility gene for Parkinson's disease (PD). Moreover, our recent genome-wide association study (GWAS) in the Japanese population, as well as GWAS in individuals of European ancestry confirmed a strong association with the SNCA 3'-region SNPs. However, their biological functions remain uncovered. To examine how a -synuclein (SNCA) SNPs influence Parkinsons disease (PD) susceptibility, from the previous reports and additional genotyping, we selected SNPs associated with PD among different ethnic groups. We analyzed these SNPs potential effects on SNCA gene expression by using luciferase assay and gel-shift assay. Of the four SNPs selected, we found that rs356219, a SNP in the 3-flanking region of SNCA, showed allele-specific features. Gel-shift assay using nuclear extracts from SH-SY5Y cells showed binding of one or more proteins to the protective allele, rs356219-A. We purified the rs356219-A-protein complex with DNA affinity beads and identified a bound protein using mass spectrometry. This proteinX is a ubiquitous transcription factor with multiple functions. Our results suggest that rs356219 may influence SNCA transcription via allele-specific binding by proteinX.

CLINICAL PREDICTORS FOR EARLY STAGED PLACEMENT OF SUBTHALAMIC DBS IN PARKINSON DISEASE

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Bilateral subthalamic deep brain stimulation (STN DBS) is superior to best medical therapy for the motor symptoms of Parkinson disease (PD), albeit at greater risk of serious adverse events. PD is an asymmetric disease, and unilateral DBS followed by a staged contralateral procedure (when needed) is a treatment option, but little is known about whether there are predictors for when staged contralateral DBS may be required. Eighty-two consecutive advanced PD patients underwent unilateral STN DBS contralateral to the most affected hemibody and had 24 months of follow-up. Multivariate logistic regression evaluated preoperative phenotypes including disease duration, Unified Parkinson Disease Rating Scale (UPDRS) total score, UPDRS motor score, UPDRS dyskinesia subscore, motor asymmetry index, tremor subscore, and body weight. At 24 months post-op, 28 patients had undergone staged placement of a contralateral electrode, and 54 patients remained unilateral. Regression analyses showed that the predictors for staged placement of a second STN stimulator were low asymmetry index (odds ratio (OR) 11.28; 95% confidence interval (CI) 2.81, 45.36), high tremor subscore (OR 7.69; CI 1.89, 32.25), and low body weight (OR 3.88; CI 1.227, 12.28). UPDRS total score, UPDRS Part 3 motor score, UPDRS dyskinesia subscore, and akinetic rigid disease were less predictive of the early staged procedure. This single center study suggests that elements of the PD phenotype serve as predictors for whether early staged bilateral STN DBS will be required in patients with advanced PD, and this information may assist patients and caregivers in surgical planning.

GAMMA KNIFE RADIOSURGERY FOR INTRACTABLE TREMORS: CLINICAL OUTCOME FOR 50 PATIENTS

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Objective: To assess the safety and efficacy of Gamma Knife thalamotomy for the treatment of severe tremors and the relationship between the clinical outcome and targeting methods.

Background: Thalamic DBS is a well recognized treatment for intractable tremors. However, some patients are poor candidates for invasive neurosurgery, wether due to the use of anticoagulants, serious medical co-morbidities or advanced age.Gamma-knife radiosurgery could be a safe alternative.

Design and methods: 50 patients with severe refractory tremor (37 essential 13Parkinsonian) were treated with unilateral Gamma-knife thalamotomy. VIM targeting was achieved with Leksell Gamma unit with a single exposure through a 4mm collimator helmet. The GKS dose at the maximum was 130Grays.Tremor severity assessment (Whiget tremor rating scale), impairment in activities of daily living, cognitive assessment (Mattis dementia rating scale, verbal fluency) and MRI follow-up were done before surgery and at 6 and 12 months.

Results: One year, after Gamma-knife thalamotomy, the decrease in functional impairment was 65% and tremor reduction was 40% (56 % on the right hand,which was treated in 75% of the patients). The cognitive assessment remained stable. The only side-effect was a transient hemiparesis. Follow-up MRI showed T2-hyperintense signal changes whith mild gadolinium enhancement. 6 patients had no effect on tremor. Lesions within the Guiot target gave the best results.

Conclusions: Gamma-knife thalamotomy is a safe and efficient procedure for treating severe tremor. Target location within the Guiot VIM area is a good predictor for positive clinical outcome.

STIFF PERSON SYNDROME ASSOCIATED WITH NEURO ENDORINE CARCINOMA

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Introduction: Stiff person syndrome (SPS) is an auto immune disease characterized by progressive rigidity with superimposed spasms of predominantly axial and proximal limb muscles. The paraneoplasic variant is rare and usually associated with amphiphysin antibodies.

Objective: To report an exceptional case of SPS presenting as the first symptom of neuroendocrine carcinoma and discuss clinical, neuropathological and immunological features.

Case report: A 33 year-old man, with no family and personal medical history, presented at the age of 28, a progressive cervical rigidity. Neurological examination showed cervical stiffness with total and permanent lock of the neck. VCN showed hyperactivity of para vertebral cervical muscles at rest. Cervical and brain MRI were normal. Five years later, he developed chronic diarrhoea with deterioration of general condition. Neuropathological tests showed neuro endocrine carcinoma poorly differenced. Immunological tests showed a high level of anti amphiphysin and anti-Ri antibodies and the diagnosis of paraneoplasic stiff person syndrome was made.

Discussion: Paraneoplasic SPS variant is a rare entity, usually associated with breast cancer, small cell lung cancer, Hodgkin lymphoma, invasive thymoma and colon adenocarcinoma. To our knowledge we report the first case of paraneoplasic SPS presenting as the first symptom of neuroendocrine carcinoma.

Conclusion: The diagnosis of paraneoplasic stiff person syndrome variant and associated immunological disorders should be well known by the physician to detect early-stage malignant disease.

PARKINSON'S DISEASE AND LIFE QUALITY

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Actuality: At Parkinson's disease one can diagnose motor, psycho-emotional and cognitive changes which significantly deteriorate life quality.

Materials and methods of investigation: 90 people - 40 men (44,4%) and 50 women (55,6%) have been examined. The average age was 64, 62 ± 9,03 years.

Verification of the diagnosis was carried out according to ICD - 10. The degree of severity was determined with the help of Hen and Yar's scale and UPDRS. Everyday activity was estimated according to Schwab and English scale. The patients' life quality was estimated with the help of "A short questionnaire of health state assessment" (MOS SF-36) and a special questionnaire of patients' life quality state (PDQ-39).

Results: MOS SF-36 showed that women's life quality was higher in all rates except social activity. Assessment of life quality according to PDQ-39 fixed higher men's life level in all rates except emotional well-being and corporeal discomfort.

The patients' life level with a trembling form was lower in all rates except social activity. The patients with akinetic form had lower social activity state. The worst results on such signs as mobility and activity of everyday life were at trembling form, the best results - at akinetic form.

Conclusion: The women's level of life quality was higher in all rates except social activity. The patients' life level with a trembling form of Parkinson's disease was lower than at the other forms in all rates except social activity. The patients with akinetic form had the least pain syndrome.

THE IMPACT OF "ADMIT NO BED" AND LONG BOARDING TIMES IN THE EMERGENCY DEPARTMENT ON STROKE OUTCOME

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Background: Long boarding in Emergency Department (ED) due to shortage of beds becomes an ongoing challenge for hospitals. Patients may board for long time, waiting for beds; phenomenon known as"Admit-no-Bed". Due to complexity of stroke care, we speculated that prolonged boarding in ED might predispose to adverse outcome.

Methods: Retrospective study conducted at KAMC, Riyadh. It included acute stroke patients required admission from 2007 to 2010. We excluded those required admission into ICU on arrival or received thrombolysis. Demographics, clinical data, time from stroke onset to ED , ED wait time (time of arrival to floor-time of arrival to ED) and boarding time (time of arrival to floor- time of decision to admit) were collected. Primary outcome was death and/or severe disability, pneumonia, UTI, neurological deterioration, subsequent ICU admission or DVT. Secondary outcome was any of complications alone.

Results: We included 300 patients. Mean (± SD) age was 69 (±12),66% were men.Risk factors were hypertension (81.7%), Diabetes(65.3%), hyperlipidemia (27.7%), smoking (7.3%), coronary artery disease (CAD) (17%), heart failure(CHF)(7.3%) and atrial fibrillation (AF) (7.7%). Primary outcome was observed in 37.7%. No association between boarding time and the primary outcome (OR= 0.9, p = 0.3). No association between boarding time and any of the secondary outcomes; death (OR=0.97, p =0.5), severe disability (OR=0.97,p=0.3), pneumonia(OR=1, p=0.9), UTI(OR=1, p=0.9) or neurological deterioration (OR=0.8,p= 0.1). No association between ED wait time and primary outcome (OR=1,p= 0.3), death(OR=0.9,p =0.8), severe disability (OR= 0.99, p =0.5), pneumonia (OR=0.9, p =0.6), UTI(OR=1,p =0.2) or neurological deterioration (OR=0.9,p =0.4). In a multivariate analysis included risk factors, onset to door time, boarding time and ED wait time; only moderate to severe stroke, presence of CHF and history of old stroke predicted poor outcome.

Conclusion: Although we showed that "Admit-no-bed" was not associated with adverse effect, it should be interpreted with caution and early admission to organized stroke unit should be encouraged.

THE EFFECT OF NEUROAID ON CEREBRAL BLOOD FLOW VELOCITY IN SUBJECTS´ POST BRAIN INFARCT IN THE MIDDLE CEREBRAL ARTERY TERRITORY

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Stroke is the third common cause of mortality and the most common cause of morbidity in adults. MLC601 is a treatment indicated for post stroke recovery. The aim of this study was to investigate the effect of MLC601 on cerebral blood flow velocity.

Methods: This is a double-blinded, placebo controlled, randomized study of 80 subjects included within a week of stroke onset. All subjects were given either MLC601 or placebo, 4 capsules, 3 times a day for 3 months. Cerebral blood flow within the middle cerebral artery, with blood flow velocity measured by transcranial Doppler (TCD), and Barthel index was assessed at baseline and at 3 months.

Results: The mean change in cerebral blood flow velocity in the MLC601 treatment group (15.9) was significantly increased ($p = 0.009$) compared to the placebo group (9.6). Subjects in the treatment group also showed a significant difference in the mean rank of modified ranking scale ($p < 0.001$) and mean change of the Barthel Index: 36 vs. 29 in the placebo group ($p < 0.001$).

Conclusion: This is the first study suggesting that treatment with MLC601 may increase cerebral blood flow in stroke subjects. This may be mediated by an effect on stimulating microcirculation, an important process contributing to neuroplasticity in the central nervous system. This effect on cerebral blood flow may be associated with improvement in measures of functional recovery.

DELIRUM OCCURENCE DURING THE ACUTE PHASE OF STROKE

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Background: Delirium is an acute, reversible, fluctuating disorder of mental status characterized by loss of attention and consciousness, as well as mood and cognition changes. The aim of this study was to identify the risk factors for delirium occurrence during first 4 days after stroke.

Methods: Retrospective, observational, single center study was performed on 144 consecutive acute stroke (AS) patients who were hospitalized in the Stroke Unit of Emergency Neurology Department from 1.01-1.06.2011. The comparison was made between two groups: group 1 (6 patients with AS and delirium) and group 2 (16 age and sex matched control patients with AS without delirium.) Age, gender, stroke localization, co-morbidities and length of hospitalization were analyzed.

Results: During the first 4 days delirium occurred in 6 patients (mean age 67.7±13, p=0.60). The localization of stroke was mainly in right hemisphere, basal ganglia, and thalamus. These patients had as risk factors hypertension and previous stroke. The duration of their hospitalization was 19.5 ± 11 days (p=0.0026). In the group of patients without delirium (mean age 64.6± 12) as risk factors were mostly present hypertension, hyperlipoproteinemia and diabetes mellitus. The stroke localization was mainly paraventricular, parietooccipital and frontal (left and right). The duration of their hospitalization was 10 ± 2 days.

Conclusion: Elderly male patients with previous medical history of stroke or co-morbidities with stroke in right hemisphere, basal ganglia and thalamus were more prone to delirium during first 4 days after an acute stroke.

PIROXICAM MODULATES LIPID PEROXIDATION, POTENTIATES ANTIOXIDANT REDOX SYSTEM, AMELIORATES BEHAVIORAL OUTCOME AND ELECTRICAL ACTIVITY OF BRAIN IN FOCAL CEREBRAL ISCHEMIA

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Inflammation is a normal, protective response to tissue injury caused by physical trauma, noxious chemicals or microbiological agents. The pathology associated with the majority of ischemic stroke in animal is an inflammatory response. The intracellular calcium overload resulting from glutamate excitotoxicity is considered as a major determinant for neuronal loss during cerebral ischemia. According to present line of approach, treatment of focal ischemia is suboptimal without considering the combination of thrombolysis with free radical scavenger and anti inflammatory therapies, hence thinking in this direction must be a urgent priority for present researchers. With such considerations, in the present study we investigated the effects of Piroxicam, a NSAID and an inhibitor of COX-2 activity, on brain damage induced by a focal ischemic-reperfusion model of rats.

Piroxicam treatment, thirty minutes prior to ischemia and four hour post reperfusion, afforded significant neuroprotection from ischemic injury as evident by the reduction in cerebral infarct volume and neurobehavioral assessment. Further an early calcium dependent rise in levels of nitrite and MDA was also found to be significantly ($P< 0.01$) reduced in ischemic brain infarction following Piroxicam pretreatment. Moreover it also improved the motor function coordination as well as the electrical activity of the brain which was reduced due to ischemic insult. Determination of the brain antioxidant status reveals potentiation of antioxidant redox system by Piroxicam administration .These studies thus provide neuroprotective profile of Piroxicam in rat model of focal cerebral ischemia.

DOUBLE-BLIND, PLACEBO CONTROLLED, RANDOMIZED, MULTICENTER STUDY TO INVESTIGATE CHINESE MEDICINE NEUROAIDTM EFFICACY ON STROKE RECOVERY (CHIMES STUDY)

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Stroke is a major cause of death and disability. Previous clinical studies performed in China have shown that NeuroAiD^{TM} increases stroke patients' recovery in terms of neurological disability and functional outcome [Chen et al, 2009] and thus may be beneficial as part of a post-stroke rehabilitation programme. In the CHIMES study, we seek to test the hypothesis that NeuroAiDTM is superior to a Placebo in reducing neurological deficit and improving functional outcome after acute ischemic stroke in patients with cerebral infarction with intermediate range of severity ($6 \leq NIHSS \leq 14$).

CHIMES is currently the largest trial investigating the efficacy of a Traditional Chinese Medication on stroke recovery which is in compliance with international guidelines and using Western clinical trial standards. It involves centres in Philippines, Singapore, Thailand, Sri Lanka and Hong Kong and has the support of eminent clinicians and scientists from many countries. Safety data for additional laboratory tests was conducted only in Singapore sites at the request of the Singapore regulators. These results were analysed with the investigators and steering committee remaining blinded to the treatment allocation [Young et al, 2010] and showed no safety concerns. The second CHIMES DSMB meeting took place in March 2011 and reviewed safety and outcome on 659 patients. Safety data alone was also available for total of 743 patients. There were no safety concerns noted by the DSMB which recommended the investigators to continue recruitment to the full sample size of 1100 patients.

PIRACETAM EFFECTIVENESS IN POST STROKE APHASIA

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Introduction: Aphasia causes significant disability and handicap among stroke survivors. Language therapy is recommended for aphasic patients, but not always available specially in our country. Piracetam, has been shown to have mild beneficial effects on post-stroke aphasia.

Objectives: To determine whether piracetam improved language function when compared to language therapy alone

Patients and methods: Retrospective study from January 2000 to December 2009. The diagnosis of aphasia was confirmed in 124 cases by a senior neurologist. We compared the evolution of speech disorders among patients with aphasia who were under piracetam therapy and those who were not.

Results: The follow up varied from 19 to 72 months. Aphasia was found in 124 cases which represent 28% of all our patient. Among this patients 91 were giving piracetam (first group) and 33 were not (second group). The evolution was as following; 40 patients (44%, when related to the same group total patients) from the first group witnessed an improvement in their speech disorders versus 15 patients (45%) from the second group, in another hand 18 patients (19.7%) from the first group didn't improve their aphasia versus 6 patients (18%) from the second group, finally, 17 patients (18.6%) from the first group dead versus 5 patients (15%) from the second group.

Conclusion: Piracetam in our experience was not associated with an improvement in speech disorders, furthermore, in the group placebo we witnessed less death cases! This results encourages as to establish other prospective studies to confirm this findings.

ACUTE STROKE MANAGEMENT IN NOUAKCHOTT: IMPACT OF INITIAL CARE PATHWAY IN PATIENT'S FUNCTIONAL IMPROVEMENT

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Introduction: The initial management is crucial in improving the motor deficit and hence the functional prognosis of stroke patients. In Mauritania this medical support is done through different care networks.ObjectiveOur study aimed to determine whether the pathway type of initial care had an impact on the functional improvement of the patients.

Methods: Cohort of 82 persons including 42 in the neurology department (dpt.) of the Neuropsychiatric Center (CNP), 40 in Internal Medicine dpt. and Cardiology dpt. of the National Hospital Center (CHN), was followed from March 1 to November 30, 2006. The patients were evaluated by 2 validated scales: Barthel Index (BI) and Functional Independence Measure (FIM) at day D0, D30, D60 and D90. Comparisons focused on the ratios of improved patients, and the recovered ratings averages.

Result: We recorded 66% of patients evaluated at the end in Neurology dpt.; the rate decreases to 30% for Cardiology dpt. and 10% for Internal Medicine dpt. ($p = 0.0005$). The delay average between the onset deficit and the rehabilitation start was 9 days in Neurology dpt. and 19 days elsewhere ($p = 0.0002$). Comparison of ratings of improved patients by the 2 scales showed a difference in favor of patients included in Neurology. Comparison of recovered scales average showed no difference between the different managing care networks.

Conclusion: There were more improved patients in neurology dpt. than in the other departments. This is well correlated with the earliness of physiotherapy and the regular monitoring of patients.

INTRAVENOUS THROMBOLYSIS WITH RT-PA IN STROKE: EXPERIENCE OF THE SAINTE ANNE TEACHING MILITARY HOSPITAL OF TOULON

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Introduction: Since 2003, intravenous thrombolysis with rt-PA in stroke has been largely developed in the military hospital of Toulon. We report the results of our practice and compare them with the literature. We also sought to identify predictive factors of favourable outcome after thrombolysis.

Methods: All patients treated with rt-PA for a stroke in the carotid territory between September 2003 and June 2009 were prospectively included. Disability was assessed at 3 months with the modified Rankin Scale (m-RS); outcome was considered unfavourable if m-RS score was above 2. Multivariate analysis was then performed to identify parameters that correlate with poor and favourable outcome at 3 months follow-up.

Results: One hundred and one patients were included in this study (mean initial National Institute of Health Stroke Scale [NIHSS]: 15,2). 53,4% had a Rankin score higher than 2 at 3 months follow-up. The absence of diabetes mellitus, low NIHSS score on admission, short time from stroke onset to treatment, and prior statin use were identified as independent predictive factors of favourable functional outcome.

Conclusions: After 6 years of activity, our stroke unit has results that appear similar to those of the French and international trials in term of safety and efficacy. Efficacy of rt-PA in our series is poor for strokes caused by large-vessel atherothrombotic changes and cervical artery dissection due to high incidence of internal carotid thrombosis in these cases. Our studies also suggest that prior statin use may be an independent predictive factor of favourable outcome after thrombolysis.

PRE-HOSPITAL ITINERARY OF PATIENTS ADMITTED FOR STROKE IN NEUROLOGICAL DEPARTMENT OF FANN TEACHING HOSPITAL IN DAKAR

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Introduction: Stroke needs emergency management. Our aim is to describe pre-hospital itinerary of patients who are admitted in neurological department of Fann teaching hospital, in order to point out the insufficiencies of the system.

Methods: This is a prospective cross-sectional and descriptive study conducted in neurological department of Fann, from April 03 to October 03 2006, including all patients admitted for stroke. Sociodemographic datas, prehospital itinerary, clinical and neuro-imaging datas were collected.

Results: We gathered 111 cases aged 16 to 96 years. Sex-ratio was 1.13. Seventy-nine percent of them came from urban areas, while 21% came from rural ones. Three point six percent went to the tradionnal practice at first, 13.5 % in a local health station, 34.23 % in a district hospital, 13.5 % in a regional hospital, 34.23 % in a teaching hospital, 13.5% in other health care structures: private office, pharmacy, private doctor or nurse. Thirty-six patients were admitted within the 3 first hours, 56% in the six first hours. CT-scann was performed in the 3 first hours for none of them, in the six first hours for 3.6%. None of the patients benefited from thrombolytic drug. Only 30.6 % were evacuated by ambulance. We found 32% of hemorrhagic and 68% of ischemic. Twenty-one percent of patients died.

Conclusion: This points out the insufficiencies of stroke management system in Senegal, particularly in pre-hospital state. Many effort has to be made to improve this, so that stroke morbidity and mortality can be reduced.

VITAL AND FONCTIONNEL PROGNOSIS AFTER ISCHEMIC STROKE IN TUNISIAN

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Background: Knowledge of early prognosis factors of stroke is important to reduce the burden of this disease.

Purpose: In this prospective study, we evaluated the impact of pre stroke risk factors and the concomitant metabolic or clinical dysfunction on mortality and functional outcome within 30 days after stroke in Tunisian patients.

Methods: From January 2010 to December 2010 , 100 patients hospitalized within stroke were enrolled in our study. Demographic data and cardiovascular risk factors were registered. Clinical dysfunction was evaluated; functional outcome was assessed using the MIF score.

Results: Data analysis confirmed that age, history of stroke (p=0.01); low serum glucose (p< 0.001), severe neurological deficit with high NHISS score (p< 0.001), fever (p=0.001), occurrence of epileptic seizure (p=0.04) were significantly associated with very bad outcome. Regarding cerebral imaging, presence of mass effect (p=0.001) and perilesional brain oedema (p=0.001) are poor vital prognosis factors. Biologic exploration revealed that hyperglycemia (p=0.04), high level of CRP (p=0.01), hyperosmolarity (0.01) and hypoalbuminemia (p< 0.001) were also associated with a poor outcome. Poor functional prognosis factors in our study were: severe neurological deficit with high NHISS score (p< 0.001) and hemispheric location (p=0.006). However, early rehabilitation improved prognosis (p=0.01).

Conclusions: The parameters associated with poor vital and functional outcome were comparable to previous literature studies. The results of our study suggest that it is possible to improve prognosis after stroke by setting measures of prevention of the risk factors and rehabilitation in the early management of hemiplegia.

RELATIONSHIP BETWEEN SERUM ALBUMIN LEVEL AND ISCHEMIC STROKE PROGNOSIS

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Background: Human serum albumin is a unique multifunctional protein with neuroprotective properties. Experimental studies showed that human albumin therapy substantially improves neurological function.

Purpose: This study aimed to determinate the association of serum albumin with outcome and mortality after ischemic stroke.

Methods: In a prospective study, we included 84 patients with ischemic stroke. Serum albumin was measured at the time of admission. Stroke severity was measured at the time of admission with the National Institutes of Health Stroke Scale (NIHSS). Functional outcome was measured with the MIF score on day 1 and day 30. Initial hypoalbuminemia (serum < 3.5g/dl) as well as other prognosis factor were determined and compared between two groups.

Results: Eighty four patients were included, 47 males and 37 females. The mean age was 64,20±12,23 years. Eleven patients died (13%). On admission hypoalbuminemia was present in 21patients (25%). This hypoalbuminemia was significantly higher in the non survivors (90.9% p< 0.001). The mean Glasgow coma scale score, unilateral neglect evaluation and fever complications were significantly lower in non survivors (p< 0.001). Low serum albumin was independently associated with a bed outcome (p = 0.001). After adjusting parameters, low serum albumin was associated with higher mortality (p < 0.0001).

Conclusions: The current study indicates that low serum albumin is associated with bad outcome and higher mortality in ischemic stroke patients. High serum albumin may be neuroprotective in ischemic stroke in humans.

DEVELOPMENT OF MID-FREQUENCY TRANSCRANIAL THROMBOLYSIS METHOD WITH SOFT THIN ULTRASONIC TRANSDUCER

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Transcranial sonothrombolysis (TST) for the acute ischemic stroke (AIS) treatment is one of the most expected method to enhance the effect of thrombolytic drug such as t-PA. We developed newly a TST system with a soft thin flat ultrasound (US) transducer (STFUT) which can be stuck on the temple surface. The thrombolytic US condition applied to STFUT was 500kHz, continuous wave (CW), low intensity (less than 0.35W/cm^2) and intermittent sonication, which safety and effectiveness have been already proved by various animal experiment of AIS model using rats and primates. The shape of STFUT was a square of 30mm and the thickness was 3.2mm. The system has features that STFUT was driven by CW signal, which phase was modified by a random noise signal, to avoid the standing wave (STW) caused by multireflection of US beam in the skull. US beam distribution of STFUT was measured by the Schlieren method. By this optical method, the dispersion of STW driven by random modulation US was also confirmed by using several human skulls. Since STFUT can be fitted by sticking on the curved head surface, the patient moving frequently in the super acute phase of AIS occurrence would not be so much restrained under the US sonication. It is anticipated that a novel TST system with STFUT has a great advantage in the clinical application with high QOL of AIS patient and that most AIS patient in the super acute phase can be treated by a facile TST method.

INTRAVENOUS THROMBOLYSIS FOR ACUTE ISCHEMIC STROKE IN ASIA: A META-ANALYSIS

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Background: Data on thrombolysis in Asia are scarce & only a small percentage of patients are thrombolyzed. Dose of IV-TPA in Asia remains a controversial issue. Previous trials in Asia included only Japanese patients & suggested the efficacy and safety of low-dose IV-TPA (0.6mg/Kg body weight; max 60mg) as comparable to standard-dose (0.9mg/Kg body weight; max 90mg). Reduced treatment cost, lower symptomatic intracerebral hemorrhage (SICH) risk & comparable efficacy encouraged Asian centers to adopt low or variable-dose IV-TPA regimens.

Methods: We searched the published literature on AIS thrombolysis in Asia. We included studies published in English, with at least 10 patients, reported functional outcomes at 3months and SICH rates. Unadjusted relative risks and 95% Confidence intervals were calculated for each study. Pooled estimates from random effects models were used as tests for heterogeneity were statistically significant.

Results: We found only 17 publications on AIS thrombolysis in Asia. Of the 44 countries in Asia, only 9 (total number of patients1808) reported their results. Owing to ethnic differences, stroke severity, small number of cases, outcome measures & TPA dose-regimens, it is difficult to compare these studies. In general, the functional outcomes were almost similar (to Japanese studies) when low-dose TPA was used in non-Japanese populations across Asia. Interestingly, with standard-dose IV-TPA regimen, considerably better functional outcomes were observed, without increasing SICH rates.

Conclusions: Variable dose-regimens of IV-TPA are used across Asia without any reliable or established evidence. Perhaps, an Asia-wide large randomized controlled trial can address the prevailing confusion about IV-TPA dose.

INTRAVENOUS THROMBOLYSIS IN STROKE PATIENTS DUE TO ATRIAL FIBRILLATION - A SERBIAN EXPERIENCE WITH THROMBOLYSIS IN ISCHEMIC STROKE (SETIS) STUDY

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Background: The purpose of our study was to determine the efficacy and safety of intravenous thrombolysis (IVT) among patients with acute ischemic stroke (IS) due to atrial fibrillation (AF) comparing to those without it.

Methods: Data were from the SETIS study, a prospective, multicenter, and observational study in Serbia of all IS patients treated with IVT during five year period. We analyzed differences in the baseline characteristics, functional outcome, death and complications between IS patients due to AF comparing to those without it.

Results: Among 501 IVT-treated IS patients, there were 103 (20.6%) with AF. Comparing two groups of patients, we found no significant differences in excellent functional outcome (mRS 0-1)(51.7% with AF vs.54.4% without AF; OR 0.90[95%CI 0,56-1.43];p=0.648), favorable functional outcome (mRS 0-2)(58.4% with AF vs.66.0% without AF;OR 0.72 [95%CI 0.45-1.17]; p=0.188) or death (22.0% with AF vs.15.1% without AF;OR 1.58 [95%CI 0.88-2.82]; p=0.119) at 3 months. However, multivariate logistic regression analysis showed that the patients with AF had significantly less chance to be with minimal or no neurological deficit comparing to those without AF, after adjusting for age, sex, baseline NIHSS score, onset to treatment time, affected area and ASPECT score (p=0.037). There was a higher rate of symptomatoc ICH in group with AF (6.9% with AF vs. 1.8% without AF; OR 4.08 [95%CI 1.40-11.92];p=0.012).

Conclusion: IVT-treated IS patients with AF have less chance to be with minimal or no neurological deficit and a higher risk of developing sICH, compared to those without AF.

LOW LEVEL OF C-REACTIVE PROTEIN AFTER STROKE: WORSE OUTCOME IN NEUROINTENSIVE CARE UNIT VERSUS GOOD OUTCOME IN NEUROLOGICAL WARD

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Background: Level of inflammation markers, like C-reactive protein (CRP) is a strong predictor of the risk of heart attack and death, but their association with stroke remains controversial.

Aim: To identify the sensitivity of C-reactive protein (CRP) as the prognostic factor of stroke outcome.

Patients and methods: 473 patients were divided into the 2 group (used NIHSS): I group - 326 patients mild-moderate stroke (0-15) in ND and II group-147 patients with severe (16-38) stroke in NICU.

CRP were determined within 24 hour after stroke. Short-term functional outcome was measured by Rankin scale (RS) and Barthel index (BI) 14 days and 3 months later.

Result: In group I the high CRP was associated with poor short-term functional outcome (RS > 3; BI < 85; p< 0.001) and with higher score of NIHSS. The low-CRP was in a strongly correlation with good outcome, low grade of disability according to RS and BI. In II group high CRP was associated with poor short-term functional outcome (RS >4; BI < 70;p< 0.001),but the low level of CRP also significantly correlated with short-term poor outcome, 3 months mortality and low grade of NIHSS (p< 0.001).

Conclusion: A low admission CRP in NICU is strongly associated with severe NIHSS and high short-term mortality visa versa to low level of CRP in ND with the good outcome. It remains to establish if the low level of CRP can be a marker of poor prognosis in severe stroke due to neuroimmunological response failure to the critical condition.

USE OF THE EMERGENCY MEDICAL SERVICE INCREASES THE PROBABILITY OF UNDERGOING THROMBOLYTIC THERAPY IN THE PATIENTS WITH ACUTE ISCHEMIC STROKE

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Objective: To test the hypothesis that a direct visit to a stroke center using the EMS could increase the number of patients treated with thrombolytics and reduce prehospital time and time from stroke onset to thrombolytic therapy.

Methods: We enrolled the patients with ischemic stroke who were admitted to our stroke center within the first 6 hours after symptoms onset. The patients were divided into 4 groups based on the mode of admission: 1) a direct visit to the emergency room (ER) by self, 2) a direct admission to the ER using the EMS, 3) retransfer to the ER after visiting to other hospitals using EMS and 4) retransfer to ER after visit to other hospitals by self. The numbers of ischemic stroke patients who underwent intravenous thrombolytic therapy were analyzed.

Results: The percentage of patients who received rt-PA administration was higher for the patients who directly presented via the EMS (14.3%, 29.4%, 15.5% and 15.2%. respectively; p=0.042). The median time from onset to admission (126, 80, 168 and 195 minutes, respectively; p< 0.001) and intravenous thrombolysis (116, 105, 168 and 162 minutes, respectively; p< 0.001) was shorter for the group with direct access to a stroke center via the EMS.

Conclusions: The patients who arrived directly to the stroke center via the EMS are more frequently treated with thrombolytic therapy. Public education about the need to promptly seek help from the EMS after stroke is essential so that acute stroke patients receive effective treatment.

PROGNOSIS COMPARISON OF INTRA-ARTERIAL THROMBOLYSIS 6HOURS BEFORE AND AFTER ONSET TIME

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Introduction: IA thrombolysis usually was performed within 6 hours from onset time. But it is not easy for patients to come in time. We try to know whether the '6 hours' role is really correlated with stroke outcome.

Methods: We assessed 56 patients of acute MCA infarction due to MCA occlusion who received IA thrombolysis.

Results: The patients of IA thrombolysis within 6 hours are 40 patients and beyond to 6 hours are 16 patients. In the group within 6 hours, 23 patients (44%) showed favorable outcome and 13 patients (46%) no effect, and 4 patients (10%) poor outcome. Among these, 17 patients got chemical thombolysis only and 23 patients got chemical and mechanical (mixed) thrombolysis. In chemical thrombolysis only group, the percentage of favorable outcome, no effect and poor outcome was 25%, 15% and 3% individually. And mixed thrombolysis group the percentage was 32%, 17% and 8%. In the patients beyond 6 hours, 6 patients (37.5%) was favorable outcome, 8 patients (50%) no effect, and 2 patients (12.5%) poor outcome. Among these, the patient of chemical only or mixed thrombolysis was 7 and 9. In chemical thrombolysis only group, the percentage of favorable outcome, no effect and poor outcome was 19%, 25% and 0% and mixed thrombolysis group the percentage was 19%, 25% and 12%.

Conclusions: There was no significant poor outcome in delayed IA thrombolysis in patient with MCA occlusion. But the chemical and mechanical thrombolysis demanded more attention because it showed poor outcome.

COST OF STROKE

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Introduction: The partial disengagement of States and the appeal to politics based on the recovering of the costs in sub-Saharan Africa impose the coverage of the spending in care of health by the very population.

Objective: From January 1st, 2005 till December 31, 2005 we led a study in Neurology of Lomé. The purpose of our study was to estimate the cost of comes back from stroke for the patients hospitalized in neurology to improve the quality of the care.

Method: It was about a forward-looking study with 412 patients. The inquiry is led according to a preestablished questionnaire. During all the hospitalization, stay of every patient, we raised day after day all the attributable expenses in the hospitalization.

Results: The direct cost of a hospitalization by stroke in neurology was brought up with regard to the standard of living of the average Togolese. It amounted in 679,6±297,92 Euros for an average duration of 17,44 days. According to the type ofstroke, this cost was for the ischemic stroke of 428,83±188,91 Euros for an average duration of 10,17jours; concerning the haemorrhagic stroke this cost was 935,6±36,45 Euros for an average duration of stay of 26,75 days. The hospital expenses, the pharmaceutical expenses and the expenses due to acts and additional examinations were the most expensive.

Conclusion: The reduction of this cost will pass by the availability and the appeal to the prescription of generic medicines, by the reduction of the duration of stay by decreasing the delay of execution acts.

ASSOCIATION BETWEEN HEMORRHAGIC TRANSFORMATION AND BLOOD PRESSURE PROFILES BEFORE AND AFTER INTRAVENOUS TISSUE PLASMINOGEN ACTIVATOR IN THE HYPERACUTE ISCHEMIC STROKE

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Objectives: Spontaneous intracranial hemorrhage after t-PA therapy is severe complication associated with the bad prognosis of patients. We evaluated the role of blood pressure (BP) and BP variability, which had been measured before and after injection of t-PA during 24 hours.

Methods: The 116 patients were enrolled. BP (systolic blood pressure [SBP], diastolic blood pressure [DBP], and pulse pressure [PP]) were recorded before t-PA and during 24 hours after t-PA at hourly intervals. The BP profiles were characterized by initial, mean, maximum (max), minimum (min), max-min, and standard deviation (sd). The hemorrhagic transformation was classified by using clinical and radiologic criteria as follow: hemorrhagic infarction (HT), parenchymal hemorrhage (PH), and symptomatic hemorrhage (SH) on follow-up CT in 24-36 hours after the onset.

Results: The intracranial hemorrhage occurred as follow: HT 25.52% (n=25), PH 10.81% (n=12), SH 3.60% (n=4). The PPsd during 24 hours (24h PPsd) was significantly higher in the patients with HT than in the others (14.57±0.76 vs 11.84±0.39, 95% confidential interval [CI] 1.07 - 4.40, $p< 0.001$) and was also higher in patients with PH than in the others (16.74±4.17 vs 11.93±3.48, 95% CI 2.65 - 6.97, $p< 0.001$). Odds ratio per 5mmHg of 24h PPsd was 2.41(95% CI 1.23-4.72) in HT and 4.76 (95% CI 1.60 - 12.17) in PH.

Conclusion: The variability of pulse pressure during first 24 hours may be associated with the hemorrhagic transformation after thrombolytic therapy with t-PA in the hyperacute infaction.

ASYMMETRIC INTERNAL CEREBRAL VEINS IS ASSOCIATED WITH POOR OUTCOME IN ANTERIOR CIRCULATION ISCHEMIC STROKE PATIENTS TREATED WITH INTRAVENOUS THROMBOLYSIS

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Background: Significant numbers of acute ischemic stroke (AIS) patients recover with timely intravenous tissue plasminogen activator (IV-TPA). Early identification of reliable predictors of functional outcomes is important for planning rehabilitation strategies. We hypothesized that cerebral hypoperfusion due to acute internal carotid or middle cerebral artery occlusions would impair venous drainage. 2 internal cerebral veins (ICV) drain the deep parts of hemispheres and consistently seen on CT angiography (CTA). ICV asymmetry on post-TPA CTA may persist on the follow-up CTA in patients who do not achieve recanalisation with TPA. We evaluate whether the presence of ICV asymmetry on follow-up CTA can predict the final outcome.

Methods: Consecutive AIS patients treated with IV-TPA from Jan2007 to March2010 were included. ICV asymmetry was assessed in both pre-TPA and follow up CTA. Data were analyzed for early predictors of function outcome.

Results: Of the total of 1918 AIS patients admitted to our center, 189 (9.9%) eligible cases were treated with IV-TPA; ICV asymmetry could be assessed only in 107 (57%) and 74 (39%) patients on their pre-TPA and follow up CTA films, respectively. Increasing age (RR1.02;95%CI 0.97-1.01,p=0.02), AF (RR 1.38;95%CI1.04-1.83, p=0.03), pre-TPA NIHSS (RR per 1-point increase 1.09;95%CI 1.04-1.16, p=0.01) score and ICV asymmetry on follow up CTA (RR 3.75;95%CI 2.33-6.06,p< 0.0001) were associated with poor outcome at 3 months.

Conclusion: Presence of the asymmetry of internal cerebral veins on the follow up CT angiography in acute ischemic stroke patients treated with IV-TPA can be used as an early predictor of poor functional outcome.

EXTENDING THERAPEUTIC WINDOW FOR INTRAVENOUS THROMBOLYSIS TO 4.5 HOURS REMAINS SAFE AND EFFECTIVE IN ASIAN ACUTE ISCHEMIC STROKE PATIENTS

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Background: Intravenous tissue plasminogen activator (IV-TPA) remains the only approved therapy for acute ischemic stroke (AIS) patients within 3 hours of symptom-onset. However, the therapeutic benefit exists up to 270 minutes. We evaluated safety and efficacy of IV-TPA in an extended therapeutic window among Asian patients in Singapore.

Methods: Consecutive AIS patients treated with IV-TPA from Jan2007 to March2010 were included. All patients received standard-dose of IV-TPA. Efficacy was assessed with functional outcomes at 3-months (modified Rankin Scale (mRS) score. Safety of IV-TPA was assessed by rates of symptomatic intracranial hemorrhage (SICH).

Results: Of the total of 2271 AIS patients admitted to our center, 224 (9.9%) eligible cases were treated with IV-TPA. Baseline data included mean age 63±12 years; 131 (59%) males & median NIHSS 16 points. 190 patients were treated within 3 hours while 34 received IV-TPA in extended therapeutic window. Overall, 115 (51%) patients achieved good functional outcome. Although, higher proportion of patients treated after 180 minutes had poor outcomes at 3 months (62% versus 46% in 0-180 minutes group), the difference was not statistically significant (OR 1.87;95%CI 0.88-3.96, p=0.097). SICH occurred in a total of 9 (4.01%) patients. Although, higher proportion of patients treated in an extended window developed SICH (9.7% versus 3.3%), the difference was not significant (p=0.141).

Conclusion: Intravenous thrombolysis in an extended therapeutic window is effective as well as safe in the treatment of acute ischemic stroke in our multiethnic Asian population in Singapore.

THERAPY IN ACUTE STROKE

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Background: The development of effective therapies for acute ischemic stroke presumes the existence of potentially salvageable ischemic tissue when therapy is initiated because it is widely assumed that the effectiveness of most acute stroke therapies under development is related to reducing ultimate infarct size to promote functional improvement. Such salvageable ischemic tissue was previously labeled the ischemic penumbra and must be distinguished from irreversible injury. of Review Pathological identification of irreversibility (infarction) appears to lag behind the actual development of this condition, and reversible injury after focal ischemia should be differentiated from infarction. Imaging and biochemical markers apparently can provide clues for distinguishing potentially salvageable from irreversibly injured ischemic tissue in experimental and clinical stroke. Recent positron emission tomography and MRI studies suggest that these clinically available imaging technologies will be useful for determining the presence of ischemic penumbra in individual stroke patients. The progression from potentially reversible to irreversible injury after focal brain ischemia has many potential mechanisms that may be synergistic and vary among individuals.

Conclusions: Delineating and prioritizing these mechanisms provides the opportunity to develop multiple potential acute stroke therapies that ultimately will be used in combination, perhaps directed by imaging technology.

ENDOVASCULAR TREATMENT OF CEREBRAL VENOUS SINUS THROMBOSIS USING PENUMBRA SYSTEM: A CASE REPORT

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Introduction: Cerebral venous sinus thrombosis is a rare but potentially deadly condition. Besides Heparin, Endovascular thrombolysis is an experimental treatment to be used in experienced centers for severe cases or patients who fail to improve on anticoagulation.

Case presentation: We present a case of a 32-year-old female with an extensive cerebral venous sinus thrombosis that had failed conventional anticoagulation treatment. She was treated with local thrombolysis using the Penumbra Stroke System with complete recanalization of the sinuses and improved clinical outcome. She experienced no adverse events from therapy.

Conclusion: We concluded that the Penumbra System for local thrombolytic therapy may be an additional therapeutic option for the acute management of extensive cerebral sinus thrombosis with appropriate patient selection. Clinical trials are required to assess safety and efficacy of this promising new therapy.

A CASE OF SUCCESSFUL THROMBOLYSIS FOR ISCHAEMIC STROKE IN THE PRESENCE OF A LARGE ABDOMINAL AORTIC ANEURYSM

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We report the case of an 88 year old man who presented with sudden onset left sided weakness and left facial droop. A right middle cerebral artery infarction was clinically diagnosed with dense right MCA on CT brain (Figure 1). The onset of symptoms was within 3 hours, the patient's NIHSS score on arrival was 15. He had good baseline function and no known contraindications, except age; a good candidate for thrombolysis.The patient and family were consented and Alteplase was administered. A very good response to treatment was seen with almost full resolution of symptoms. Subsequent CTA confirmed right internal carotid artery stenosis of 90% and showed a 10cm abdominal aortic aneurysm which was not dissecting or leaking at that time (Figure 2). The patient underwent a successful elective Endovascular Aortic Repair and right carotid endarterectomy 10 days after presentation.We feel that this case highlights the idea that an aortic aneurysm may considered as a relative contraindication to thrombolysis. The finding of such an important risk for bleeding should be weighed against the potential for improving outcomes for those with stroke that thrombolysis offers. Symptomatic intracerebral haemorrhage was higher in those patients where protocol was violated, underlining the importance of treatment within the guidelines (1). In carefully selected elderly patients intravenous TPA was not associated with increased risk of symptomatic intracranial haemorrhage. We are awaiting the results from the IST3 trial to know the benefit of TPA in those over 80 years of age (2).

DOUBLE-BLIND, PLACEBO-CONTROLLED, CLINICAL STUDY TO INVESTIGATE THE SAFETY AND EFFICACY OF NEUROAID ON MOTOR RECOVERY AFTER ISCHEMIC STROKE

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Background and objective: To date, no effective treatment has been found for reducing stroke-induced disability. NeuroAid as a Traditional Chinese Medicine has been developed to aid post-stoke recovery. Our study aim was to investigate the safety and efficacy of NeuroAid on motor recovery after ischemic stroke.

Methods: In a double-blind, placebo-controlled clinical trial study on 150 patients with a recent (less than 3 month) ischemic stroke, patients were given either NeuroAid (100 patients) or placebo (50 patients), 4 capsules 3 times a day, as an add-on to standard medication of post stroke for 3 months. The efficacy endpoint was improvement of impairment of the affects upper and lower limbs as assessed on the Fugl-Meyer Assessment (FMA).

Results: There were no difference in FMA score at baseline; 53.69±23.01 in the NeuroAid and 54.96±24.27 in the control group, p=0.755. FMA scores increases significantly in NeuroAid comparing to controls in 4th week (77.13±19.22 vs. 63.50±24.21;p< 0.001), 8th week (82.51±14.27 vs. 72.06±21.41; p=0.001) and 12th week (86.22±12.34 vs. 82.78±14.93;p< 0.001) after medication. Repeated measured analysis showed statistically difference in FMA during 12 months between two groups (p< 0.001). Patients showed a good tolerability to treatment and adverse events were mild and transient.

Conclusion: NeuroAid showed better motor recovery than placebo and was safe on top of standard ischemic stroke medication. It was more effective in motor recovery in subjects with severe and moderate than mild patients. However, still more studies are needed to evaluate safety and efficacy of Neuroaid.

CHRONIC KIDNEY DISEASE INCREASES HEMORRHAGIC TRANSFORMATION IN LARGER ARTERY ATHEROTHROMBOSIS BUT NOT IN CARDIOEMBOLISM

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An important sequel of chronic kidney disease is platelet dysfunction, resulting in prolonged bleeding time, mucocutaneous ecchymoses in patient with severe kidney disease. It has also been reported that decreased glomerular filtration rate (GFR) can be a strong risk factor for hemorrhagic, but not ischemic stroke. However, the associations of decreased GFR and hemorrhagic transformation(HTf) after acute ischemic stroke are not discovered.

174 patients with stroke attributable to large artery atherothrombosis (LAA: n=105) or cardioembolism (CE: n=69) were selected for this study. Demographic data was collected by review of their medical records and HTf was evaluated through follow-up T2 weighted gradient-echo MRI performed within 1 week after stroke. GFR was measured by chronic kidney disease epidemiology collaboration (CKD-EPI) method.

Of the 174 patients, HTf was noted in 34 (19.5%). On univariate analysis, high intitial NIHSS, thrombolytic treatment, involvement of cortex and decreased eGFR (< 60) were significantly associated with HTf after ischemic stroke. Decreased eGFR was not significant risk factor for HTf on multivariate analysis (p=0.183, OR;2.1). However, decreased eGFR was significantly associated with HTf in LAA group (p=0.002), but not in CE group (p=0.535). After adjusting covariates, decreased eGFR was independent risk factor for HTs in LAA (p=0.015, OR:93.8).

Chronic kidney disease (eGFR < 60) is significantly associated with risk of hemorrhagic transformation after acute ischemic stroke attributable to LAA.

CITICOLINE IN PATIENTS WITH ACUTE ISCHEMIC STROKE

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Aim: To study the efficiency of citicoline in a dose of 2000mg/day in patients with acute ischemic stroke.

Methods: The study included 40 people with the first acute ischemic stroke in the region of internal carotid artery. Patients were divided into 2 groups. The 1st group received basic therapy and citicoline in a dose of 2000mg/day intravenously for 10 days. The 2nd group received only basic therapy. To objective the patients´ status the following scales were used: NIHSS, Rankin Scale (mRs), Barthel Index (BI), MMSE.

Results: The 1st group did significantly better regress of neurologic impairment to the 10th and 28th days (7.07±2.01 and 6.45±1.98 respectively) compared with the 2nd group (9.80±2.08 and 8.47±2.39). Functional dependence measured by mRs to the 10th day was also significantly improved with citicoline (1.92±0.35) compared to the 2ndgroup (2.42±0.52).This tendency continued until the 28th day (1.40±0.22 and 1.82±0.5 respectively). There were significant differences in the degree of functional recovery measured by BI and cognitive function ($p< 0.05$) at the 28th, 90th,180th day between these groups. There were no side effects of citicoline. Three patients died by the 28th-day in the 2nd group due to neurological (cerebral edema with compression of brain structures) and somatic (pneumonia and pyelonephritis) complications.

Conclusion: This study demonstrated good efficiency, safety and high tolerability of citicoline at a dose of 2000mg/day. The faster partial or complete regression of neurologic impairment which increases the number of patients who can return to their previous life and duties in the workplace was noted.

THE CHINESE MEDICINE NEUROAID (MLC601, MLC901) INDUCES POTENT NEUROPROTECTIVE AND NEUROPROLIFERATIVE EFFECTS IN CEREBRAL ISCHEMIA IN RODENT

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Background and aims: Cerebral ischemia, induced by stroke or cardiac arrest, is a leading cause of death and disability. Few therapeutics are available to improve prognosis. NeuroAid (MLC601), a traditional medicine used in China seems to have beneficial effects in patients, in post-stroke complications. The aim of this work is to analyze neuroprotective and neuroproliferative action of MLC601 and its simplified formula MLC901 in models of focal and global ischemia.

Methods: *In vivo*: Focal ischemia was induced in mice by middle cerebral artery occlusion (60 min) and global ischemia in rats by a four-vessel occlusion (20 min). MLC601/901 (Moleac) was administered as *a post-treatment* by intraperitoneal injection (1 mg/25g mouse, 74mg/250 rat) up to 3 hours after ischemia vs Placebo. *In vitro*: cultures of cortical neurons explore excitotoxicity and neurogenesis.

Results: MLC901/MLC601 post-treatments up to 3 hours after ischemia improve survival and decrease functional deficits in both models. It protects the brain from the necrotic (prevent neuronal death in primary cultures of cortical neurons exposed to glutamate), apoptotic (decrease Bax expression), and oxidative (decrease lipid peroxydation) damages induced by ischemia. MLC601/MLC901 creates neurogenesis (increase BDNF) with cell proliferation, neurite outgrowth and development of a dense axonal and dendritic network.

Conclusion: These preclinical results MLC901/ML601 contributes to give a fundamental basis to this Chinese medicine for stroke and cardiac arrest treatment. Action on neuronal plasticity by increasing neurogenesis, synaptogenesis and induction of neurotrophic factors such as the brain-derived neurotrophic factor, could be promising to reduce disabilities secondary to ischemia.

INTRAVENOUS THROMBOLYSIS FOR ISCHEMIC STROKE IN UNIVERSITY HOSPITAL OF FEZ, MOROCCO (REPORT OF 24 CASES)

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Introduction: A stroke unit was created in 2009 in university hospital of fez. The first intravenous thrombolysis was done in april 2010.

Materials and methods: All patients over 18 years with ischemic stroke admitted to the neurology department at university hospital of Fez, between April 2010 and May 2011, responding to the criteria for Intravenous thrombolysis and who benefited from this treatment are included in this study. Assessment of delays to stroke thrombolysis the NIH score scale before thrombolysis and after 24 hours, the Rankin score at 3 months, CT scan before thrombolysis and after 24 hours were evaluated.

Results: The mean age of our patients is 65 years, the mean time of visiting the emergency is 119 minutes, the mean time for completion of the CT scan is 30 minutes, the administration delay of intravenous rt-PA was 83 min. Only 5 patients were treated before 3 hours. The mean NIH score was 14 at admission, 10 after 24 hours with 4 cases of dramatic improvement. Nonfatal hemorrhagic transformation were noted in 2 cases.

Discussion: The prehospital delay is the main constraint encountered in our experiment (119 minutes). The delay of administration of rt-PA is 202 minutes in our series compared to 165 minutes of other Western series.

Conclusion: The shortening of the period of consultation at emergency room can be done by educating the public about the symptoms of stroke.

NEUROPROTECTION IN ACUTE ISCHEMIC STROKE DEPENDING ON ITS PATHOGENETIC SUBTYPES

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A study included 100 patients with ischemic stroke: 42 of them were with atherothrombotic, 41 - with lacunar, and 17 - with cardioembolic stroke subtype. All patients received basic therapy. A main group (49 patients) received gliatilin (choline alfoscerate) as an add-on neuroprotector in dosage 1000 mg/day intravenously in drops or intramuscular. Clinical assessment was carried out for the 1 and 10 days using the following scales: Scandinavian, Orgogozo, Original (Gusev-Skvortsova´s). The rapid regress of neurological deficit ($p< 0,05$), better rehabilitation of neurological deficiency ($p< 0,05$) and functional status were found after the treatment in the main group compared to the control. Better effect was seen in atherothrombotic and lacunar strokes, although in cardioembolic stroke clinical parameters were higher than in control group. From side-effects were observed dizziness (25%), vomiting (1%), high blood pressure (10%), headache (2%), but they fully disappeared by the 10th day of treatment. Thus, choline alfoscerate showed itself is a save and highly effective drug with neuroprotective action in acute ischemic stroke and can be recommended in all its pathogenetical subtypes.

THROMBOASPIRATION WITH THE PENUMBRA SYSTEM IN ACUTE ISCHEMIC STROKE: A SINGLE-CENTRE EXPERIENCE

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Background: The Penumbra System (PS) is approved for treatment of acute ischemic stroke (AIS) secondary to large vessel occlusion. We tested safety and feasibility of PS in AIS patients.

Methods: Consecutive patients presenting within 8 hours of stroke onset with CT-angiography showing large intracranial vessels occlusion were selected. Intravenous rtPA was given within 4.5 hours, if not contraindicated. Digital subtraction angiography was used to monitor a guide catheter to the site of occlusion. Clot aspiration was done by connecting the reperfusion catheter to the aspiration pump. A 24-hour CT scan was done in all patients. 3-month outcome was assessed by the modified Rankin Scale (mRS).

Results: Between August 2009 and January 2011 30 patients were included (19 M, 11 F). Complete recanalization was achieved in 17/30 (56,6%) while partial recanalization in 9/30 (30%). Comparing the two group PS patients were significantly younger (median ±IQR: *60 (51-69)* vs 72 (58-78); p=0.002), had a significantly higher percentage of tandem ICA-MCA occlusion (50% vs 18%; p=0.008), were treated significantly later (*231.5* min vs 175 min; p=0.03) and had a higher percentage of any revascularization (TIMI 2 and 3) (86,5% vs 51%; p=0.009). No significant difference in symptomatic intracranial haemorrhage, 3-month favourable outcome and 3-month mortality were found (11% vs 5%; p=0.31; 41% vs 38%; p=0.82; 22% vs 18%; p=0.66).

Conclusion: Thromboaspiration by the PS was safe, leading to 85% recanalization of intracranial occlusions. Despite the high mortality and disability associated with this stroke subtype, the prognosis was favourable in 70% of patients.

STROKE IN YOUNG AND FORAMEN OVALE (PFO) ABOUT THREE CASES

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Introduction: The foramen ovale (PFO) is the persistence after birth, an opening usually asymptomatic, between the right atrium and left. There is present in 10-20% of cases of cerebral infarction young.

Objectives: Discuss the possible existence of a causal link between presence of a patent foramen ovale and the occurrence of stroke in young.

Materials and methods: Retrospective chart review of three patients, hospitalized in the neurology department for assessment of accident cerebrovascular disease. All our patients benefited from a careful search with of vascular risk factors, neurological examination somatic and complete laboratory tests, serological immunological and large, a hemostasis, a study cerebro spinal fluid, a brain MRI and Angio-MRI an exploration with a cardiovascular transesophageal echocardiography (TEE) and

Doppler supra aortic trunks.

Results: These were two women and one men, aged 26 to 43 years without known vascular risk factor. Our patients had a patent foramen ovale (test positive contrast) isolated in two cases and associated with a aneurysm of the atrial septum (ASIA) in the third case, no other abnormalities in the evaluation paraclinical. The treatment was based on a double anti platelet aggregation in two cases and the anti vitamin K in one case. The outcome was favorable with a decline of 12 to 18 months.

THE REASONS OF DELAYED DOOR TO NEEDLE TIME FOR ACUTE STROKE PATIENTS UNDERGOING INTRAVENOUS THROMBOLYSIS

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Background: International guidelines affirm that intravenous thrombolysis (IVT) for acute ischemic stroke (AIS) patients must be performed as quickly as possible. Recent data shows that door to needle time (DNT) may be longer when patient arrives to hospital earlier. The aim of our study is to evaluate the DNT in Vilnius hospitals and to recognize influential factors.

Patients and methods: All AIS patients who were treated in Vilnius hospitals and received IVT were included in this study. The demographic and clinical data, onset to door time (ODT) and DNT were collected. The admission time to hospital were analyzed. The work time was defined as 8 AM to 3 PM from Monday to Friday. The logistic regression analysis was performed to indentify the independent predictors of delayed DNT.

Results: 174 patients received IVT for AIS during 2002-2009. The mean age was 66.2±11.3 years; the initial neurological deficit was 15.1±5.6 points on NIHSS. The 21.8% of patients had previous stroke, and 33.9% of patients had atrial fibrillation (AF). 43% of patients were admitted to hospital during work hours. The mean ODT was 80±45 min, and DNT - 68±31 min. The moderate correlation between ODT and DNT was found ($r=-0.423$, $p< 0.001$). No correlations between AF, previous stoke and DNT were found. Logistic regression analysis confirmed longer ODT ($p< 0.001$) and more severe initial neurological deficit ($p=0.041$) as independent predictors for shorter DNT.

Conclusion: The longer ODT is associated with shorter DNT. The optimization of in-hospital service is needed to reduce the DNT.

THE OBSERVATION OF THE EFFICACY OF THE COMPREHENSIVE PROTOCOL OF INTEGRATED CHINESE AND WESTERN MEDICINE IN ACUTE ISCHEMIC STROKE PATIENTS

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Objective: To study the efficacy of the comprehensive protocol of integrated Chinese and western medicine in acute ischemic stroke patients with the early intervention of traditional Chinese medicine.

Methods: According to the randomized, controlled method, 64 patients matched the inclusion criteria were randomly divided into 2 groups: comprehensive protocol of integrated Chinese and western medicine group (test group, n=32) and comprehensive protocol of western medicine group (control group, n=32). NIHSS, Barthel Index (BI) were observed at the given time points.

Results:

1) At 7th d NIHSS in test group had significant difference compared with the baseline (p=0.011), while it took 14 days in control group (*P*=0.034). At 21th d group comparison shows that the improvement of NIHSS in test group is apparently better than that in control group (*P*=0.031).

2) At 7th d BI in test group had significant difference compared with the baseline (*P*=0.008). While at 21th d BI began to have statistical difference compared with the baseline in control group (P=0.021). Group comparison shows that BI in test group is better than that in control group at the time points of 14thd, 21th d, 3rd mon, 6th mon (p< 0.05).

Conclusion: The comprehensive protocol of integrated Chinese and western medicine performs faster and better in the improvement of neurological function, ability of daily life, which should be recommended to a large-scale use.

THE COCHRANE SYSTEMATIC REVIEW OF CALCIUM ANTAGONISTS FOR ACUTE ISCHEMIC STROKE

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Objective: To determine safety and efficiency of calcium antagonists for patients of acute ischemic stroke.

Methods: All true randomized trials comparing a calcium antagonist with control in patients of acute ischemic stroke were included from the following databases(last searched: November 2010), the Cochrane Stroke Group Trials Register, the Cochrane Central Register of Controlled Trials (The Cochrane Library, latest issue), MEDLINE (from 1950), EMBASE (from 1980), and four Chinese databases. Outcome measures included main outcome (poor outcome), defined as death or dependency and secondary outcomes, including adverse events, hypotension, recurrent stroke.

Results: 34 randomized trials with 7763 patients were included. The quality of these trials was generally good. No effect of calcium antagonists on poor outcome at the end of follow-up (OR1.08; 95% CI 0.97/1.19), or on death at the end of follow-up (OR 1.09, 95% CI 0.97/1.23) was found. Intravenous administration of calcium antagonists could increase the number of patients with poor outcome (OR1.22; 95% CI 0.99/1.50) compared with oral administration (OR1.04; 95% CI 0.92/1.17) (indirect comparisons). Comparisons of different doses of nimodipine suggested that the highest doses were associated with poorer outcome. Administration within 12 hours of onset could increase the proportion of patients with poor outcome, but this effect was largely due to the poor results associated with intravenous administration.

Conclusions: No evidence was available to justify the use of calcium antagonists in ischemic stroke patients. Intravenous administration of calcium antagonists, highest doses nimodipine and administration within 12 hours of onset were associated with the poorer outcome.

CEREBRAL THROMBOPHLEBITIS REVEALING CELIAC DISEASE

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Introduction: Celiac disease is a pathology which is rarely associated with neurological complications and particularly with cerebral thrombophlebitis. Through this case report, we will try to explain the mechanism of thrombophlebitis in Celiac disease.

Case report: M.H. a 38-year-old woman who suffered from recurrent abortions was hospitalized for an acute headache and blurred vision. Neurological examination found signs of intracranial hypertension with bilateral papilledema on optic fundus. Cerebral MRI and angio-MRI revealed cerebral venous thrombosis of the superior sagittal sinus. The biological tests showed antiendomysium antibodies and antitransglutaminase antibodies which were strongly positive. In addition we found also hyperhomocysteinemia and a low plasma vitamin B12 level.

The diagnosis of celiac disease complicated by cerebral thrombophlebitis was retained. The patient was improved under anticoagulants, vitamin B12 supplementation and gluten free diet.

Discussion: Celiac disease is rarely associated with neurological disorder, such as cerebellar ataxia, peripheral neuropathy, ophthalmoplegia, epilepsy and rarely thrombophlebitis.

Many mechanisms were reported to explain neurological disorder and specially thrombophlebitis in the celiac disease such as immunological mechanism incriminating antigliadin and antiganglioside antibodies, autoimmune central nervous system vascularitis in which tissue transglutaminase is the main auto−antigen, protein S and C deficiency associated to celiac disease, hyperhomocysteinemia secondary.

PREVALENCE OF STROKES RISKS'FACTORS IN GENERAL POPULATION IN COTONOU (BENIN)

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Introduction: The strokes are in regular progression in developing countries mainly in Africa. The aim of this study was to know the estimation of mains risks´factors of strokes in general population in Cotonou.

Methodology: The study was of transversal kind aiming the description and the analysis. It was based on a sample taken at a random of 15154 indivuduals whose ages are at least 15 years old.

Results: The population consisted of 58, 5% of women and 41, 5% of men. The average age of the individuals was 31,02 ± 14 years old. They was 27% non educated. The prevalence of the main risks'factors studied was : High blood pressure 8,4%; obesity 12,33%; overweight 22,8% ; tobacco consuming 2,19% ; alcohol abuse 17,4% ; low fruits and vegetables 59% and physical inactivity 5%. These different prevalence varied taking into account of the age, the sex and the level of knowledge of the populations.

Conclusion: The reduction of the prevalence and the incidence requires the acquaintance and the medical responsability of the risks'factors spoken about. The medical responsability of the later must be effective when rigorous and adapted policies are adopted and based on the awareness and precocious detections.

PREVALENCE OF STROKE SURVIVORS IN MOROCCO: THE RABAT-CASABLANCA STUDY

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The importance of stroke burden in Developing World has recently been emphasized, however epidemiological data are limited. We investigated the prevalence of stroke survivors in an urban and rural population living in Rabat and Casablanca.

This a descriptive study door-to-door survey of a stratified randomly selected sample of an urban and rural population, conducted from January to April 2009. Stroke was confirmed by a neurologist according to the World Health Organization Criteria and disability was assessed by the Rankin Handicap Scale. CT or MRI of brain were performed in 75% of patients

The sample involved a total of 44 742 individuals (21 808 men and 22 934 women) aged ≥ 15 years. The age-standardized prevalence rate of stroke survivors to world standard population is 292/100 000 (95% IC 246-337), with no difference between men and women. The prevalence is higher in rural: 323/100 000 (95% IC 270-445) than urban area: 282/100 000 (95% IC 213-333). The age-standardized prevalence rate in people aged ≥ 65 years is 3,7%. Seventy per cent of stroke survivors needed help in at least 1 activity of daily living. Women are more disabled than men with a prevalence of 247/100 000 versus 184/100 000.

Stroke prevalence in Morocco, especially in rural population, is higher than previously documented in Africa but lower than in developed countries. However, the prevalence of stroke survivors with disability it is already at a high- level. These prevalence data are important for evidence-based planning of community and rehabilitation services for stroke survivors.

COITAL INTRACEREBRAL HAEMORRHAGE IN NIGERIAN AFRICAN MEN: A REPORT OF TWO CASES

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Background: Reports on coitus-related cerebrovascular events among Africans are very scarce, and cultural interpretations are often offered to explain coitus-related vascular events.

Case reports:

Case 1: A 46-year-old man was rushed into the Emergency Room deeply comatose. He had checked into an hotel with a female friend about three hours prior to presentation. His admission BP was 220/110mmHg. He had poorly reactive dilated pupils bilaterally, right conjugate gaze deviation, UMN facial weakness, flaccid hemiparesis and chest signs of aspiration. He received urgent resuscitative care but died few hours after admission. At autopsy, he had cardiomegaly with left ventricular preponderance, benign nephrosclerosis, and massive left hemispheric intracerebral haemorrhage with intraventricular and subarachnoid extension.

Case 2: A 57 -year old man was admitted on account of a 2 -hour history of sudden collapse, altered consciousness and recurrent vomiting barely after one -hour of checking into an hotel with a female partner. He was a poorly-treated hypertensive with 25 pack years history of cigarette smoking and used alcohol at 32 grams per day for 30 yrs. Examination revealed a drowsy, restless man with bilaterally equal and reactive pupils, left conjugate eye deviation, UMN facioparesis, spastic hemiparesis (MRC power grade 3+ LUL, LLL), hemi-hypoaesthesia and hemineglect. Admission BP was 190/110mmHg. Cranial CT showed a right basal ganglionic haemorrhage with intraventricular extension. He is currently in rehabilitative care.

Conclusion: Coitus-associated cerebrovascular events may not be uncommon, particularly among hypertensive African black men, but may be under-reported because of cultural connotations.

EVALUATION OF MANAGEMENT OF STROKE IN MALI

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Introduction: The resurgence and impact of stroke in terms of mortality and morbidity in third world countries in general and Africa's in particular, are more and more reported.

Object of the study: To evaluate and compare the management of stroke in different regions of Mali.

Method: This is a cross-sectional study, descriptive, qualitative, with practitioners working in the structures involved in stroke care in 6 of 8 regions of Mali.

Results: Others interviewed 149 practitioners involved in the management of stroke: 68 GPs, 12 specialists, 69 hospital interns. The diagnostic tools available are: 5 scanner appliances, 12 echocardiographies, 31 ECG. Staff directly involved in the management consists of 4 neurologists, 21 cardiologists, neurosurgeons 3, 70 physiotherapists, 3 speech therapists, occupational therapists 2.

Conclusion: The magnitude of the problem deserves a reorganization of stroke networks support. Prescribing an initial training and continuing education.

BILATERAL PARAMEDIAN THALAMIC INFARCTION BY OCCLUSION OF THE ARTERY OF PERCHERON REVEALING A NEUROBEHÇET

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Introduction: The paramedian thalamic arteries can arise as a pair from each P1 of the posterior cerebral artery. Such a common trunk is called the artery of Percheron. Bilateral paramedian thalamic infarcts due to occlusion of this single artery are rare. We report a case of a neurobehçet revealed by such an occlusion.

Observation: A 53-year-old teacher, admitted for altered of consciousness. He had a history of bipolar aphtosis and impaired memory. On admission he was hyper somnolent. Neurological examination found a left hemiparesis, dysarthria and amnesia. Mucocutaneous examination showed an oral ulceration and a scar of genital aphtosis Pathergy test was positive. Ophthalmological examination found posterior uveitis.

A brain CT scan showed bilateral and symmetrical thalamic hypodensity.

Brain MRI showed bilateral paramedian thalamic and mesencephalic infarction.

Angio MRI confirmed the occlusion of Percheron artery. Doppler ultrasound of cervical arteries revealed right internal carotid thrombus.

The patient received anticoagulant therapy associated colchicine and corticosteroids with a good recovery of consciousness level and memory.

Conclusions: Acute bilateral infarction involving both thalamus is uncommon. Its main causes are small artery-disease, followed by cardioembolism. Our case show the rarity of bilateral thalamic infarct associated with neurobehçet and revealed by the occlusion of Percheron artery.

DYNAMICS OF MORTALITY AND LETHALITY RATE FROM STROKE

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The research objective consisted in studying 10 year (1999-2008) dynamics of mortality and lethality rates of stroke in the Guba-Khachmaz region. This region is located in the north-east of Azerbaijan. The population is 486,500, which is 5.6% of the total country population. 49.5 % of the population is men and 50.5% is women.

All cases of incidence and mortality from stroke in the region have been retrospectively studied from the data of Central Region Hospitals. According to the statistical work, in relation to the statistics indicating qualitative signs, level of mortality falling to 1000 people has been counted.

During this period 5,340 stroke cases were counted, of that number 1,869 died. The 10 year chronological average level of the mortality rate from a stroke shows 0.4±0.03‰. The lowest mortality rate was observed in 1999 (0.32±0.03‰), the highest in 2008 (0.46±0.03‰). On average 1/3 of patients with stroke die within a year. The average level of the lethality in patients with stroke was 35.0±0.7%. The lowest indicator of the lethality from stroke was observed in 2008 - 31.5±1.7%, and the highest in 2001 - 37.2±2.2%.

Through the analysis of these results it is possible to come to the conclusion that the mortality rate from a stroke increases. The lethality average level from a stroke in investigated years changed chaotically. In conclusion, we found that on average, in the Guba-Khachmaz region mortality from stroke in Azerbaijan falls at the middle level in comparison with other countries.

PUBLIC AWARENESS OF STROKE, ITS WARNING SYMPTOMS, RISK FACTORS AND TREATMENT IN SRI LANKA

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Objectives: Awareness of stroke is pivotal in reducing its burden. We evaluated knowledge on stroke, its warning symptoms, risk factors and treatment amongst general public.

Methods: Relatives of non-stroke-patients admitted to medical wards of the National Hospital of Sri Lanka who did not have a personal or first-degree family history of stroke/TIA, were selected using random-systematic-sampling. Pre-intern doctors interviewed them using a pre-tested questionnaire.

Results: 840 individuals (51.7% males; mean age 40.7 years; SD=12.8) from 21 of 25 districts were interviewed; 52.2% were educated ≥Ordinary levels; 62.7% were employed; and 60.6% earned >Rs 10,000/month. 48.3% had ≥1 vascular risk factors.

53.2% did not know that the brain was affected in stroke. Only about a third knew that stroke could be caused by an occlusion or rupture of a brain blood vessel. In the logistic regression analysis, age < 40 years, lower income and lower education were associated with a lower knowledge.

Over 90% of respondents correctly identified ≥3 stroke warning symptoms and ≥3 stroke risk factors. Although 84.6% would seek immediate western medical treatment following a stroke warning symptom, 52.9% believed that indigenous medicine was the best treatment for stroke. 44.2% were not sure whether stroke was preventable whilst 80.1% did not know that aspirin could prevent stroke.

56.7% had learnt about stroke from friends/relatives and 45.3% from television, but only 7.8% had received information from medical staff.

Conclusions: Public awareness of stroke warning symptoms and risk factors was adequate but knowledge on stroke mechanisms, treatment and prevention was lacking.

POST-STROKE DEPRESSION IN THE ELDERLY

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Objectives: The aim of this work was:

- to determine the frequency of depression in elderly stroke patients,

- to identify the potential risk factors.

Methods: This was a cross-sectional study including 40 patients aged 65 or older and followed for stroke in the neurology department of the Habib Bourguiba University Hospital of Sfax (Tunisia).

Exclusion criteria were: history of previous stroke, transient stroke, personal history of psychiatric disorder, confusion, aphasia, and severe cognitive impairment.

We used the Geriatric Depression Scale (GDS), the Rosenberg Self-Esteem Scale, the Mini Mental State Examination (MMSE) and finally the Rankin Scale for measuring stroke disability.

Results: The frequency of post-stroke depression (PSD) was 27.5 %. It was significantly related to the severity of motor disability, the presence of central facial paralysis, sphincter disorders, cognitive impairment and low self-esteem.

PSD was also more common in advanced age, widowed, illiterate and low-income patients. Clinically, the frequency of PSD was higher in the presence of sensory impairment, osteoarticular pain and swallowing difficulties. It was associated with a prolonged hospital stay and an outdoor movement restriction as well. However, these results were not statistically significant.

Other factors such as gender, occupation, vascular risk factors, type and laterality of stroke were studied, but had no statistical correlation with PSD.

Conclusion: The results of this study indicated that the PSD was common in the elderly. It was related to post-stroke physical and cognitive impairment and low self-esteem.

It would be important to prevent it by acting on these risk factors.

SOCIO ECONOMIC STATUS AND THE RISK OF STROKE IN MOROCCO

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At present, little is known about how socio-economic status (SES) is related to the risk of stroke especially in developing countries.

We studied the relationship between SES and the risk of stroke in Morocco using data from a prevalence survey conducted in 2009 in urban and rural areas in Rabat and Casablanca having involved 13 279 households.

Following the work of Kaplan and Keil (1993) we measured the socioeconomic status by a composite indicator obtained from a multiple correspondence analysis, based on six characteristics of housing filled in the survey: type of housing, number of rooms in the dwelling, main sources of water and lighting used, presence of basic amenities (kitchen, toilet and bath) and durable consumer goods (television, phone, refrigerator, etc…).

We used Stata Logit model to find a correlation between the risk of stroke and the type of SES.

Results showed a statistical correlation between SES and the risk of stroke. Our results also demonstrate the nonlinearity of this relationship which suggests that the risk of stroke in Morocco is high both among the most economically disadvantaged people and the most favored ones. We join in these results obtained other middle-income countries undergoing epidemiological and nutrition transition (Mendez and al, 2003; Pandian and al, 2007).

SES is related to the risk of stroke in Morocco, although relationship is non-linear. Behavioral and environmental factors that explain elevated risk of stroke among both low and high SES adults in developing countries must be identified to develop effective prevention strategies.

THE ANTERIOR SPINAL ARTERY INFARCT: THREE CASES

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Spinal cord infarction is much less frequent than cerebral infarction, accounting for only 1%of all strokes. The territory of the anterior spinal artery is the most common location of spinal cord infarction (SCI), with clinical and radiological characteristic features.

We report three cases of anterior spinal artery infarct. Two women and one man, aged respectively 43, 51 and 52 years. All patients presents sudden onset of neurological symptoms. Initially intense neck pain was noted in two patients. Two patients present tetraplegia with motor neuron sign in the upper limb extremities, and one patient an incomplete cervical Brown-Sequard syndrome. The sagittal spinal MRI showed enlargement of spinal cord with T2 hypersignal at cervical or cervico-thoracic leval in three cases. The“owl's eyes” pattern was observed in two patients, lesion in half spinal cord in one, and hyperintensity of adjacent vertebral body in one. No identifiable cause was found in our patients. After a mean follow up of 20 months, all patients had mild or moderate motor sequelae.

Anterior spinal artery infarct is rare disease. It manifests typically by sudden onset of neck or back pain followed by flaccid paraplegia or tetraplegia and sphincter disturbances. As in our patient, lesion in half of the spinal cord present as Brown-Sequard syndrome. Spinal MRI showed bilateral hyperintense signal in the anterior grey matter. The clearly definite cause is found in less than 50% of patients, and dominated by aortic surgery complications. The recovery is generally poor and correlate with the severity of initial clinical signs.

THE EPIDEMIOLOGY OF STROKE IN THE THE REGION OF MONASTIR (TUNISIA)

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Introduction: Stroke is a leading cause of death and disability. Patients with suspected stroke are usually managed in emergency departments (ED). Stroke units must be created in our country.

Objective: A prospective study was planned to evaluate epidemiology and stroke care for patients with suspected stroke admitted in the Department of Neurology of Monastir (Tunisia) during 16 years (1993-2009).

Methods: Patients with suspected stroke were prospectively . Data on demographic characteristics, clinical findings at arrival, diagnosis, in-hospital mortality, etiology and outcome were collected. A global statistical analysis was performed.

Results: One thousand seven hundred and thirteen patients were included. Mean age was 64 years (21-93), the sex-ratio was 1,26 (M/F). The major frequency was between the age of 60-69 years old, 51,8% of patients were hypertensive ,diabetes was find in 40,16%, dyslipidemia in 13,3%. Heart disease was found in 12,90% spacially atrial fibrillation.Transient ischemic attacks were found in 8,3% and ischemic stroke in 91,6%. The left hemisphere was more incriminated ,at the medium cerebral territory. The etiology was represented by atherosclerosis in 65,44%.Atrial thrombosis in 2,26% of patients, hypercholesterolemia in 50,16% of cases. The association of Aspirin to Dypridamole was prescribed in 83, 48% of patients. Mortality was estimated to 2, 21% of patients. Recurrence of stroke was found in 4,90%, epileptic seizures in 4,5%.

Conclusion: This prospective study provides epidemiological data for our region. Creation of stroke units and definition of acute stroke networks are necessary to improve stroke care.

CEREBRAL VENOUS THROMBOSIS: CLINICAL, ETIOLOGIC AND PROGNOSIS ABOUT 112 CASES

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Background: Cerebral venous thrombosis(CVT) is a rare disease. The clinical aspect is highly variable and often depends on the location of the thrombus. Etiologic is multiple The initial management of CVT involves etiologic and antithrombotic therapy.

Purpose: Analyse of clinical presentation, etiologic and prognostic feature.

Method: We reviewed retrospectively CTV cases collected in three department of neurology in Morocco(Neurology department in Rabat's military hospital, neurology B department (Rabat) and Neurology department in Fes) between January 2003 and January 2011. 112 cases are included.

Result: Clinical, etiologic and prognostic features are analysed. The patient are aged 18 days to 66 years. We note female predominance(63%). Headache is both the most frequent and earliest presenting symptom (86%). Other clinical include focal deficit (62%), seizures (48%) and impaired consciousness (32%). The diagnostic of CVT begins with head CT, The MR venography is performed to confirm suspicion of CVT. We identifie 82 cases with sinus thrombosis. The etiologic are multiple, and dominate by non infectious causes (Behcet disease (32%), pregnancy and puerperium(13%), oral contraceptives(11%)).Any cause is identified in 18% of cases. The follow up is usually good in our study.

Conclusion: Our study confirms the heterogeneity of clinical presentation and etiologic of CVT and a better functional recovery than arterial stroke.

METABOLIC SYNDROME IN POLISH ISCHAEMIC STROKE PATIENTS

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Background and purpose: The metabolic syndrome (MetS) predisposes to development of cardiovascular diseases and stroke. The aim of the research was evaluation frequency of MetS among stroke patients and comparison with patients with other neurological diseases.

Methods: The research was carried out among 672 IS patients (387 women, 285 men) consecutively admitted to the Neurological Ward with Stroke Unit of Specialist Hospital in Konskie (Poland). Control group consisted of 612 patients with other neurological disorders (low back pain, caphalgia, epilepsy, MS). MetS was diagnosed in presence of three out of five disturbances (alimentary or simple obesity, increased blood pressure, increased triglyceride, low HDL cholesterol, fasting hyperglycemia), according to criteria of American Heart Association - National Heart, Lung and Blood Institute (AHA-NHLABI).

Results: On the basis of AHA - NHLBI criteria 61,2% of IS patients and 18,1% of patients suffering from other neurogical disorders were diagnosed with MetS. Hypertension and hypertriglicaeridemia were the most common disturbances for IS patients (87,2 and 68,2% accordingly). MetS was significantly more prevalent among women than men.

Conclusions: Over half of ischaemic stroke patients suffer from MetS, which is statistically more common in stroke than in other neurological diseases. Metabolic syndrome may be a risk factor of ischaemic stroke.

KNOWLEDGE OF STROKE, STROKE WARNING SYMPTOMS, STROKE RISK FACTORS, ANTIPLATELET THERAPY AND STROKE-UNITS AMONGST GENERAL PRACTITIONERS IN SRI LANKA

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Objectives: Stroke is a leading cause of death and disability. General Practitioners (GPs) play a pivotal role through first-contact-care in reducing its burden. We evaluated the knowledge on stroke, warning symptoms, risk factors and treatment amongst GPs.

Methods: A pre-tested questionnaire was posted to all GPs on the register of the College of General Practitioners in Sri Lanka (n=330). One-third (n=98) from 13 of 25 districts responded.

Results: Mean age of GPs was 59.6 years (SD=10.3); 78% were males. 81% had a postgraduate qualification. 13% had a personal history of stroke.

One-third defined stroke correctly. 82% identified ³4 of 5 stroke warning symptoms but 7-11% identified chest pain and breathlessness also as warning symptoms. 53% named hypertension as the most important modifiable risk factor. Only 12% defined TIA adequately. 24% correctly specified the stroke risk after a TIA. 39% did not know the concept of a stroke-unit but 92% agreed that stroke-units reduced mortality and morbidity.

Only one-fifth suggested an echocardiogram or carotid duplex after a TIA. 32% felt that a CT brain scan was not essential in stroke. 88% would immediately initiate antiplatelet therapy for hemiparesis. 40% prescribed aspirin alone for ischaemic stroke; 6% combined aspirin with dipyridamole; and 20% prescribed clopidogrel alone. 39% prescribed varying combinations of the three antiplatelet drugs whilst 4% prescribed warfarin. 60% considered thrombolysis effective beyond 4.5 hours after a stroke.

Conclusions: GPs were adequately aware of stroke warning symptoms and risk factors, but knowledge on TIA, investigations and anti-platelet therapy needed improvement.

EPIDEMIOLOGY OF STROKE IN THE DISTRICT OF COLOMBO, SRI LANKA: A COMMUNITY-BASED STUDY

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Objectives: Stroke is a leading cause of death and disability. However, community-based prevalence data in Sri Lanka is sparse. We studied the prevalence of stroke and its risk factors in an urban population.

Methods: A community-based, cross-sectional study was conducted among 2313 adults currently living in the district of Colombo. A multi-stage probability-proportionate-to-size cluster sampling technique was used to select all eligible persons in 46 administrative divisions. Data were collected using an interviewer-administered-questionnaire. 'Ever diagnosis' of stroke was confirmed by Pre-Intern doctors using a check-list and documental evidence.

Results: Of the total population (52% females; mean age 44.2 years, SD=16.6), the prevalence of stroke was 1.0% (95% CI: 0.006, 0.014) with a 2:1 male to female ratio. The prevalence increased 6-fold amongst males and two-fold amongst females beyond the age of 65 years. There were none < 45 years of age. 64.3% had to change or give up working because of stroke-related-disability.

92% had developed hemi-paresis; 58.3% dysphasia; and 16.7% loss of balance. 58% sought Western medical treatment, 4.2% indigenous medical treatment, and 37.5% both. Only 58.3% had CT brain scans, of whom 85.7% had ischaemic strokes. Hypertension was the commonest risk factor (62.5%) followed by smoking (50%), excess alcohol (45.8%), diabetes (33.3%), TIA (29.2%) and a family history (20.8%). 79.2%, mostly males, had two or more risk factors.

Conclusions: The prevalence of stroke and its risk factors in an urban Sri Lankan population is similar to that of high-income countries. Increasing age remains the most important risk factor.

RISK FACTORS FOR ISCHEMIC STROKE, ABOUT 442 CASES

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Introduction: High blood pressure, smoking, diabetes and dyslipidemia are classic risk factors of ischemic stroke.

Objectives: To determine the major risk factors for ischemic stroke in our patients.

Patients and methods: Retrospective study from January 2000 to December 2009. The diagnosis of ischemic stroke was established in base of clinical and CT criteria.

Results: There were 215 men (48.6%) and 227 women (51.4%). The average age was 61 years, it was 60.5 ± 11.07 years for men and 62.5 ± 13.6 years for women. Hypertension was the major and most frequent factor with 42.9%. Ischemic stroke revealed hypertension in 30.3% of cases. Tobacco consumption was noted in 25.3% of patients. The incidence of diabetes (type 2) was 15.3%. The rate of patients with dyslipidemia was 5.7%. Alcohol consumption was noted in 5% of patients. Left ventricular hypertrophy was noted in 30.4% of cases, atrial fibrillation in 13.9% of cases. The ischemic strokes were caused by cardiac embolism in 28.4% of cases. The recorded death rate was 13.4% (59 patients). Hypertension poorly treated or ignored was the main risk factor for ischemic stroke in our department.

Conclusion: The certitude of involvement of these factors in the occurrence of this disease, leads us to definitely give prominence to prevention as the cornerstone of our policy to support stroke. This goal passes by a better education of our population. On the other hand we are working hard to start a neurovasculaire unit in our department.

STROKE IN SUB-SAHARAN AFRICA

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While stroke incidence has decreased over the last four decades in high-income regions, in low-and middle-income regions it has more than doubled. There are very few sub-Saharan African (SSA) community-based stroke studies, but stroke incidence and prevalence of disabling stroke appears to be similar to or higher than that found in high-income regions.

Hospital-based studies have suggested a higher proportion of cerebral haemorrhage than found in high-income populations, but this probably reflects hospital admission bias. A recent community-based incidence study found the proportion of stroke types to be similar to high-income countries. Stroke cause in SSA differs from that found in high-income regions with far less extracranial atherosclerosis, but more hypertension related and infectious causes, particularly human immunodeficiency virus.

There are substantial barriers to accessing healthcare in SSA and often symptoms of stroke have alternative traditional interpretations, which may further delay access to health care. There are very few CT / MRI scanners across SSA. This complicates acute stroke management as clinicians are unable to accurately distinguish ischaemic from haemorrhagic stroke. Infectious causes of stroke further complicate evidence based management decisions. A recent community-based study suggested that while 28-day stroke case fatality was relatively low, three-year survival was poor, suggesting limited post-stroke care resulted in high delayed mortality. Carer training may improve carer and stroke survivor quality of life and stroke outcome.

The challenge is to develop locally acceptable prevention and treatment strategies based on good evidence, while acknowledging limited available resources, to limit future stroke burden in SSA.

CHANGE IN TIA INCIDENCE AND 7-DAY STROKE OCCURRENCE IN PORTUGAL, FROM 1999 TO 2010: PRELIMINARY RESULTS

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Background: One decade after the first community-based prospective study, we intend to describe current trends in the incidence and short-term prognosis of transient ischemic attacks (TIA) in urban and rural populations in northern Portugal.

Methods: Preliminary data from the second community-based study are presented. All suspect first-ever-in-a-lifetime TIA occurring between October 2009 and September 2010 in 16232 residents in rural areas and 193349 urban residents were entered into a database. Based on standard definitions, both hot and cold pursuit sources of information were used for case ascertainment. Patients were observed at onset and at three months.

Results: A total of 130 patients were included, 118 in urban and 12 in rural areas. The overall crude annual incidence rate slightly decreased from 0.67/1000 (95%CI, 0.45-1.04) to 0.62/1000 (95%CI, 0.51-0.73), as a result from a decrease in rural areas, from 0.96 (95%CI, 0.43-2.33) to 0.74 (95%CI, 0.38-1.29), remaining stable in urban areas (0.61; 95%CI, 0.50-0.72). After standardization the incidence is 0.50/1000 (95%CI, 0.56-1.60) in rural and 0.42/100 (95%CI, 0.34-0.52) in urban areas. There was a decrease in the risk of stroke within 7 days after the index event, from 12.8% (95%CI, 7.3-18.3) to 10.8% (95%CI, 6.2-17.7).

Conclusions: Both incidence and short-term prognosis are improving in Northern Portugal, probably resulting from an early recognition of signs/symptoms based on public health campaigns and prevention of stroke for an important vascular risk factor as a first-ever TIA.

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ISCHEMIC STROKE WITH ET AND ABUSE AAS

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Introduction: We present a patient with essential thrombocythemia (ET) and abuse anabolic-androgen steroids (AAS) who developed progressive occlusive cerebrovascular disease accompained by ischemic stroke.

Case report: 47 years old male patient amateur athlete was hospitalized for sudden cerebellar symptomatology.

Heteroanamnestic we found use of anabolic steroid(4-androstendione) and arterial hypertension.

Neuroradiological examinations found ischemic stroke in the right cerebellar hemisphere and occlusion of the right vertebral artery.Ultrasound of hearts show cardiac dilatation.Blood examinations show elevated levels of platelets 619 (10/9/l) and hypercholesterolemia.

Bone marrow byopsy as well as PCR JAK 2 confirm the ET and we begin therapy with hydroxyurea witch is effective in preventing trombosis in high risk patients with ET.

Conclusion: Ischemic cerebrovascular disease includes a set of entities such as abuse of ASS and ET.ASS is prone to produce atherothrombotic phenomena and ET increase hypercoagulable state.

Presence of this two factors present high risk for developing of ischemic stroke.

THE COGNITIVE IMPAIRMENTS DURING STROKE IN NEUROLOGY DEPARTMENT OF UNIVERSITY HOSPITAL YALGADO OUÉDRAOGO

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Introduction: The aim of our study was to describe the cognitive impairments during stroke in Neurology Department of University hospital Yalgado Ouédraogo.

Methodology: We conducted a cross- sectional study from the April to September 2010 , covering the subjects with stroke, aged over 16 years, hospitalized in neurology department. To achieve our objectives, we used for all patients a protocol to study the epidemiological, clinical, CT data, and cognitive function by psychometric tests.

Results: The prevalence of stroke was estimated at 48 % . Ischemic stroke accounted for 61,8% of stroke. hypertension was the strongest risk factor found (79,4%). In 10,3% of cases, there was a previous stroke. The pre-stroke cognitive impairments were found in 10,3 % of patients.

The frequency of cognitive impairments was estimated at 77,9 %. Language impairments found in 36 patients (52,9 %) were most frequent. Praxis disorders were found in 47,1% of cases, memory impairment in 25 % and 11,8 % in gnosis disorders. The MMSE performed in 49 patients sowed cognitive impairment in 67,3% of cases. The test of 5 words performed in 18 patients was abnormal in 27,8 % of cases. The clock -drawing test performed in 16 patients was abnormal in 62,5%. More than half of patients had an IALD score at 4. Dementia was observated in seven patients or 10,3%.

Conclusion: The cognitive impairments in stroke are very common. They should be assessed systematically by the most common psychometric tests.

INCIDENCE OF INTRACEREBRAL HEMORRHAGE IN CHILE - A NATIONAL HOSPITALIZED DATABASE ANALYSIS FROM 2003 TO 2007

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Background: The incidence of intracerebral hemorrhage (ICH) in Chile is 20.0 per 100,000 populations. However, there are not studies that describe the regional distribution of this type of stroke.

Objective: To study the incidence and survival of spontaneous ICH through national hospitalization data base and distribution in different regions of the country.

Methods: Descriptive study obtained from the database of the Ministry of Health from hospital discharges with the diagnostic categories according to the codes of the CID-10: I-61 (0-6), from 2003 to 2007. We calculate mean period incidence, using average number of new cases of ICH in the numerator and exposed population of each regions was the denominator. The Chile unique10-digit person identity code (individualized RUN) allowed identifying new cases of hospitalization for I-61. The rates were standardized by direct method while age and gender to the 2010 word population.

Results: There were 21051 hospitalizations during five years, 18347 individuals were identified, 52.44% male. The mean age was 62 (SD=17.56)). Mean hospitalization days were 12 (SD 17.13). The annualized average rate for the period was 22.40 (95 % CI 21.66). The rates per 2004 to 2007 were 21.0(95% CI 20.28-21.72); 21.30 (20.58-22.02); 21.30 (20.58-22.02); 25.80 (25.01-26.59) respectively. We identified four regions with higher rates. ICH was recorded mostly during winter. The Lethality was 25.91%. 409 days survive 50% of the patient.

Conclusion: The incidence of ICH in Chile is close to global average (25 per 100.000) and the national distribution is not similar across the country.

ASSOCIATION OF THE METHYLENETETRAHYDROFOLATE REDUCTASE GENE POLYMORPHISM WITH CAROTID INTIMA-MEDIA THICKNESS IN PATIENTS WITH CEREBRAL INFARCTIONS

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The aim of our study was to assess the distribution of themethylenetetrahydrofolate reductase (MTHFR) genetic polymorphism in association with carotid IMT in patients with unilateral cerebral infarctions (UCI).

Patients and methods: The study included 35 patients:14 with UCI and 24 with risk factors (RF) for stroke in comparison to 21 age-matched controls. By using color duplex sonography ultrasound examination of the common carotid (CCA) and internal carotid (ICA) arteries were performed and the blood flow velocities, the lumen diameter (d) and the intima-media thicknesse (IMT) of the vessel walls were measured by standard procedure. A questionnaire for RF for stroke was filled, blood pressure was measured and serum lipids were examined. The polymorphism of the MTHFR gene was determined by polymerase chain reaction using primer F and primer R. The polymorphism was verified by agarose electrophoresis.

Results: According to the MTHFR genotype the examined patients and controls were distributed in 3 subgroups: CC and TT homozygotes and CT heterozygotes. The frequency of the MTHFR C allele predominated in the controls (66,6%). The TT-allels were more frequent in the UCI patients and the C/T in the RF group. Lower values of IMT in the ICA on the left/infarction side in TT-homozygotes in comparison to CC-homozygotes ($p < 0.05$) and CT-heterozygotes ($p < 0.05$) were found.

Conclusion: The results of our study refer to prevailing influence of the MTHFR gene on the ICA wall exposed to high hemodynamic stress.

CEREBROVASCULAR DISEASES IN YOUTH

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The population of Sub-Saharan Africa is about 900 million. UN predicts a population of 1.5 billion in 2050. Its population is the youngest in the world: 44% are less than 15 years, versus 15 to 30% from the rest of the world.

In Africa, about 15% of children die before the age of five. In addition to malaria and “old folks” causes of death (infection, road, war and birth traumas), chronic non-communicable diseases (cancer, cardio-neuro-vascular disorders, diabetes, respiratory and tobacco complications) are the main killers. Amongst them includes stroke which is playing a crucial role in the death toll.

Each year, nearly 800 000 Americans suffer from stroke and the number of young people aged between 5 and 45. In Africa, the data is less accurate and usually, the records from hospitals are far from reality. Many people are “silently” dying or becoming handicapped because of ischemic or hemorrhagic strokes. Post-infectious arthritis complications including AIDS' and sickle cell diseases add their deleterious effects to the “classic” factors such as youth obesity, diabetes, uncontrolled contraceptive pills for women between the ages of 18 and 45, especially on those who had a family stroke history. The increase in the youth stroke rate in Africa is mainly caused by the unhealthy lifestyles, habits (including tobacco and alcohol) and uncontrolled imported foods and beverages.

Sustainable policy of health education and early management could prevent stroke and provide its better care in Africa.

RISK FACTORS FOR STROKE IN A NIGERIAN TERTIARY HOSPITAL

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Background and aims: Stroke is the third leading cause of mortality in the world. This is particularly high in sub-Saharan Africa. Epidemiological studies have identified modifiable risk factors for stroke. Emphasis on modification of these risk factors will go a long way in reducing the excess burden of stroke and stroke mortality noted in sub-Saharan Africa.

Methods: This is a prospective study conducted in the Jos University Teaching Hospital in Nigeria. The subjects were 120 patients admitted into the medical wards of the hospital with stroke. Stroke was defined by the WHO criteria. Demographic variables, clinical and laboratory data were recorded.

Results: There were 74(61.7%) males and 46(38.3%) females. Eighty four (70%) had a previous diagnosis of hypertension but 94(78.3%) had elevated blood pressure on examination. Twenty (16.7%) had a previous diagnosis of Diabetes but 38(31.7%) had a fasting plasma glucose of >7.1mmols/L. Forty five (37.5%) patients had central obesity. Twenty six (21.7%) had a previous stroke. Other identified risk factors were cardiac disease in 5 patients, and HIV in 4 patients. Two patients had sickle cell disease and one had a malignancy.

Discussion: Hypertension remains the commonest modifiable risk factor in the African Negro. Diabetes mellitus and obesity are also important risk factors. HIV is an emerging risk factor especially in the young.

Conclusion: Early diagnosis and adequate control of both hypertension and Diabetes are of utmost importance in Stroke prevention. Life style modification should be instituted early.

PREDICTORS OF STROKE MORTALITY IN A NIGERIAN TEACHING HOSPITAL

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Background and aims: Stroke is the third leading cause of death worldwide after coronary heart disease and cancer. In biracial studies, the mortality in blacks is higher than that in Caucasians. This study examines mortality of stroke and its predictors in a Nigerian teaching hospital.

Methods: The study was carried out in Jos University Teaching Hospital in Nigeria. One hundred and twenty patients admitted into the medical wards of the hospital within one year were examined. Demographic data was recorded. Patients were examined. Statistical analysis was logistic regression.

Results: Forty two (35%)out of the 120 patients died. Most of these 35(83.3%) died within the first week. By the end of the first month, 40(95.2%) out of the 42 dead patients were dead. Predictors of mortality on univariate analysis were Age >60 years, Male sex, Loss of consciousness, High NIHSS score≥16, FBS>10mmols/L , fever and the prescence of co-morbidities and complications. On multivariate analysis, the only predictor was High NIHSS score.

Discussion; Stroke mortality is high in Nigeria. Most of the patients die in the acute phase . There is unavailability of current modalities of intervention in the acute phase. The severity of stroke as measured by the NIHSS score is the main predictor of mortality. The dead patients therefore had more severe strokes. Emphasis therefore remains on stroke prevention since current methods of intervention are unavailable in the region.

Conclusion: In the absence of the availability of modalities for the current management of stroke, prevention is of utmost importance.

CADASIL: MUTATIONAL STUDIES IN THE PORTUGUESE POPULATION

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Background: CADASIL (Cerebral Autosomal Dominant Arteriopathy with Subcortical Infarcts and Leucoencephalopathy) is a genetic disorder associated with stroke in young adults, typically caused by mutations involving cysteine residues in EGF-like domains of the NOTCH3 protein. We screen for NOTCH3 mutations using a two-tier approach, first sequencing exons 4, 11_12, 18 and 19, which are the highest-yielding in Portuguese patients with CADASIL.

Methods: NOTCH3 gene exons 4, 11, 18_19 were sequenced in 724 Portuguese patients with clinical and/or neuroimaging signs suggestive of CADASIL; exon 12 was also sequenced in 367 patients. Screening of all other relevant exons was selectively performed in 50 cases.

Results: A total of 19 different mutations involving cysteine residues were found in 81 cases (11%), 4 of which had not been reported before. Mutation p.R558C, in exon 11, was identified in 38 apparently unrelated patients. Five patients had mutations outside the high-yielding exons and one such mutation (p.C1099Y), in exon 20, was identified in two apparently unrelated patients. Fourteen missense mutations not involving cysteine residues were identified in 62 patients, including 5 known polymorphisms and 9 sequence variants of unknown significance. Three of the latter (p.R163W, p.T575M, p.W1028S) were predicted pathogenic by in silico analysis and were not found in more than 200 healthy subjects.

Conclusions: Clinical criteria used to screen for NOTCH3 mutations will have to be optimized. Exon 20 should be added to the first-tier mutational screening for CADASIL in our population. The significance of NOTCH3 mutations not involving cysteine residues remains uncertain.

STROKE IN WOMEN

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Cerebrovascular Accident (CVAs) represents a major cause of death and disability among women. Age, hypertension, diabetes mellitus, hyperlpidemia, obesity and heart disease are known predisposing factors for the development of stroke.To describe clinical presentation of (CVAs) and to identify risk factors among adul Sudanese female.**:** This prospective cross sectional hospital based study it was done in (ETH) ELshaab Teaching hospital, in the period between April 2007 and July 2008. 103 Sudanese female where included in the study.The common age group affected was between 70-79 years (27.2%), followed by age group 60-69 (21.4%).Limbs weakness, symptoms infavour of cranial nerves involvement, headache, convulsion, loss of conscious, were the main presenting symptoms. Hypertension is the most common risk factor. Striking the natural anticoagulants (protein C, protein S and antithrombin 111) were at the lower range of normal in most of our patients., rare risk factors included anti phospholipids syndrome. Psychological disturbances was considered especially among female who came from the Western Sudan(36 patients), who faced the social and economical output of the prolonged war. The clinical presentation of CVA among Sudanese female dose not differed from what was reported worldwide except there is increased incidence of protein C,protein S and Antithrombin 111 defiency among our studied group.

STROKE IN SAUDIA ARABIA: RISK FACTORS AND STROKE SUBTYPES, A HOSPITAL BASED STUDY

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Introduction: Different ethnic/racial populations may have different incidence rates and may be predisposed to different stroke subtypes. Few studies have explored the risk factors, stroke subtypes and prevalence of stroke in the Arab population.

Aim: To study stroke subtype, pathophysiological characteristics and risk factors in our community.

Methods: The stroke database was retrospectively reviewed for all patients admitted in 2010 with acute stroke to the King Fahad Medical City. Diagnosis of stroke was made according to WHO definition, and confirmed by neuroimaging. Ischemic stroke were classified based on the TOAST criteria and the Oxfordshire classification to identify the site and size of infarction.

Results: We had 155 patients with acute stroke, 146 ischemic and 9 with hemorrhage. In the ischemic group: 83 men and 63 women, mean age 64.25 years; range, 18 to103years. Stroke in young (< 45 years) accounted for 11.6%.

Regarding ischemic strokes: 37.67%, 34.25%, 17.12%, 6.17%, 4.11%, 0.68% were classified as large-artery atherosclerosis, small vessel disease, cardio-embolism, other determined causes, undetermined cause and venous subtypes, respectively. The size and location of ischemic stroke we found partial anterior circulation infarction in 47.94% followed by lacunar (34.9%), posterior circulation (11.64%) ,and total anterior circulation infarction (4.11%).

Hypertension and Diabetes mellitus were the commonest risk factors in non-cardio embolic strokes, 61.1% and 59.5% respectively. Smoking was observed in 25.6% and hyperlipidemia in 23.96%.

Conclusion: Large artery atherosclerosis was the most common stroke subtype followed by small vessel disease in our population. Intracerebral hemorrhage accounts for 5.8% of all strokes.

VARIATIONS OF CIRCLES WILLIS RELATED WITH HYPOPLASIA POSTERIOR COMMUNICATING ARTERY AND ISCHEMIC STROKE

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One of the most frequent variations of circle of Willis is hypoplasia of posterior communictating artery(P.Co.A), that is a congenital variation founded 7-20% of population. P.Co.A is a risc factor for ischemic stroke in cases with ipsilateral internal carotid artery (I.C.A), or in major stenosis.

in our study we have examinated 60 patients with ischemic stroke (mean age 65±15 years) compared with the control group.

Angio MRI was done within three days of stroke.

The incidence of P.Co.A hypoplasia in our group was 21%, (nr = 13), higher than in control group, 8.2% (nr = 5). In our cases with hypoplasia of P.Co.A we have founded 3 cases (23%) with occlusion of ipsilateral I.C.A.

The most frequent location of ischemic stroke in cases with hypoplasia of P.Co.A was seen in ipsilateral periventricular area (lacunar infarctions) n = 10.

In our stady we have seen a correlation between P.Co.A hypoplasia and ischemic stroke, even in cases without occlusion of ipsilateral I.C.A.

STUDY OF 428 PATIENTS OF CEREBRAL SINUS VENOUS THROMBOSIS FROM VENOUS STROKE REGISTRY, HYDERABAD (INDIA)

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Background and objective: CSVT is a common cause of stroke in young in India. This project was aimed at studying the risk factors, clinical profile and outcome of fully investigated cases of CSVT.

Methods: Consecutive patients of CSVT confirmed by definite imaging criteria, between June 2002 to September 2010 admitted in the hospital were prospectively studied . All patients were investigated for prothrombotic conditions.

Results: Of the 428 patients, 230 (53.7%) were men, and 198 (46.2%) were women. Age ranged from 8 to 65 years (mean 31.3years). One twenty six patients (29.4%) presented with seizures, 122 (28.5%) with stroke like presentation and 78 (18.2%) had benign intracranial hypertension like presentation. Among women, peripartum state was the risk factor in 42 (9.8%) and oral contraceptive intake in 49 (11.4%) patients. In men alcoholism was found in 67 (15.6%) patients. Anticardiolipin antibodies were found in 31 (7.2%), hyperhomocystienemia in 78(18.2%), protein C deficiency in 39 (9.1%), protein S deficiency in 53 (12.3%) and antithrombin III deficiency in 22(5.1%) of patients. Recurrent CSVT was found in 22 (5.4%) patients. Mortality was noted in 33 (7.7%) patients. Good outcome was observed in 310(73.8%) patients with mRs of < 2 at discharge.

Conclusions: Prevalence of CSVT was higher in men in the present study. Headache was the most common presenting symptom. In men alcoholism and hyperhomocystienemia and in women deficiency of protein C and S were the most common risk factors. Other important risk factors were post partum state and oral contraceptive pills.

ARTERIAL TERRITORIES IN ISCHEMIC STROKE IN LOME UNIVERSITY TEACHING HOSPITAL, TOGO

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The cerebral arterial territory corresponds to a specific brain area irrigated by a cerebral artery.

The **objective** of this study was to identify the different arterial territories touched among patients hospitalized for ischemic stroke.

Method: It was a retrospective study which carried out patients presenting with clinical features of stroke from January to December 2009. They have all done a CT-scan suggestive of cerebral infarcts.

Results: During the study period, 64 cases were selected out of 408 inpatients, with a frequency of 15.68%. The sample included 31 men (48.44%) for 33 women (51.56%). The average age was 61.67 years. We observed 31 infarction in the right hemisphere (48.44%), 36 (56.25%) in the left, and 2 patients (3.13%) had bilateral brain infarcts. Depending on the arterial territories, the middle cerebral artery was the most affected with 76.56% versus the anterior cerebral artery, 14.06%. The rate of the anterior choroidal artery was 7.81% and cerebellar arteries with 3.13%. The cerebral anterior and posterior communicating artery with 1.56% each.

Conclusion: This study allowed us to identify arteries areas frequently affected in ischemic stroke, noting that the achievement of the CT-scan is not easy for everyone.

FACTORS ASSOCIATED WITH REGULAR CLINIC VISIT AMONG PATIENTS WITH STROKE

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Background: Among the strategies for the effective prevention of recurrent stroke, regular clinic visit is important to examine the control status of risk factors as well as to serve proven secondary preventive therapies. We tried to identify patients factors related to regular clinic visit among patients with stroke.

Method: People with history of stroke (n=195, 2.1%) were analyzed from the fourth Korea National Health and Nutrition Examination Survey (KNHANES), which was a cross-sectional and nationally representative survey conducted between July 2007 and December 2008. Univariate analyses were performed to determine the related factors on the dichotomous outcome of "regular clinic visit" and "irregular or no visit".

Results: Total 112 patients (57.4%) were regular clinic visitors. Age (mean±SD) and sex (female) were not different between groups (67.5±9.1 vs. 68.1±9.8, p=0.62; 51.8 vs. 59%, p=0.38). In univariate analyses for regular clinic visit, the odds ratio (OR) and 95% confidence interval (CI) of hypertension was 2.09 (95% CI 1.14~3.83); diabetes, 2.42 (1.23~4.78); physical disability, 1.90 (1.06~3.40); disabling stroke, 1.98 (1.06~3.70). Median year after stroke were shorter in regular clinic visitors (4 vs. 8, p< 0.001). Multivariate logistic regression analyses adjusted with hypertension, diabetes, body mass index, hyperlipidemia, physical disability, disable stroke, year after stroke, and individual income identified hypertension and more recent previous stroke as independent factors associated with regular clinic visit.

Conclusion: In this study based on nationally representative population, about half of the stroke patients visit clinic regularly. Further study is needed to evaluate a relation between regular visit and recurrence.

EPIDEMIOLOGICAL AND CLINICAL CHARACTERISTICS OF STROKE IN CAMEROON: AN HOSPITAL BASED STUDY AT DOUALA LAQUINTINIE HOSPITAL

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Background: Few data are available concerning stroke in sub Saharan Africa. It's a pathology with high mortality due to difficulties in diagnosis and delay on care of patients.

Objectives: Our objectives were to assess the epidemiological, clinical and aetiological aspects of hospital-based stroke in Cameroon. Method : We identified all stroke cases at the Douala Laquintinie Hospital from July 1st to November 30th, 2010 at the neurology department. We recruited 93 patients admitted for stroke and data for demography, clinical and risk factors were analyzed.

Results: The age range was 21 to 90 years (mean, 59.17years). There were 51 female and 42 male patients with a female to male ratio of 1.21/1. The prevalence of stroke in this study was 16%. Cerebral infarction occurred in 51 patients (54.80%) and intracerebral hemorrhage in 32 patients (35.16%) and the type of stroke not known for 13 patients (13.70%). The most common risk factors for stroke in this study were high blood pressure (57.53%), sedentarity (34.24%), alcohol consumption (26.02%), obesity (15.06%) and diabetes (8.20%). Underlying causes of ischaemic stroke included atherosclerosis, lacunar infarcts, atrial fibrillation, vascularitis, and dilated cardiomyopathies.

Discussion: The results are similar to data from other African countries like Nigeria, Senegal, Benin. The high frequency of hematomas may be due to high prevalence of hypertension in the general population more than 80% of them being not treated.

Conclusion: Stroke is frequent in Cameroon. It is a public health problem and the treatment should be focused on the control of various risk factors.

CLINICAL PRESENTATION, RISK FACTOR PROFILE, PROGNOSTIC FACTORS AND OUTCOME OF 108 CASES OF NON PUERPERAL CEREBRAL VENOUS SINUS THROMBOSIS

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Introduction: Cerebral venous sinus thrombosis (CVST) is commonly seen post partum. However it is being frequently diagnosed outside the typical clinical setting. In the absence of early diagnosis and treatment, the mortality is high. The aims of this study were:

1) To study the clinical profile of with non puerperal CVST,

2) To study the risk factors in this population group,

3) To study the pattern of venous sinus thrombosis.

Materials: A total of 108 patients were included in the study. The diagnosis of CVST was confirmed by MR venogram. All the patients underwent testing for various haematological and biochemical abnormalities.

Results: Table

Variable:

Value:

Total no

108

Age

42 (mean)

Males

52

Females

56

Clinical presentation

Headache 92 %

Papilledema 45%

Motor deficit 42%

Seizures 37%

Syndromes:

Focal syndrome 40%

Encephalopathy 31%

Isolated intracranial hypertension 29%

Thrombophilic status:

Hyperhomocystienemia 48%

OCP usage12%

ACLA 32%

ANA positivity 10%

Protein C 8%

Protein S 18%

AT III 4%

Factor V Leiden 2%

Others 12%

Hemorrhagic infarct:

48 %

Sinuses Involved

Superior saggital sinus (SSS) 48%

Transverse sinus (TS)46%

Straight sinus 8%

Deep venous system6%

Mortality:

8 %

Conclusion:

1) Non puerperal CVST presents with diverse manifestations in patients with wide range of prothrombotic conditions.

2) The commonest risk factor was hyperhomocysteinemia followed by ACLA syndrome and protein S deficiency

3) Most commonly involved sinuses were SSS and TS

4) Predictors of poor outcome include symptom duration > 38 hours, Status epilepticus and deep system involvement.

ASSOCIATION BETWEEN SERUM ALBUMIN AND NIHSS SCORE IN PATIENTS WITH ACUTE ISCHEMIC STROKE

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Purpose: This study is to clarify the association between serum albumin (Alb) and National Institute of Health Stroke scale (NIHSS) score in acute stage.

Subject: 346 patients with acute onset of cerebral infarction (age; 75.5 ± 11.3 years old, male 192) who were admitted to acute hospital from October 2009 to January 2011.

Methods: All subjects were classified into two subgroups. Subjects with NIHSS score ≥ 23 were defined as "Severe group (SG)" (n=34) , and subjects with NIHH score □ 22 were defined as "Non-severe group(NSG)" (n=312). In all subjects, Alb, choline esterase (ChE), cholesterol (T-Cho), Triacylglycerol (TG), HDL - cholesterol (HDL), LDL - cholesterol (LDL), blood glucose (BS), HbA1c were examined on admission.

Results: There were no significant difference about the proportion of male among two subgroups (SG;50 (%) vs. NSG;56 (%), p=0.253). SG was older (82.7 ± 8.0 vs. 74.7 ± 11.4, p< 0.001), had lower T-Cho (186.1 ± 54.2 vs. 199.4 ± 43.4 mg/dL, p=0.036), lower TG(91.2 ± 40.3 vs. 128.6 ± 81.1 mg/dL, p=0.010), lower Alb (3.7 ± 0.6 vs. 4.1 ± 0.4 mg/dL p< 0.001) and lower ChE(230.5 ± 62.3 vs. 287.0 ± 81.4 mg/dL, p< 0.001). Multiple logistic regression analysis showed age (Odds ratio (OR)= 1.065, 95% confidence interval (CI) = 1.019 - 1.112) and serum Alb (OR= 0.382, 95% CI = 0.169 - 0.863) had significant association with NIHSS score.

Conclusions: Hypoalbuminemia on acute ischemic stroke was suggested to be associated with severe symptom of stroke.

NERVOUS SYSTEM MALFORMATIONS IN SETIF WILAYA (ALGERIA), INCIDENCE AND SURVIVAL DATA

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Congenital malformations constitute an important problem of public health in all areas of the world. Its represent a principal cause of perinatal and infantile morbidity and morality.

There are a descriptive data of congenital malformations registry of Setif wilaya, which was instituted in January 1st, 2008 for the establishment of a system of epidemiological surveillance of these diseases and provide reliable indicators of morbidity, mortality and survival.

The global incidence of congenital malformations varies between 0.7 and 1.1 per 100 births between 2007 and 2009. Malformations of the nervous system occupying the first rank and are dominated by anencephaly, hydrocephaly and Spinabifida.

This type of malformation in the vast majority of cases is detected before birth or with low survival rates.This type of malformation in the vast majority of cases detected before or at birth with low survival rates.

If the high frequency of congenital malformations is due to their nature apparent at birth and their easier diagnosis, these descriptive results generate further studies including etiological trying to identify possible risk factors with an effective strategy for early detection, prevention and care.

EARLY CONSCIOUS DISTURBANCE IN ACUTE ISCHEMIC STROKE: INCIDENCE, RISK FACTORS AND OUTCOME

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Objective: The prospective study was designed to explore the incidence, risk factors of early conscious disturbance in patients with acute ischemic stroke. Meanwhile, outcome in relation to conscious disturbance was studied.

Methods: Data on 569 consecutive patients admitted within 24 hours form symptoms onset were collected. Multivariate analysis was used to explore factors influencing early conscious states as well as the relationship between early conscious disturbance and outcome.

Results: A total of 199 patients (35%) suffered conscious disturbance on admission. Cardio-embolism had the highest incidence(56.1%) of early conscious disturbance. The most common neurological complication in cases with early conscious disturbance was malignant edema(30.2%), and pulmonary infection(58.3%) was the most common medical complication. The independent risk factors of early conscious disturbance were age(OR 1.027, 95%CI 1.007-1.048), high NIH score [1.331(1.257-1.410)], massive cerebral infarct[3.211(1.642-6.279)], high serum glucose [1.141(1.055-1.235)], history of alcohol consumption [2.123(1.030-4.375)]; Clinical defined early conscious disturbance and GCS score were not the independent predictor for death in the 3-month follow up, but were the independent predictor for 3-month death/disability [(adjusted OR 3.272, CI 1.670-6.413) and (adjusted OR 0.644, CI 0.537-0.772)].

Conclusion: Early conscious disturbance commonly occurred in patients with acute ischemic within 24 hours from onset and etiology of cardio-embolism has the highest incidence. Age, high NIH score, massive cerebral infarct, serum glucose and history of alcohol consumption are independent risk factors of early conscious disturbance. Early conscious disturbance is associated with high frequency of stroke-related complications and poor functional but not vital outcome.

PREVALENCE OF STROKE RISK FACTORS AMONG URBAN CAMEROONIAN POPULATION IN DOUALA, CAMEROON

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Background and objectives: Within the context of 2010 world stroke day and initiation of a stroke unit in the Douala general hospital, we carried out in a sample of urban dwellers in Douala, Cameroon. The aim was to screening for stroke risk factors (SRF).

Methods: This cross-sectional study which included voluntary subjects aged more than 15 years was conducted in two steps: first sensitization of the community about stroke and related risk factors, and the second phase consisted in screening for SRF among this sample. Standard procedures were used for screening

Results: Among the 636 subjects in our study, 45% were male and the mean age was 46,84 ± 13,43 years (ranging from 16 to 95 years). 79,2% of our sample had at least one newly diagnosed risk factors while 33,4% had more than three or more risk factors. Women were more concerned (p = 0,000). Modifiable SRF diagnosed were: obesity (75,68%), sedentarity (74%), high blood pressure (53,14%), alcohol consumption (18,7%), dyslipidemia (13,1%), diabetes mellitus (10,8%), tobacco consumption (6%) and sleep apnea (3,8%).

Conclusion: The prevalence of SRF is high among urban cameroonian population. This study highlights the need to establish a national policy for systematic screening for SRF and to produce appropriate guidelines in order to reduce the impact of cerebro-vascular disease in our environment.

FABRY-ANDERSON DISEASE: AN ITALIAN FAMILY WITH A NEW MUTATION EXON 4 IN GLA GENE

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Introduction: Anderson-Fabry disease (AFD) is a X-linked disorder due to a deficiency in α-galactosidase. Decrease of the enzyme activity leads to accumulation of globosyltriaosylceramide (Gb3) in tissues resulting in progressive organ dysfunction especially of heart, renal and vascular system. Clinical manifestations of AFD include excruciating extremities´ pain (acroparaesthesia), skin vessel ectasia (angiokeratoma), corneal and lenticular opacity, cardiovascular disease, stroke and renal failure.

Materials/method: We describe an Italian family with AFD and mutation of Exon 4. The mother had a stroke and a long story of pain and a cardiac arrests. Her sons (3) had a story of acroparaesthesia and angiokeratoma. In the suspicion of AFD they underwent the α-galactosidase blood test. Activity in plasma and cell sources were determined with the fluorogenic substrate methylumbelliferyl-α-D-galactopyranoside. The male son had a low activity of α-galatosidase in plasma (0.42 mmoli/mg prot/h) instead the α-galactosidase activity in females are not significant. *GLA* gene (MIM *300644) was analyzed using direct bidirectional sequencing of coding and flanking regions using the ABI 3130Xl Genetic Analyzer, and sequences by Seqscape 2.5 software. The molecular analysis by DHPL of the codified regions of he GLA shown an abnormal Exon 4 and a pathogenic variant: p.205L fs (c 613 C) never found before.

Conclusion: More than 200 mutations have been identified within the α-galactosidase gene. In 90% of affected families point mutations are identified within the seven Exons of the α-galactosidase gene and other organ dysfunction of AFD. This new mutation was found in a stroke patient with a AFD.

THE EHLERS DANLOS CONNECTIVE TISSUE DISORDER AND CEREBROVASCULAR ASPECTS

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Introduction: Ehlers Danlos syndrome (EDS) is a rare disorder of connective tissues that results in unusually flexible joints, very elastic skin and fragile tissues. There are several variations (with widely varying severity) each affecting a different gene and producing slightly different changes. The results is abnormally fragile connective tissue, which causes problems in joints and bones and may weaken internal organs. The most serious type is vascular type which reduce life. The diagnosis of EDS is based on compatible clinical findings and confirmed by biochemical and/or genetic testing. Biochemical studies in affected individuals demonstrate abnormal electrophoretic mobility and abnormal efficiency of secretion of type III procollagen by cultural dermal fibroblasts. Molecular genetic testing to identify mutations in the COL3A1 gene is available for genetic consulting purposes to individuals with the biochemically confirmed diagnosis of EDS.

Material and methods: We describe 13 young patients with stroke (9 had carotid or vertebral dissections, 2 had intracranial haemorrhages,1 had multiples aneurysms).All of them underwent toneurosonology and MRI. According to some criteria (thin translucent skin, easy bruising, hypermobility of small joints) we suspected the presence of a connective disorder tissue. The results of skin biopsy and cultured dermal fibroblasts was compatible with EDS- type V, classic.

Conclusion: ED disorder connective tissue is rare, but in front of patients with arterial dissections or intracranial aneurysm which caused stroke, ischemic or haemorrhages, we can think to this syndrome.

STROKE PRESENTATION AND OUTCOME IN BENIN, NIGERIA: LESSONS FROM A TERTIARY HEALTH CARE FACILITY STROKE REGISTRY

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Introduction: Stroke is the leading cause of neurologic admissions in Nigeria's tertiary health care facilities. Stroke is increasing in sub-Saharan Africa. An understanding of its presentation and outcome will aid in effective primary prevention strategies and improve management.

Patients and methods: The data of 165 consecutive patients were retrieved and studied from the Stroke Registry of the Neurology Unit of the University Teaching Hospital. The various risk factors for stroke, the pattern of neurological deficits and outcome after hospitalization were documented. The effects of risk factors and stroke type on outcome were determined. Stroke type was determined by cranial CT scan.

Results: A total of 165 stroke patients with mean age of 61±13.42 years and a male to female ratio of 1.2 to 1 constituted the study group. The mean systolic and diastolic blood pressures were 162.26±36.79mmHg and 99.18±22.75mmHg respectively. The mean blood glucose level on admission was 107.51±47.58 (range 50 - 325) mg/dl. The dominant risk factor was hypertension (69.7%). Five had HIV and three with sickle cell disease. Majority of the patients had ischemic stroke (69.61%) and right hemispheric involvement (basal ganglia) with either left hemiparesis or facio-hemiparesis (67.27%). Eighty six patients were discharged, eleven discharged against medical advice while sixty eight died. The adjusted case fatality rate was 41.21%. The outcome of patients was significantly affected by admission blood sugar and systolic blood pressure ($P< 0.05$).

Conclusion: The significant mortality of stroke calls for urgent action geared towards primary prevention aimed at risk factors modification.

SERUM LIPIDS IN PATIENTS WITH STROKE - A CROSS SECTIONAL CASE-CONTROL STUDY

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Background: Vascular disease remains the prime contributor to the pathogenesis of stroke but dyslipidemia has not been clearly established as a risk factor for stroke the same way it has been for coronary artery disease. There is no case-controlled study on the contribution of serum lipids to stroke in Nigerians. This study aimed at assessing the possibility of serum lipids as risk factor for stroke in Nigerian patients.

Method: The demography, blood pressure, fasting plasma glucose, and fasting serum lipids of 87 consecutive patients with first ever stroke managed at the University of Benin teaching hospital between January and December 2005 were analyzed and compared with those of age and sex-matched controls.

Results: Eighty-seven stroke patients (55 males and 32 females; mean age 61.25 ± 14.77years) were compared with age and sex-matched controls. Ischemic stroke constituted 64.37% while the rest had hemorrhagic stroke. There were no significant differences in the serum cholesterol, HDL-C and LDL-C levels of stroke patients and controls ($p>0.05$) but the serum triglyceride level was higher among the stroke patients ($p< 0.001$) with a significant relative risk (RR 1.77; $p< 0.01$).

Conclusion: In this cross-sectional case-control study, there is no significant difference in serum lipids of Nigerians patients with stroke with the exception of serum triglyceride which seems to confer significant stroke risk.

CLINICAL ASPECTS, RISKFACTORS OF STROKE

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Introduction: Stroke is a major cause of mortality and disability in survivors. The quality of life depends on the nature of disability and its perception by the patient, his or her environment and community. The aim of this study was to analyse clinical aspect and riskfactors on this pathologie.

Patients and methods: We conducted a prospective, longitudinal study from February 2008 to May 2009, at the Neurological Clinic of Fann. Patients were seen at the initial phase of stroke and 6 months later. In respond to our questions, they revealed several items relative to the nature of stroke, and the riskfactors.

Results: We collected, were like this 50 patients aged 15-82 years with a sex ratio of 1.27. The accident was ischemic in 70% of cases, hemorrhagic in 30% of cases. The risk factors identified were high blood pressure (78%), obesity (24%) and dyslipidemia (24%). Hemiplegia was observed in 80% of patients, language disorders in 40%, visual disturbances (36%), genital disorders (30%), impaired memory (28%), urinary disorders (26 %).80% of patients received a motor rehabilitation therapy.

THE VERY OLD PATIENTS WITH ISCHEMIC STROKE: RISK FACTORS, SUBTYPES, AND MAGNETIC RESONANCE FINDINGS. A SINGLE CENTER STUDY

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Background: A better understanding of the causes of stroke in the elderly might have important implications for management and preventive strategies.

Method: A total of 974 consecutive patients with ischemic stroke was retrospectively reviewed and categorized into three groups: those aged ≤49 years (Group I, n=97), those aged between 50 and 79 years (Group II, n=729), and those aged ≥80 years (Group III, n=148). The demographics, risk factors including the prevalence of metabolic syndrome (MetS), and stroke subtype were compared among the groups. The presence of intracranial atherosclerotic stenosis (ICAS, ≥50%) and previous ischemic lesion (PIL, ≥3 mm) on magnetic resonance (MR) angiography and MR imaging were compared.

Results: In group III, large artery atherosclerotic stroke and cardioembolic stroke were the most frequent subtypes of stroke, whereas lacunar stroke was the lowest one ($p< 0.001$). Group III showed a tendency to show higher frequencies of hypertension ($p< 0.001$), cardioembolic disease ($p< 0.001$), and MetS ($p=0.004$), while triglyceride levels, male, and smoking frequencies were lower ($p< 0.001$ for all). Of the MetS components, group III showed a higher rate of high blood pressure ($p< 0.001$), high fasting glucose ($p=0.018$), and abdominal obesity ($p=0.003$). Group III had greater numbers of MetS components ($p=0.002$) and ICAS ($p< 0.001$ for all). Group III had a higher incidence of PILs and had greater numbers of PILs ($p< 0.001$ for all).

Conclusion: Strategy to prevent stroke in the very-old patients should focus on understanding and modification of their risk factors.

ROLE OF REGISTRY FOR ASSESSMENT OF PREHOSPITAL AID TO THE STROKE PATIENTS

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According to the World Health Organization Recommendations, the treatment, medical social rehabilitation and prevention of strokes must be scientifically based on the «Registry» method, which provides the current registration of all acute cerebrovascular events (ACVE) cases and compiles the results in a single computer database. It allows to get verified information of the stroke epidemiology, to evaluate situation and efficiency of prevention and treatment for ACVE in the studied regions.

Aim: To evaluate the efficiency of rendering medical aid to cerebral stroke patients at prehospital stage by the method of hospital registry.

Material and methods: The registry-2004 included 2027 cases of acute stroke and the registry-2008 included 2871 case.

Results: The stroke rate increased within 4 years (844 cases increase). Comparative analysis of the hospital registries data (2004 and 2008) revealed a high incidence of stroke development in working-age population. Arterial hypertension remains the main risk factor. The majority of patients gets no appropriate antihypertensive therapy before the stroke onset. A quarter of patients develops a recurrent stroke. Increased number of first 3 hours' hospitalization gave no improvement for outcomes. Ample quantity of the patients being hospitalized after 24 hrs period remains. The main causes of late hospitalization were lack of information in community about the stroke symptoms and prehospital treatment at home.

Conclusions: Lack of appropriate prehospital therapy causes a verified increased mortality rate and post-stroke invalidization. To reduce negative effect it is necessary to introduce regulation for the doctors' activity in rendering urgent aid at the acutest period of stroke.

SEVERE VIPERIN ENVENOMATION: AN UNUSUAL MECHANISM OF ACUTE ISCHEMIC STROKE

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Introduction and aim: Very few cases of cerebral infarction resulting from a viper bite have been reported. This uncommon aetiology of ischemic stroke deserves special attention and different approach, particularly In North Africa, with an objective to understand and elucidate, through our report and a literature's review, the putative mechanism causing cerebral infarct and the toxic-action of the viper's venom on brain circulation.

Observations: We report three authenticated cases of acute ischemic cerebrovascular accidents following three typical severe viperin envenomations. The three envenomed patients developed extensive local swelling and life-threatening systemic envenomation, characterized by disseminated intravascular coagulopathy (DIVC), increased fibrinolysis, thrombocytopenia, microangiopathic haemolytic anaemia and acute renal failure. Also, this clinical picture involved atypical neurological manifestations, these patients had either low Glasgow coma scale (GCS) or hemiparesis within hours to 4 days following the snakebites, and they were found to have Computerized Tomographic (CT) evidence of single or multiple ischemic (non-haemorrhagic) strokes of small to large vessel territories of the brain. One patient made a good clinical recovery without neurological deficit.

Conclusion: Thrombotic complications occurred an average of 36 hours after being bitten and their proportion increases with the degree of envenomation. The possible mechanisms for cerebral infarction in these cases could include generalized prothrombotic action of the venom (consumptive coagulopathy), toxin induced vasculitis and endothelial damage.

MOLECULAR ANALYSIS OF CCM GENES PROMOTER REGIONS

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Background and aims: Cerebral cavernous malformations (CCMs) are vascular anomalies associated with seizures, headaches, hemorrhagic strokes and focal neurological deficits, mostly located in CNS, with a prevalence in the general population up to 0.5%.CCM can arise sporadically or may be inherited as an autosomal dominant condition with incomplete penetrance and variable clinical expression.Whereas sporadic cases usually harbour only a single lesion, familial cases are often characterized by the presence of multiple lesions and are associated with mutations in *CCM1(KRIT1)*, *CCM2 (MGC4607)* and *CCM3 (PDCD10)* genes.

More than 150 distinct CCM1⁄CCM2⁄CCM3 mutations have been published to date, characterized by an even distribution over the whole genes and a very low degree of redundancy among different families.

A significant discrepancy has recently emerged between the locus linkage data and the proportion of CCM families with mutations in the 3 identified genes. In particular, molecular screenings showed disease-gene frequencies of 49-54% for KRIT1, 13-22% for MGC4607, 4-10% for PDCD10. Moreover, in 22-30% of CCM cases with multiple lesions and/or an affected relative, no mutations were detected (1).

Therefore, we performed further molecular analysis regarding promoter regions of CCM genes.

Methods: Some variants (two new and several already known) have been identified and their possible effects on promoter activity were investigated using a Dual-Luciferase Reporter assay ((Promega).The regions containing the variants were cloned into a pGL4.10-Basic luciferase-reporter vector and transfected into human DB-TRG/ U373 glioblastoma-astrocytoma cells.

1. D´Angelo R. et al. ***Brain Pathology*** 21: 215-224.

STROKE IN YOUNG PEOPLE IN FANN TEACHING HOSPITAL IN DAKAR

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Young people are more numerous among those admitted in our neurological departement for stroke. We aimed to determine the etiologies of young people stroke in order to find an explanation to its increasing number.We collected patients aged 14 to 50, who had ischemic stroke or intracerebral haemorrage, confirmed by neuroimaging. For all, we did a check-up to find the cause of stroke. 40 patients were gathered, with 60% female and 40% male. The mean age was 37.62, similar in male and female. The major sample was those aged 41 to 45 in men and 46 to 50 in women. All had hemiplegia, 52.5% had slurred speech and 12% sensory disorders of half-body. 60% had ischemic stroke which interested the middle cerebral artery area in 95.83% of cases ; 40% had intraparenchymatous haemorrage with capsular localization in 87.5% of cases. High blood pressure was found in 75% of intraparenchymatous haemorrage, with two cases of vessels abnormalities, and in 63.63% of ischemic stroke. Other risk factors found in ischemic stroke were: high cholesterol and triglycerid rates in 4 patients, diabete, migraine with aura, post-partum, use of oestrprogestative drugs, each in one case. In one case, smoking and alocoholism were associated. Heart disease was involved in 54.16% of ischemic stroke. Four patients died.Stroke is getting more and more frequent in young people in neurological departement of Fann teaching hospital, but vascular risk factors seem to be unchanged. This might mean that people are earlier exposed to these factors among other reasons.

CARDIO EMBOLIC STROKE CAUSED BY LEFT ATRIUM MYXOMA, CASE REPORT

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Background: Cardiac myxoma is the most common benign cardiac tumor and it occurs in left atrium in about 75-90% of cases. The annual incidence is 0.5 per million populations, with 75% of cases occurring in the left atrium. There is a 2:1 female preponderance, and the age at onset is usually between 30 and 60 years The majority of myxomas are sporadic, but 7% of patients have a genetic mutation known as the Carney complex. Neurological manifestations are common complications of cardiac myxomas. Embolic stroke was observed in 9-22% of atrial myxomas.

Case: A 45-years-old female patient was presented in January 2011 with a five days history of weakness on her right limbs. She had a medical history of hyperthyroidism and anemia. ECG showed sinusal rhythm. The chest X-ray was negative. Transthoracic echocardiography revealed left atrial mass and a slight mitral valve regurgitation. The presence of atrial myxoma is suspected. A non-contrast CT scan of the brain revealed multiple low density areas on the left parietal and occipital lobes. The anticoagulant therapy began. On the 14th day, the patient was transferred in the cardio surgical service in Tirana where she underwent a successful surgical excision of myxoma. The biopsy confirmed the diagnosis. The patient recovered without any complications.

Conclusion: Clinicians must consider using echocardiography in young stroke patients as a common examination. If we treat in time the atrial myxoma, we can prevent a cardio embolic stroke.

STROKE IN WOMEN (SUDANESE EXPERIENCE)

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Cerebrovascular Accident (CVAs) represents a major cause of death and disability among women. Age, hypertension, diabetes mellitus, hyperlpidemia, obesity and heart disease are known predisposing factors for the development of stroke.To describe clinical presentation of (CVAs) and to identify risk factors among adul Sudanese female.**:** This prospective cross sectional hospital based study it was done in (ETH) ELshaab Teaching hospital, in the period between April 2007 and July 2008. 103 Sudanese female where included in the study.The common age group affected was between 70-79 years (27.2%), followed by age group 60-69 (21.4%).Limbs weakness, symptoms infavour of cranial nerves involvement, headache, convulsion, loss of conscious, were the main presenting symptoms. Hypertension is the most common risk factor. Striking the natural anticoagulants (protein C, protein S and antithrombin 111) were at the lower range of normal in most of our patients., rare risk factors included anti phospholipids syndrome. Psychological disturbances was considered especially among female who came from the Western Sudan(36 patients), who faced the social and economical output of the prolonged war. The clinical presentation of CVA among Sudanese female dose not differed from what was reported worldwide except there is increased incidence of protein C,protein S and Antithrombin 111 defiency among our studied group.

COMPARATIVE STUDY OF THE CHANGING CLINICAL PROFILE OF PATIENT'S STROKE IN 10 YEARS

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Background and purpose: Stroke is a major public health problem thus justifying the search for vascular risk factors in order to treat and prevent recurrence.

Objectives: To Study changes in the incidence of stroke, vascular risk factors, including hypertension and the management of these patients.

Methods: We conducted a retrospective study of all stroke patients during the years 1999 and 2009. we reported the changes in the incidence of stroke by age, sex, type of stroke, its association or not with hypertension; the number of hospitalizations and length of stay in the hospital.

Results: We identified an increase in the frequency of patient´s stroke for twice in 10 years with similar percentages of hospitalization. There were a recrudescence percentage of strokes among men rose from 48% in 1999 to 60% in 2009 with a decline in the percentage of women from 52% to 40% during the same period. A higher incidence of male consultants and hospitalization been reported. Length of hospital stay is shortened from 15 days to 9 days which reflects an improvement in the quality of care. The average age of stroke onset is 67 years for both years with extremes from 14 to 100 years. The incidence of ischemic stroke is still the largest estimated at 90 %. Hypertension remains the most important factor of stroke with a constant frequency around 62%.

Conclusions: The incidence of stroke is markedly increased in these years affecting more men than women explained by changes in lifestyle.

PREVALENCE OF DYSLIPIDAEMIA AND OTHER RISK FACTORS OF CARDIOVASCULAR DISEASE IN PATIENTS AFTER ISCHEMIC STROKE IN WESTERN UKRAINE

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Introduction: In Ukraine cardiovascular morbidity and mortality is one of the highest in Europe. Secondary prevention of ischemic stroke plays a significant role because of high risk of recurrent stroke. Dyslipidaemia, arterial hypertension (AH), obesity, diabetes mellitus (DM) and smoking are the most important risk factors of recurrent stroke and there active control is a basis of secondary stroke prevention.

Aim: was to establish the prevalence of main CV risk factors stroke among patients with previous ischemic stroke in anamnesis.

Design: We studied 235 subjects. They were discharged from Lutsk City Hospital (urban area in Western Ukraine) with ischemic stroke during 2006-2007 periods. Among them were 124 men (mean age 61, 47±10,88) and 111 women (mean age 63,81±9,49). Term after stroke - 2,8±1,5years.

Results: The prevalence of all risk factors in patients (pts) is very high, as presented in table. Women had higher prevalence of obesity and abdominal obesity (AO),men-smoking and overdose alcohol consumption. There were no differences in dyslipidaemia, AH and AH between genders. The mean levels of lipids were: TCh - 5,43±1,29 mmol/l , LDL -C - 3,37±0,49 mmol/l , HDL -C - 1,36±0,49 mmol/l, TG- 1,55±0,78 mmol/l, Non-HDL-C - 4,07±1,17 mmol/l, AC -3,37±1,44 mmol/l. Only 9,39% had lipid profile in recommended ranges and 14,09% pts were with all exceeded lipid indexes.

Conclusion: High prevalence of risk factors was detected in pts after stroke. The situation with risk factors control in pts after stroke is critical in Ukraine. We need to perform health activities to improving this situation.

NICOTINE INTAKE AND YOUNGEST AGE-RELATED ISCHEMIC STROKE

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Introduction and aim of study: Cigarette smoking is an established, independent risk factor for stroke. However, mechanisms underlying this link are still not established and thus continually inspected. In this study, we compared populations of smokers and never-smoking patients suffering from ischemic stroke (IS).

Material and methods: 249 patients in the acute phase of IS were enrolled to the study, 124 heavy smokers (smoking 10-40 cigarettes/day for at least 10 years) and 125 never-smoking patients. We analysed TOAST stroke subtype clasyfication, stroke risks factors, among other age, gender, coexistence of hypertension, diabetes , atrial fibrillation, dyslipidaemia, peripheral arterial disease, CT leukoaraiosis , carotid atherosclerosis via ultrasound examination, as well as biochemical and morphological blood parameters: total cholesterol, HDL, LDL, triglycerides, C-reactive protein and fibrinogen levels, hematocrit, number of leukocyte and platelet count.

Results: The group of smokers with acute IS was mainly composed of male subjects (95♂ /29♀) with large-artery atherosclerosis or small-artery occlusion stroke. Their average age was 13 ± 10, 8 years lower than in the group of never-smoking patients with IS ($p< 0.0001$), and their mean values of triglycerides and hematocrit were significantly higher ($p< 0.05$). More advanced phase of carotid atherosclerosis and frequent coexistence of peripheral arterial disease were observed among smokers ($p< 0.001$). No differences have been found with regard to the remaining factors subject to examination.

Conclusions: Results of our study indicate that synergistic effect of smoking and hypertrigliceridaemia, and accelerated atherogenesis may serve as an initial causes of raised risk of IS.

THE CLINICAL MANIFESTATIONS OF POSTERIOR CIRCULATION INFARCTION COMPARED WITH ANTERIOR CIRCULATION INFARCTION

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Objective: We aimed to investigate the frequencies of common clinical manifestations in posterior circulation infarction (PCI) and determine whether major difference of clinical manifestations exists between PCI and anterior circulation infarction (ACI).

Methods: Between 2006 and 2011, patients diagnosed of separated PCI or ACI by lesion location on MRI (gold standard) in Chengdu registry were enrolled. Clinical features were reviewed and compared in the two groups.

Results: Of the 1072 patients, 272 (25.4%) diagnosed PCI. The top three symptoms/signs in both PCI and ACI were the same: unilateral limb weakness (53.7% vs. 74.4%, p=0.000), central facial/lingual palsy (41.2% vs.61.8%, p=0.000) and unilateral hemisensory loss (39% vs.38.4%, p=0.863). Compared with ACI, dizziness (39% vs. 18.8%, p=0.000), nausea/vomit (32.4% vs.10.4%, p=0.000), ataxia (31.6% vs.5%, p=0.000), vertigo (19.1% vs. 1.9%, p=0.000) were more common in PCI. Special signs favored diagnosis of PCI but had low incidence, including diplopia (5.2% vs. 0.4%, p=0.000), hemianopia (4.1% vs. 1.4%, p=0.007), crossed paralysis (4% vs.0.2%, p=0.000), Horner's syndrome (3.7% vs.0%, p=0.000), oculomotor nerve paresis (3.3% vs.0%, p=0.000), crossed sensory disturbance (2.6% vs. 0%, p=0.000) and quadrantanopia (1.5% vs. 0%, p=0.000). Dysarthria (25% vs.24.6%, p=0.901), eyes movement disorder (12.1% vs. 12.8%, p=0.791), bilateral paralysis (10.3% vs. 6.9%, p=0.068) and bilateral sensory loss (1.8% vs.1.1%, p=0.558) did not differ significantly between the two groups.

Conclusions: In this study, no major difference was found in the most common clinical features between PCI and ACI.

ECONOMIC COSTS OF STROKE IN MOROCCO

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The high costs of health and social care support of stroke survivors, as well as the development of new service arrangements, have led to growing attention on economic issues.

The number of stroke patients and the healthcare costs of strokes are expected to rise both in developed countries and developing countries. We studied the economic cost of stroke in Morocco using data from a prevalence survey conducted in 2009 in Rabat and Casablanca.

We estimate the cost of stroke from a societal perspective. Direct costs included all the goods, services, treatment and rehabilitation related to the disease or disability. Income loss due to disability and mortality and societal benefit payment to stroke patients are accounted for in the indirect cost calculation.

The direct cost of one stroke over one year was estimated to be 35 000 MDH (1 Euro=11MDH), hospitalization in acute phase accounted for 25% of the cost and rehabilitation for 35%. With a prevalence of 284/100 000, the annual cost of stroke of stroke in Morocco was estimated to be 3 billion and a half MDH.

Despite of a relatively low prevalence, stroke incurs considerable societal costs in Morocco. Those costs are related to the high number of patients under 65 years with persistent disabilities who require rehabilitation and home care for long period.

SURVIVAL IN A POPULATION OF NON-COMATOUS PATIENTS ADMITTED AT THE DEPARTMENT OF NEUROLOGY. FANN TEACHING HOSPITAL, DAKAR-SENEGAL

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Objective: This study aimed to estimate the lethality rate and identify predictive factors associated with the survival of patients with stroke admitted at the Department of Neurology, Fann National and Teaching Hospital, Dakar-Senegal.

Methodology: 170 non-comatous stroke patients were followed monthly from 2003 to 2005. Data on sociodemographic characteristics, lifestyles, past medical history, clinical, biological and radiological features were collected and the prognosis determined for all patients. Survival was estimated using Kaplan Meier methods and predictive factors were determined by multivariate analysis using a Cox proportional hazards regression model.

Results: The mean age of the patients was 61 years ± 13 (25-90 years). They were mostly female (59.4%), illiterated (75.29%), and living in the suburban (46.5%). Ischemic stroke represented 64.7%. The main risk factors for stroke were: hypertension (63.53%), obesity (26.47%), stroke (12.35%) and diabetes (11.76%). The probability of survival at 1 month, 3 months, 6 months and 12 months was respectively: 0.69 (± 0.03), 0.60 (± 0.03), 0.56 (± 0.03), 0.55 (± 0.03). In the Cox regression model, age > 60 years (HR: 2.01; 95% CI: 1.21-3.32), hemorrhagic stroke (HR: 2.52; 95% CI: 1.55-4.12), obesity (HR: 2.89; 95% CI: 1.75-4.79) were predictive of death while living in rural area (HR: 0.37; 95% CI: 0.17-0.80) was protective.

Conclusion: These results confirmed the high lethality of stroke at hospital and confirmed the role of predictive factors. It is necessary to focus on primary prevention of stroke in Senegal.

EPIDEMIOLOGY OF STROKE IN PATIENTS WITH RHEUMATIC HEART DISEASE: A SYSTEMATIC REVIEW

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Background and aims: Stroke is an important complication after rheumatic heart disease (RHD), but accurate data about its incidence and mortality in RHD patients' population is unclear. We performed a systematic review of published studies to assess the incidence and mortality of stroke in patients with RHD.

Methods: We searched the Ovid Medline, EMBASE, CBM, CNKI and VIP for observational studies reporting the association of stroke and RHD until April 2011. Manual searches were supplemented. Two authors independently assessed study eligibility. We calculated the incidence of stroke per RHD patient-year, if possible.

Results: We identified 21 eligible studies that involved 26994 participants. Studies were heterogeneous for the designing and participant characteristics. Two studies reported stroke incidence in RHD patients' population. It was 4.5% per patient-year in America in 1978 and 5.9% per patient-year in China in 2008. Eight studies reported the rate of stroke in RHD patients' population. It ranged from 0.37% to 12.6% in Asia in recent three decades. Ten studies reported the proportion of RHD in stroke patients in recent three decades. The proportion of RHD in patients with ischemic stroke ranged from 3.4% to 23.2% in Asia and 1.8% to 2.0% in Europe and Northern America. Six studies reported the mortality in stroke patients with RHD. It ranged from 8.5% to 47.4% in Asia in recent three decades and it was 49.2% in America in 1951.

Conclusions: Stroke incidence due to RHD is not low in Asia. Population-based data on stroke in RHD with high-quality are needed.

ISCHEMIC STROKE AND ABNORMAL MOVEMENTS

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Introduction: The abnormal movement is an entity that can be of various origins, often degenerative, however, a vascular origin may be responsible.

Observation: We report a series of 678 ischemic stroke collected to Neurology Department of 1 January 2010 to 1 January 2011. 300 patients (44%) had lesions in the basal ganglia.120 cases of the lenticular nucleus's infringement, 60 cases of thalamic lesions; 120 cases of injury to the caudate and lenticular nuclei. We note that the abnormal movement is apparent that only one of all our patients with involvement of the basal ganglia. The patient had a right hemichorea concomitant to neurological deficit. MRI brain revealed multiple ischemic lesions in the basal ganglia.

Discussion: Transient ischemia or set up may affect the basal ganglia or their connections without causing abnormal movement and it is that new lesions cortical or subcortical nuclei such as these movements appear.

Conclusion: This series joins those described in the literature to confront pathophysiological hypothesis of abnormal movement in the context of ischemic stroke.

USE OF ARTIFACT REMOVAL ON THE MIGRAINE ANALYSIS USING EEG RECORDINGS

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Migraine is known as an important brain disorder and many people suffer (women: between 23 and 29% and men: between 15 and 20%) from it and no way has been determined to cure. Electroencephalography (EEG) signal under flash stimuli is one of the important devices that can be used for diagnosis of migraine. It is observed/proposed that there was a magnitude increase at the beta band of migraineurs compared to healthy subjects. This electro-neurophysiologic characteristic of migraine is used as a reference method in our study. But all of these former researches was not used any artifact removal method. But EEG signals are included artifacts related to movements, environmental factors, physiological and non- physiological reasons. And these artifacts must be removed. To see the effect of artifact removal on the spectral analysis, power spectral densities (PSD) are calculated using both artifact removed and artifact included EEG signals by using Burg algorithm. Then PSD graphs of artifact removed EEG data and artifact included EEG data are compared and evaluated. According to evaluation of PSD graphs, more clear magnitude increases were observed from PSD graphs of artifact removed EEG data. To approve this procedure and to determine the performance degree, all PSD values are applied to a support vector machine (SVM) classifier as an input. Thus performance degree of both artifact removed EEG data and artifact included EEG data are compared for migraine detection. According to SVM results artifact removal procedure is about %5 increased the migraine detection performance.

THE ROLE OF NORMAL/DEGENERATED AXON DENSITY OF EFFERENT VAGAL NERVE ROOTS ON CUSHING ULCERS IN SUBARACHNOID HEMORRHAGE: EXPERIMENTAL STUDY

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Gastrointestinal organs are innervated by several systems contribute to the control of gastric acide secretion. We examined whether there is a relationship between the axon density of vagal nerve root and the severity of gastric mucosal ulceration in subarachnoid hemorrhage.

This study has been conducted on twenty rabbits which selected from used our formerly experiments. Four rabbits used as baseline group. Experimental subarachnoid hemorrhage had been applied to ten of animals by injecting 0.5cc homologous blood into cisterna magna and 0.75cc isotonic saline solution injected to six animals for SHAM. After the twenty days, normal and degenerated axon densities of vagal nerves and gastric mucosal changes were examined histopathologically. Between the ulcer scores, normal and degenerated submucosal gland numbers and degenerated vagal nevre axons were compared statistically.

In histopathological examinations, normal axon density of vagal nerves was 30500±9500 in normal animals and SHAM group. Whereas, normal axon density was 27250±6500 in ulcer developed animals and 21450±5500 in ulcer did not developed animals. The severity of axonal degeneration of vagal nerves were less at the peptic ulcers did not developed animals (9750±470) than those of the developed animals (3700±750)($p< 0.0001$).

Vagal nerves has an important role on the gastric mucosal protection via its afferent and efferent fibers. If vagal nerves are lesioned, the glands of gut are paralysed and gastric secretions are disturbed. That the ischemic and mechanical factors creating by subarachnoid hemorrhage cause vagal nerve root injury and gastrointestinal disorders may be inevitable in the course of subarachnoid hemorrhage.

NEURODEGENERATION AND CHEMOKINES IN EXPERIMENTAL STROKE

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Background: Ischemic stroke is the third most common cause of death and the main cause of permanent disability in adults. Recently it is known that inflammation may play an important role in pathogenesis of stroke.

Objectives: The aim of this study was to analyze the expression of chemokines, their receptors and inflammatory markers and correlate them with neurodegeneration in endothelin-1 (ET-1) induced model of ischemic stroke.

Methods: Stroke model was induced by stereotaxic injection of ET-1 into brain parenchyma. Potential role of chemokine system was detected using ELISA and real time PCR methods. Development of neurodegeneration was measured using ELISA for neurofilaments.

Results: We observed that neurodegeneration increases with the time and correlate with infiltration of the brain by lymphocytes and monocytes during stroke model. Despite upregulated in the brain level of chemokines CCL2, CCL3, CCL5, CXCL2 and chemokine receptor CCR5 during first three days of the model we did not observed any correlation between their expression and intensity of neurodegeneration.

Conclusions: Our results suggest that inflammation may be involved in development of neuronal cell death during our stroke model.

AMLODIPINE BESYLATE AND AMLODIPINE CAMSYLATE PREVENT OXIDATIVE STRESS-INDUCED NEURONAL CELL DEATH THROUGH ANTIOXIDANT EFFECT AND ACTIVATION OF THE PI3K PATHWAY

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Background & objectives: We investigated the neuroprotective effects of the long-acting third-generation dihydropyridine calcium antagonists amlodipine besylate (AB) and amlodipine camsylate (AC), on neuronal cell death induced by oxidative stress.

Method: We treated primary cultures of cortical neurons with AB, AC, and/or hydrogen peroxide (H_2O_2) under various conditions, and measured cell viability, and levels of free radical and intracellular signaling proteins.

Results: Cell viability was not affected by concentrations of AB and AC up to 5 mM, but decreased thereafter. Following H_2O_2 exposure, the viability of cortical neurons decreased in a concentration-dependent manner; however, treatment with AB or AC up to 5 mM restored the viability of H_2O_2-injured cortical neurons. Treatment with H_2O_2 increased in free radical levels in cortical neurons, and pretreatment with AB or AC counteracted this in a dose-dependent manner. Similarly treatment with AB or AC counteracted the decline in p85*a*PI3K, phosphorylated Akt, phosphorylated GSK-3β, HSTF-1, and Bcl-2 induced by H_2O_2 as well as the increase in cyclooxygenase-2, cytosolic cytochrome *c*, and cleaved caspase-3.

Conclusion: Our results indicate that AB and AC exert neuroprotective effects by reducing oxidative stress, and enhancing survival signals and inhibiting death signals, and that the neuroprotective effects of AB and AC do not differ significantly.

CONSEQUENCE OF LEAD TOXICITY ON COGNITIVE FUNCTIONS, MOTOR BEHAVIOUR AND BASAL GANGLIA ACTIVITY

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Introduction: The cause of many neurodegenerative diseases remains unknown to date. Scientific report considere these neurodegenerative diseases as environmental illness. Areas of high pollution recorded large increases in Parkinsonism with cognitive, behavioural and motor impairment. Heavy metals including lead are the pollutants that cause damages in the central nervous system like those of Parkinsonism.

Aim: We studied the effects of lead as polluant involved in the ethiology of Parkinson´s disease.

Material and methods: Juvenile rats were toxicated with a solution of lead acetate (20 mg/kg; n=14) together with controls (NaAc; n=6 for each experiment) during 4 weeks. After performing all necessary cognitive and motor tests, we recorded the electrical activity in the sub thalamic nucleus and Globus Pallidus, as well as measured by HPLC noradrenalin and serotonin in the cortex, and dopamine in the striatum.

Results: The results confirm that lead intoxication profoundly disturbs cognitive functions and explorative behaviour that parallels a loss in body weight. We additionally show that lead induces a profound impairment in motor coordination measured by Rotarod. At the same time lead increases burst pattern and metabolic activities in the subthalamic nucleus and Globus Pallidus and reduces regular pattern discharge. At cortical level, lead decreases NA and its metabolites without changing serotonin and dopamine concentrations or striatal dopamine.

Conclusion: This study thus provides new and robust arguments dealing with the involvement of lead as an environmental toxicant responsible for brain disorders, and more specifically as a part in the etiology of Parkinson's disease.

A RESEARCH OF PROTEOMICS ON GRANULOCYTE COLONY-STIMULATING FACTOR TO ISCHEMIA-REPERFUSIONINJURY IN RATS BRAIN

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Objective: We want to research the relation between difference protein with neuron protective effect of G-CSF in ischemia-reperfusion Rats Brain by using proteomics.

Method: 48 experimental Wistar rats are divide into 3 groups, Contrl group, rats cured by G-CSF group (G group), ischemia-reperfusion injured rats group (I/R group), Ischemia-reperfusion Injury rats model was generated by useing Koizumi's way in G group and I/R group, one nylon thread was used to block the rats middle cerebral artery and reperfused after 2 hours,G-CSF (50ug/kg/d) is injected subcutaneously on rats' backs for successive 5 days. Rats was executed and decapitated after 24h, 7d and 14d after reperfusion to get the brain respectively. But Sodium Chloride injected was used in I/R group cerebral cortex proteins were extracted in the 3 groups rats. then the maps of the proteins were established by DIGE (differential gel electrophoresis, DIGE).The altered protein spots were identified with MALDI-TOF-MS and database searching.

Result: Compared with the Contrl group, the I/R group gained 56 differential protein spots, 17 spots expressed lowly, and 39 spots high, identified 19 protein spots, found out the relative cerebral ischemic proteins. Compared with I/R group, the G-SCF group gained 15 differential protein spots,3 spots expressed lowly,and 13 spots high,identified 6 protein spots, It's found out the relative protective proteins of G-CSF such as GFAP, endomucin and DRP-2 etc.

EFFECTS OF ISCHEMIC PHRENIC NERVE ROOT GANGLION INJURY ON RESPIRATORY DISTURBANCES IN SUBARACHNOID HEMORRHAGE: AN EXPERIMENTAL STUDY

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Background: Phrenic nerves have important roles in respiration. We examined whether there is a relationship between phrenic nerve root degeneration and respiratory disturbances in an experimentally induced SAH.

Methods: This study was conducted on 14 rabbits with experimentally induced SAH and 5 healthy controls. Normal and degenerated neuron densities of phrenic nerve C4 dorsal root ganglia (C4DRG) were estimated stereologically in all animals. Mean density of remaining normal neurons and respiratory rate / minute between the groups were compared statistically. We also checked for correlation between neuron density and respiratory rate.

Results: The mean neuronal density of C4DRG in the control group was 13272±1201/mm^3 with a mean respiration rate of 23±4/min. In survivors with respiratory disturbance, the mean normal neuron density of C4DRG was estimated as 11.412±670/mm^3, the mean degenerated neuron density was estimated as 2.240±450/mm^3 and mean respiration rhythm was 31±6/min. In animals with respiratory arrest, the mean normal neuron density of C4DRG was estimated as 7230±967/mm^3, the mean degenerated neuron density was 5850 ±650/mm^3, and mean respiration rhythm was detected as 34±7/min. There was a significant difference in the mean neuron density of C4DRG between all groups ($p< 0.0$). Respiratory rate before death was significantly different between the control group and the respiratory arrest group ($p= 0.04$). An inverse relationship was noticed between the neuronal density in the C4DRG and respiratory rate ($r=-0.758$;$p< 0.00$). Paralysed diaphragm are seen in respiratory arrest developed animals after SAH.

Conclusions: Ischemic neurodegeneration of C4DRG may be an important factor in the deterioration of respiratory rhythm.

CHRONIC MILD HYPERHOMOCYSTEINEMIA ALTERS ECTONUCLEOTIDASE ACTIVITIES AND GENE EXPRESSION IN RAT LYMPHOCYTES: IS THERE ASSOCIATION WITH CEREBRO CARDIOVASCULAR DISEASES?

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Mild hyperhomocysteinemia is a risk factor for cerebrocardiovascular diseases. Extracellular nucleotides and nucleosides such as adenosine 5′-triphosphate (ATP), adenosine 5′-diphosphate (ADP), and adenosine (Ado), modulate a multiplicity of tissue functions, including inflammation and immune responses. Their levels are controlled by the enzymatic action of ectonucleotidases, such as nucleoside triphosphate diphosphohydrolases (NTPDases) and 5′-nucleotidase. Since elevated levels of Hcy can induce inflammation and that the adenine nucleotides and nucleosides are important in this process, the present study investigated the effect of chronic mild hyperhomocysteinemia on NTPDases and 5′-nucleotidase activities and mRNA transcript levels in lymphocytes from mesenteric lymph nodes and serum of adult rats. For the chronic chemically-induced mild hyperhomocysteinemia, Hcy (0.03 µmol/g of body weight) was administered subcutaneously from the 30th to the 60th day of life. Control rats received saline. Animals were killed by decapitation 12 hours after the last injection of Hcy and the blood and mesenteric lymph nodes were removed for ectonucleotidases evaluation. Results showed that Hcy decrease the ATP, ADP and AMP hydrolysis in lymphocytes, but not in rat serum. E-NTPDases transcriptions were not affected, while the ecto-5′-nucleotidase transcription was significantly decreased in mesenteric lymph nodes of hyperhomocysteinemic rats. These findings suggest that the modulation of nucleotide and nucleosides levels in lymphocytes is a potential mechanism by which Hcy may contribute to the inflammatory process involved in the pathogenesis of cerebral and cardiovascular diseases.

FOCAL CORTICAL DYSPLASIAS OF BRAIN: CHANGES IN THE COMPOSITION AND GEOMETRY OF THE TISSUE EXTRACELLULAR MATRIX

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Introduction: Focal cortical dysplasia (FCD) of the brain represents a prominent cause of intractable epilepsy. The epileptogenesis in FCD might result not only from the alteration of the synaptic transmission, but also from alterations of extrasynaptic transmission mediated by the diffusion of substances in the extracellular space (ECS).

Methods: The tissue ECS volume and geometry (i.e. the geometrical factor “tortuosity”, reflecting various ECS diffusion barriers) were studied in cortical samples of 21 patients surgically treated for epilepsy, including 9 patients with FCD type I and of 6 patients with FCD type II by the real time iontophoretic method. The samples were consequently subject to immunohistochemical analysis of the composition of extracellular matrix (ECM) and GFAP.

Results: In both FCD type I and FCD type II, the tortuosity of the ECS was significantly increased. The ECS volume fraction was not significantly changed in FCD. Although no significant changes in ECM composition were noted in FCD type I (when compared to controls), we observed increase in GFAP+ glial processes in both FCD types and pathological accumulation of some ECM molecules (i.e. tenascin C and R, hyaluronate, chondroitin sulphate and reelin) in the ECS of FCD type II.

Conclusions: The ECS of FCD has increased tortuosity reflecting the increase of diffusion barriers in the ECS. We propose that disturbed extrasynaptic transmission through the ECS of such cortex represents another factor contributing to the epileptogenicity of FCD.

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HYPERTENSIVE INTRA-CEREBRAL HEMORRHAGE: A COHORT STUDY IN TUNISIA

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Introduction: Intracerebral hemorrhage (ICH) is a frequent and serious disease and has a higher risk of morbidity and mortality than cerebral infarction or subarachnoid hemorrhage.

Purpose: The aim of this study is to analyze the incidence, risk factors, locations, and prognosis of hypertensive intra-cerebral hemorrhage in Tunisia at the Stroke Unit.

Methods: This is a prospective study of 469 patients admitted in Stroke Unit of the National Institute of Neurology in Tunis during 5 years with ICH for whom the etiology of the brain hemorrhage was hypertension.

All patients admitted in stroke Unit followed a pre-established protocol of treatment according to the European Stroke Guideline Recommendation.

Results: Among 551 patients admitted for ICH, 469 cases (85.11%) had hypertensive ICH. Sex ratio was 1.84 (304 men for 165 women).

Average age of patients was 64.4 years. 28 patients (5.97%) were under the age of 45. Major risk factors found were known past history of hypertension (75.69%), diabetes (34.32%), and smoking (25.15%).

Clinical symptoms were neurologic deficits (88.48%), sudden headache (22.21%) and Loss of consciousness (36.88%), and behavior disorders (3.19%).

Locations of ICHs were basal ganglia/internal capsule in 186 cases (39.65%), lobar in 82 patients (17.82%), and subtentorial in 28 cases (5.97%) .

342 patients have received nicardipine (Loxen®) in intra-venous and 191patients have received anti-hypertensive treatment per os during hospitalization.

Conclusion: Information about the quality of control of Hypertension is often impossible to evaluate in patients. The need of education of patients and primary line doctors for treating is necessary.

INTRA-CEREBRAL HEMORRHAGE IN YOUNG TUNISIAN PEOPLE

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Introduction: The frequency of intracerebral hemorrhages (ICHs) in patients aged under 45 years without cerebral malformation has been poorly studied.

Aim: The aim of this study is to analyze the incidence, causes, locations, and prognosis of ICH in young patients without arteriovenous malformations.

Methods: This is retrospective study conducted from 2005 to 2010 in the National Institute of Neurology in Tunis. We have analyzed the data of patients under the age of 45 who have presented an intracerebral spontaneous hemorrhage. We have excluded the patients with intraventricular hemorrhage, traumatic hemorrhage, and hemorrhagic transformation of brain infarction.

Results: Among 551 patients admitted to our stroke unit with a diagnosis of ICH (Intra cerebral hemorrhage), 43 patients (7.8%) were aged less than 45 years. Sex ratio was 1.38 (25 men for 18 women).

Major risk factors found were hypertension (48.83%), diabetes (20.93%), smoking (67.44%).

Clinical symptoms present at time of diagnosis were neurologic deficits (76.74%), sudden headache (50%) and Loss of consciousness (25.58%).

The most common cause of ICH was severe hypertension (62.79%). Other causes were, cavernoma (6.97%) and Moya Moya disease (4.65%).

Locations of ICHs were basal ganglia/internal capsule in 27 (62.79%), lobar in 14 patients (32.55%), brain stem in 1 patient and cerebellum in 1 case (2.32% each).

25 patients have received nicardipine (Loxen®) and 10 patients have received mannitol.

Mortality rate was 11.62%.

Conclusion: ICH in young patients presents particular clinical characteristics and etiologies, and has a different prognosis. These findings suggest underlying age-related differences in disease pathogenesis.

A PROSPECTIVE STUDY OF IN-HOSPITAL MORTALITY AND OUTCOME AT DISCHARGE IN SPONTANEOUS INTRACRANIAL HEMORRHAGE

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Background: Intracerebral hemorrhage (ICH) is associated with high mortality and morbidity. The present study evaluated independent predictors of in-hospital mortality in patients of spontaneous intracerebral hemorrhage (sICH) at a tertiary referral centre.

Methods: Patients with acute hypertensive ICH were prospectively enrolled. Primary outcome was defined as either death or survival within the hospital. Multivariate logistic regression analysis was performed to analyse independent predictors of mortality. Discharge mRS ≤3 was defined as a good outcome.

Results: Among 116 prospectively enrolled patients, 95 patients with isolated supratentorial hemorrhage were included for analysis. 64 (67.4%) patients survived and 31(32.6%) patients died. No difference in age (56.72±11.94 vs. 56.55±11.51, p=0.9) and sex (p≤0.1) was observed between groups. Median duration of stay was 18 days. Upon multivariate analysis, systolic BP (OR1.014, 95%CI 1.00-1.02, p=0.03), low GCS (OR 0.73, 95%CI 0.60-0.88, p=0.005), higher baseline hematoma (OR1.02, 95%CI 1.001-1.045, p=0.02), intraventricular extension (OR 3.30, 95%CI 1.03-10.56, p=0.03) and mechanical ventilation (OR10.45, 95%CI 2.14-50.96, p=0.005) independently predicted mortality. 5 (7.8%) patients acheived an mRS≤3 at discharge. 33 patients underwent neurosurgical intervention {hematoma evacuation 27 and 6 external ventricular drainage (EVD)}. 22(66.6%) patients survived. Only hydrocephalus (OR 2.8, 95% CI-1.05-7.63, p=0.005) independentantly predicted mortality in this subgroup. Mortality was higher in patients who underwent EVD than hematoma evacuation (OR1.7, CI-1.01-3.02, p=0.01).

Conclusions: Higher baseline ICH volume, hyperglycemia, higher systolic blood pressure, low GCS and presence of IVH are independent predictors of mortality. Most of the survivors were disabled at discharge. Surgery improved mortality but not early outcome.

RENDU OSLER WEBER DISEASE WITH CEREBRAL HEMORRAHAGE

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Introduction: Hereditary hemorrhagic telangiectasia (HHT) also known as Osler-Weber-Rendu disease is an autosomal dominant disease with an estimated prevalence of 1 in 5,000.The disease is frequently complicated by the presence of arteriovenous malformations in the brain, lung, and gastrointestinal tract that cause significant morbidity and even mortality in affected patients.

Case report: A 26 year old right handed man was admitted to the university hospital of Monastir with sudden headache and right hemiparesis.

The cerebral tomography found an intracerebral hemorrhage. Magnetic resonance imaging and angiography revealed multiple arteriovenous malformation. The HHT was diagnosed because of the concomitant existence of cutaneous telangiectasia and recurrent epistaxis since childhood. There were numerous members who had epistaxis, telangiectasia, neurological symptoms and gastrointestinal bleeding. Thorax computerized tomography detected arteriovenous malformation in the right lung and, pulmonary embolisation was recommended.

Discussion and conclusion: Cerebral vascular malformations are thought to affect up to 15% of patients with HHT. Neurologic symptoms can include migraine headache, brain abscess, transient ischemic attack, stroke, seizure, and both intracerebral and subarachnoid hemorrhage.

The neurological manifestations of the disease are due either to primary intracranial or spinal vascular lesions (36%) or to neurological complications of other visceral lesions. The prevention of ischaemic or hemorragic stroke accidents rests on the anatomical (excision) or functional (selective embolization) exclusion of pulmonary arteriovenous fistulae, when present.

COINCIDENCE OF SYNDROME AND FAHR´S DISEASE WITH INTRACEREBRAL HEMORRHAGE - TWO CASES REPORT

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Introduction: Symmetrical and bilateral intracerebral calcification located in the basal ganglia associated with a phosphocalcic metabolism disorder characterized Fahr's syndrome. It must be distinguished from Fahr´s disease.

Intracerebral calcification may be asymptomatic, their association with intracerebral hemorrhage has been rarely reported.

We report two cases of intracerebral hemorrhage associated with calcification of the basal ganglia.

Observation:

Case 01: S.A,29 years old woman with a history of epilepsy, was admitted for left hemiparesis; CTscan objectived right parietal hematoma with bilateral and symmetric calcification of basal ganglia. The phosphocalcic assessment showed hypocalcemia and hyperphosphoremia. Parathormone serum rate was decreased. Cerebral angiography conveyed right Rolandic arteriovenous malformation(AVM). The outcome was favorable by vitaminD and treatment of AVM.

Case 02: B.M, 43 years old man with a history of hypertension,was hospitalized for hemiparesis and aphasia, CTscan objectived left parietal hematoma with calcification of the basal ganglia, erebral angiography was normal; There were no anomaly in laboratory findings.

Discussion: Intracerebral calcifications were discovered incidentally revealed by a hemorrhagic stroke;Therefore the pathophysiological mechanisms that contribute to the occurrence of intracerebral calcification are actually unknown, metabolic disorder with deposition of mucopolysaccharides is evoked with vascular and perivascular lesions.

In the first case, the diagnosis of Fahr's syndrome has been evoked because there were a hypoparathyroidism.However in the second case there were no abnormalities in laboratory findings, the diagnosis of Fahr's disease was posed.

Conclusion: Usually, 40%of the patients with Fahr's syndrome are seen with primarily cognitive and other psychiatric findings. In our cases we found an association with intracerebral hemorrhage which is exceptional.

A CASE OF MIDBRAIN HEMATOMA SHOWING PROFOUND MEMORY IMPAIRMENT WITHOUT OTHER USUALLY SYMTOMS

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Object: The clinical presentation of midbrain stroke usually includes diplopia, dizziness, ptosis, limb weakness and tremor. Isolated cognitive decline without usual common symptoms of midbrain stroke is rare.

Case report: A 62 year-old woman present with sudden onset profound memory impairment and disorientation without ptosis, gaze palsy, limb weakness and tremor. CT of brain showed a small round high density lesion(1.4cm) in the dorsal midbrain region. The area of decreased blood flow on brain SPECT was left temporal lobe. Neuropsychological evaluation done at 7 days after onset showed impairment of frontal executive function and memory. Follow up neuropsychological evauation done at 3month after onset showed much improving results.

Conclusion: Spontaneous midbrain hematoma is rare cause of cognitive decline, especially without other usual common symptoms of midbrain lesion.

NATIONAL INSTITUTE OF HEALTH STROKE SCALE (NIHSS) FOR HAEMMORHAGIC STROKE PATIENTS?

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Background: Recent studies utilize the NIHSS in both stroke types, though it was basically for ischaemic strokes. We sought to evaluate its prognostic value in haemmorhagic strokes in a non - interventional study.

Aims: The study objective was to compare the NIHSS scores at presentation to mortality and prognosis amongst survivors.

Methodology: We studied acute haemmorhagic stroke patients. Their presenting NIHSS score, clinical features including complications were recorded on admission. Mortality and outcome within 90 days were evaluated using Glasgow outcome scale. Data was analysed with SPSS (version 17).

Results: There were 136 patients of which 49 were haemmorhagic strokes. The m: f was 2:1 and mean age was 57.9±12.6. Mean NIHSS scores at 24 hours was 20, 15 at 7 days, 8 at 30 days and 7 at 90 days. Mortality with these mean NIHSS scores was 4% within 24 hours, 30% at 7 days, 20% at 30days, 0% at 90 days and a cumulative 59.2% at the end of study. Morbidity in our patients was reflected in 40 (81.6%) having complications, of which 24 (60%) had neurological complications (mean NIHSS scores >20), whilst 16.5 was obtained in 9 (18.4%) patients without complications within 24 hours.

In terms of outcome amongst the 20 survivors; 4.1% had persistent vegetative state, 10.2% had severe disability and good recovery respectively, whilst 16.3% had moderate disability.

Conclusion: Mean NIHSS scores (>20) at presentation was directly proportional to the high mortality and poor outcome observed in haemmorhagic stroke patients.

NATURAL HISTORY OF INTRACEREBRAL HEAMORRHAGE (ICH) IN WESTERN CHINA：A MULTI-CENTER, HOSPITAL REGISTRY STUDY

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Objective: To understand the nature and in-hospital outcome of Intracerebral Heamorrhage in western China.

Methods: A multicenter, hospital-based ICH registry study prospectively registered ICH cases of 8 hospitals in western China. Data on baseline characteristics, management and outcome (death, dependency) at discharge was collected in detail. Factors influencing in-hospital outcome were analyzed by multivariate logistic regression.

Results: A total of 1822 ICH patients (average age 59.76 ±12.50 years) were included with men (62.6%) significantly outnumbered women (P< 0.001). Peasant farmer (35.5%) is the most common occupation type. ICH occurred in basal ganglia (56.6%) most frequently, followed by lobar area (16%), thalamus (15.7%), cerebellum (6.1%), brain stem (5.1%), and ventricles (3.1%). Ventricular extension was seen in 31.8% of patients. 39.8% of ICH patients presented with low GCS score (3~8). Totally 179 patients (9.8%) died in hospital (median stay 10.0 days, IQR 4.0~23.0). The overall rate of surgery was 38.0%. Risk factors of in-hospital death were male [OR=1.965, CI 1.184~3.260], low GCS score [OR=7.712(4.104~14.491)], hypertensive history [OR=2.020 (1.483~2.749)] and non-surgery treatment [OR=1.763 (1.085~2.866)]. Age [OR=1.019 (1.006~1.033)], low GCS score [OR=2.630 (2.153~3.212)], brainstem haemorrhage [OR=2.553 (1.221~5.339)] and non-surgery treatment [OR=0.415 (0.282~0.610)] were independently associated with death/ dependency at discharge.

Conclusion: ICH in western China was characterized by early onset age, male predominance, most common of peasant farmers and large proportion of severe presentation. The risk factors of in-hospital death were male, low GCS score, hypertensive history and non-surgery treatment. Surgery brought down in-hospital death but increased risk of death/ dependency at discharge.

MOYAMOYA DISEASE REVEALED BY CEREBRAL HEMORRHAGE: FOUR MOROCCAN CASES

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Moyamoya disease (MD) is a progressive, occlusive, cerebrovascular arteriopathy characterized by bilateral stenosis of the terminal portions of internal carotid or their branches. It was originally considered exclusive to East Asia, with a high prevalence in Japan.

We report four Moroccan adults cases of MD revealed by hemorrhagic stroke. Two men and two women, with a mean age of 33 years. The CT scan showed a hematoma in three cases (capsulo-thalamic in two and frontotemporal in one); ventricular hemorrhage in one. A cerebral angiography demonstrated a stenosis or occlusion of the terminal portions of the bilateral internal carotid in all cases and bilateral stenosis of intracranial vertebral artery in one case. The abnormal vascular network at the base of the brain was showed in three cases and leptomeningeal anastomoses in one.

MD is a rare pathology, affecting especially Asian people. However, it is increasingly diagnosed throughout the world and represents an important cause of childhood stroke in western countries. More than 60 % of adult's moyamoya patients present with subarachnoid or intraparenchymal haemorrhage (Handa, 1985). The diagnosis is based on cerebral angiography that showed bilateral stenosis or occlusion of the intracranial portion of the internal carotid arteries and their terminal branches. The vertebrobasilar system involvment, found in one of our patients, has rarely been reported. Ttreatment is poorly codified, but the majority of patients have been treated surgically by revascularization operations. The efficacy of medical treatment has never been tested. The prognosis is poor in adults because repetitive intracranial hemorrhages.

MATRIX METALLOPROTEINASES AND THEIR TISSUE INHIBITORS ARE ASSOCIATED WITH CEREBRAL VASOSPASM AFTER ANEURYSMAL SUBARACHNOID HEMORRHAGE

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Matrix metalloproteinases (MMPs) and their tissue inhibitors (TIMPs) play an important role in vascular remodeling, endothelial proliferation, inflammatory response and blood-brain barrier disruption. This study aimed to analyze MMP-9 and TIMP-1 in patients with subarachnoid hemorrhage (SAH) and their respective association with cerebral vasospasm (CVS).

Blood samples were collected in 20 patients suffering from aneurysmal SAH on days 1 to 7, 9, 11, 13 and 15. MMP-9 and TIMP-1 were analyzed in serum using enzyme-linked immunosorbent assay. Transcranial Doppler sonography was performed daily from days 1 to 7 and every other day thereafter. Doppler sonographic CVS was defined as a mean blood flow velocity of 120 cm/sec in the middle cerebral artery.

Mean MMP-9 was significantly higher in SAH patients compared to healthy controls ($p< 0.0001$). Patients with CVS ($n=11$) revealed a significant elevation of MMP-9 serum levels compared to patients without CVS ($n=9$, $p< 0.05$). A significant increase of TIMP-1 was observed in patients with SAH ($p< 0.001$). Accordingly, there was a significant imbalance of the MMP-9/TIMP-1 ratio in favor of MMP-9 in SAH patients, in particular those with CVS ($p< 0.001$).

Our results show that MMP-9 is significantly elevated in patients with aneurysmal SAH, whereas its inhibitor TIMP-1 is decreased. Further, alterations in MMP-9 and TIMP-1 serum levels are associated with the development of CVS indicating that these proteins might be of importance in the pathogenesis of CVS. Future studies confirming our findings could implement a novel biomarker for the detection of CVS.

ANEURYSM OF THE DISTAL POSTERIOR INFERIOR CEREBELLAR ARTERY: A CASE REPORT

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Introduction: Posterior Inferior Cerebellar Artery aneurysms are rare and constitute 0.5 to 2% of total aneurysms in the brain. The majority of cases involve aneurysms in the proximal area of the vertebral artery from which the PICA arise[(1)]. Distal PICA aneurysms are even rarer and account for approximately 0.3% of all PICA aneurysms.

Case presentation: A 56 year old female presented with a subarachnoid hemorrhage in the basal cisterns and CP angles associated with compression of the pons and intraventricular extension of the hemorrhage. CT angiography showed saccular, lobulated aneurysm measuring 5.9 x 4.7 x 4.6 cm with a narrow 2mm neck along the right PICA medullary-cranial loop junction. Patient underwent coiling of the aneurysm and recovered without neurological sequelae.

Discussion: PICA aneurysms commonly occur in patients in their 5th and 6th decades without gender predilection. Symptoms of PICA aneurysms are similar to those of subarachnoid hemorrhage. Non-invasive vascular imaging techniques are useful in detecting presence of aneurysm like 3D CT angiography and Magnetic Resonance Angiography. Outcome of patients with ruptured distal PICA aneurysms is generally favorable; the incidence of rebleeding after rupture of a distal PICA aneurysm is higher than the rebleeding rate of all intracranial aneurysms (78% vs 34%)[(7)].

Conclusion: When we are confronted with a case of subarachnoid hemorrhage in the fourth ventricle of unknown origin, particular attention should also be made to the distal PICA due to the rare occurrence of aneurysm in the said location.

SURGICAL MANAGEMENT OF PATIENTS WITH INTRACEREBRAL HEMORRHAGE AS A RESULT OF ANEURYSM RUPTURE

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Patients who present with intracerebral hemorrhage (ICH) due to aneurysm rupture usually require urgent clot evacuation and aneurysm obliteration.

It is well known that ICH after aneurysm rupture negatively influences the patient's outcome. Controversy persists regarding the optimal management of ICHs caused by aneurysm rupture.

We studied retrospectively 214 cases of ICH due to aneurysm. The patients were subjected to either urgent surgical removal of ICH and simultaneously aneurysm clipping or coiling of aneurysm was performed primarily and ICH removal after improving of patients' condition. The outcome was studied using the Glasgow Outcome Score.

The patients were divided into 2 groups due to Hunt-Hess grade: 1st group (87 patients) with I-III grade, who underwent removal of ICH and aneurysm clipping and 2nd (127 patients) group with IV-V grade. In the 1st group good recovery and moderate disability were in 73.5% cases, severe disability, vegetative state - 11.5%. Lethality rate was 15%. In the 2nd group 62 patients underwent ICH removal and aneurysm clipping. 12 (19.3%) of them had vegetative state, 50 (80.7%) died. In this group in 65 cases coiling was performed primarily, after improving of condition ICH was evacuated. In these cases good recovery and moderate disability were in 53.8% cases, severe disability and vegetative state - 12.4%. Lethality rate was 33.8%.

Thus, we recommend urgent ICH evacuation and aneurysm clipping for patients with I-III Hunt-Hess grade. Patients with IV-V Hunt-Hess grade should be submitted to coiling first and ICH removal after improving of patients' condition.

SURGICAL MANAGEMENT OF PATIENTS WITH INTRACEREBRAL HEMORRHAGE ASSOCIATED WITH ARTERIOVENOUS MALFORMATION

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Patients who present with intracerebral hemorrhage (ICH) due to arteriovenous malformation (AVM) usually require urgent clot evacuation and resection or endovascular embolization of AVM. ICH as a result of AVM negatively influences the patient's outcome. Controversy persists regarding the optimal management of ICH due to AVM.

We studied 137 cases of ICH due to AVM. The patients were subjected to either urgent surgical removal of ICH and simultaneously AVM resection or ICH evacuation was performed primarily and after improving of patients' condition embolization or resection of AVM was conducted.

The patients were divided into 2 groups using the Spetzler-Martin scale: 1st group (62 patients) with I-III grade, who underwent ICH removal and simultaneously AVM resection and 2nd (75 patients) group with IV-V grade. In the 1st group good recovery and moderate disability were in 64.6% cases, severe disability and vegetative state - 12.9%. Lethality rate was 22.5%. In the 2nd group 32 patients underwent ICH removal and simultaneously AVM resection. 13 (40.6%) of them had vegetative state, 19 (59.4%) died. In other 43 cases ICH removal was performed primarily, after improving of condition embolization of AVM was performed. In these cases moderate and severe disability were in 53.4% cases, vegetative state - 14.0%. Lethality rate was 32.6%.

Thus, we recommend urgent ICH removal and simultaneously AVM resection for patients with I-III Spetzler-Martin grade. Patients with IV-V Spetzler-Martin grade should be submitted to evacuation of ICH first and endovascular embolization of AVM after improving of patients' condition.

HOW TO IMPROVE SURGICAL RESULTS OF UN-RUPTURED CEREBRAL ANEURYSMS

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There are many complications associated with clipping surgeries for un-ruptured cerebral aneurysms, including perforator injury, branch occlusion, damage to venous system, brain contusion during dissection, cranial nerve injury and so on. In this paper, complications after surgery for un-ruptured aneurysms were investigated and the means to avoid these complications during surgery are proposed. From April 1991 to December 2010, 210 patients (222 aneurysms) underwent clipping surgery for un-ruptured cerebral aneurysms at Teikyo University Hospital. Patient´s age, sex, location of aneurysm, size of aneurysm, craniotomy site, time required for surgery, complication during surgery were studied. Major and minor complications were noted in 2 and 23 cases, respectively. Perforator injuries were the cause of these two major complications. Since introduction of ICG video-angiography or MEP monitoring, major complications have not occurred. As to minor complications, brain contusion and venous hemorrhage occurred in 4 cases and in 2 cases, respectively. Chronic subdural hematoma was noted in 2 cases. Remote cerebellar hemorrhage occurred in one case, which was removed surgically. Dural AVF and CSF liquorrhea through the frontal sinus were also treated surgically. Perforator injuries and branch occlusion which were asymptomatic occurred in 2 cases and one case, respectively. In conclusion, from skin incision to removal of staples, meticulous care to avoid these complications is needed. ICG video-angiography and ultasonic examination to confirm patency of the perforators, and MEP monitoring during surgery are essential for safe and sure clipping surgery of un-ruptured cerebral aneurysms.

FREE AMINO ACIDS CONCENTRATIONS IN INTRACEREBRAL HAEMORRHAGE VS. BRAIN ISCHEMIA

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The aim of our study was to investigate free amino acids concentrations in cerebrospinal liquid (CSL) in 12-72 hours of haemorrhagic and ischemic strokes onset. 58 patients with ischemic stroke and 20 patients with haemorrhagic stroke aged from 45 to 70 years were investigated. Type of stroke was determined on basis of clinical, liquorologic and neuroimaging data. Patients were divided into mild, moderate, severe and extremely severe stroke groups. Control comprised 24 individuals without stroke at the same age. Free amino acids concentrations were determined by HPLC method. In intracerebral haemorrhage in CSL decrease of Thr (2.01 times) and Phe (1.24 times) and increase of Trp (1.18 times) were observed in comparison with control. Some free amino acids (Lys, Val, Leu, Cys, His, Tyr) concentrations did not exceed normal parameters. In brain ischemia were observed normal concentrations of Lys, Val, decrease of Arg, Met, Thr, Leu, Ile levels, and increase of Pro level. Studying of neurotransmitters showed that exciting amino acids (Asx, Glx) levels increased in intracerebral haemorrhage 4.05 and 14.18 times relatively, in brain ischemia 3.29 and 12.41 times relatively in comparison with control. Concentrations of inhibiting amino acid Gly was higher 1.72 times (in intracerebral haemorrhage) and 1.11 times (in brain ischemia) to the control, respectively. We assume that free amino acids concentrations particularly neurotransmitters have possible contribution to the pathogenesis of brain damage in strokes.

CEREBRAL ISCHEMIA SECONDARY TO EXCESSIVE BLOOD PRESSURE LOWERING IN ACUTE SPONTANEOUS INTRACRANIAL HEMORRHAGE

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Background: The optimal blood pressure (BP) management in acute intracranial hemorrhage (ICH) is unknown. Lowering BP reduces hematoma expansion, surrounding edema and re-bleeding. However it may precipitate ischemic stroke from decreased cerebral perfusion. We aim to determine a safe level of BP lowering.

Methods: This is a retrospective review of all patients admitted to the Acute Stroke Unit with ICH from June 2010 to May 2011. Mean arterial pressure (MAP) on admission and during hospitalization, anti-hypertensive usage, serial brain scans and neurological examination were noted. Patients with new appearance of ischemic stroke on subsequent scans were selected. The extent of MAP lowering was noted, together with neurological examination to determine if ischemic stroke was symptomatic. We calculated the difference between the MAP on admission and at ischemic event.

Results: Four patients (mean age 55 $\pm$ 10 years, all males) had new ischemic strokes. All had underlying hypertension. Initial brain scans showed ICH in pons, cerebellum, parietal lobe and basal ganglia. MAP on admission ranged from 103 to 146 mmHg, treated with intravenous labetalol.MAP lowering ranged from 18% to 36% of initial values. MRI brain showing acute infarcts was performed between 24 to 44 hours after ICH onset. Two patients were symptomatic with signs correlated with ischemic lesions on MRI brain in the internal watershed territories.

Conclusion: Aggressive BP lowering may be associated with harmful effects. Our review showed that lowering MAP more than 18% of baseline may precipitate ischemic stroke. A larger prospective trial required to verify these findings.

ARUBA - A RANDOMISED TRIAL OF UNRUPTURED BRAIN AVMS

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Rationale: Current invasive treatment for brain arteriovenous malformations (AVMs) is varied and includes endovascular procedures, neurosurgery, and radiotherapy. However, no controlled treatment data on the benefit of preventive therapy for unruptured brain AVMs.

Design: ARUBA is an international, multicenter, randomized, controlled, open, prospective clinical trial.

Sample size: 400 patients (1:1 random assignment).

Population studied: Patients aged ≥18 years, diagnosed with an unruptured brain AVM considered treatable by the local investigators.

Outcome measures: The primary outcome is the composite event of death from any cause or stroke (haemorrhage or infarction confirmed by imaging). Clinical outcome status will be measured by the Rankin Scale, NIHSS, SF-36, and EuroQual.

Interventions: Patients will be randomly assigned to best possible invasive therapy (endovascular, surgical, and/or radiation therapy) versus medical management alone. Patients will be followed for 5-10 years from randomisation.

Primary aim: To determine whether medical management is superior to invasive therapy for preventing the composite outcome of death from any cause or stroke (symptomatic haemorrhage or infarction) in the treatment of unruptured BAVMs.

Secondary aim: To determine whether treatment of unruptured BAVMs by medical management decreases the risk of death or clinical impairment (Rankin Score >/= 2) at 5 years post-randomization compared to invasive therapy.

Trial status: More than 160 patients have been enroled worldwide. Interested multidisciplinary treatment teams are welcome to join.

Sponsor: NIH/NINDS (NCT00389181).

INTERNAL ARTERY DISSECTION WITH DISSECTING ANEURYSM AND SUBARACHNOID HAEMORRHAGE - A TREATMENT CHALLENGE

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Introduction: Extracranial carotid artery dissection may be presented as arterial stenosis or occlusion or as dissecting aneurysm formation. A subintimal dissection causes narrowing or occlusion of the vessel and if the haemorrhage extends into the subadventitial plane, a dissecting aneurysm can be formed which rupture cause subarachnoid hemorrhage.This condition receive special attention due to the therapy doubts and clinical course.

Case report: We present a case of 29-year old female patient with spontaneous subarachnoid haemorrhage and angiography finding of large right ICA dissection with ruptured supraclinoid dissecting aneurysm. Endovascular treatment was performed using multiple tandem stents to reconstruct dissecting part of ICA, followed by balloon dilatation and coil replacement into the dissecting aneurysm of C7 right ICA portion with partial aneurysm occlusion. Seventh day after endovascular procedure, patient´s neurological status worsened while developing left hemiplegia, due severe ischemic stoke in right ACA and MCA irrigation territory. We explain our doubts in decision when and which kind of therapy, anticoagulant or antiplatelet, to use in the treatment procedure in such severe condition.

INFLUENCE OF GENDER ON PERIHEMORRHAGIC EDEMA EVOLUTION AFTER SPONTANEOUS INTRACEREBRAL HEMORRHAGE

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Introduction: Recent studies have reported that estrogen and progesterone have a neuroprotective effect after traumatic brain injury (TBI). Animal studies have shown that water content of rat-brains after TBI, correlating with brain edema, was significant lower in estrogen and progesterone treated animals. However, mechanisms of this effect are still not completely understood. The aim of this study was to investigate the impact of gender on development of perihemorrhagic edema after spontaneous supratentorial hemorrhage (sICH).

Methods: 450 patients, 283 male and 167 female with spontaneous supratentorial hemorrhage (sICH) were included in the analysis. We investigated perihemorrhagic edema development during a 14-day observation period on repeated CT-scans. Intracerebral hemorrhage volume (ICHV) and absolute edema volume (AEV) were measured with a semiautomatic threshold based algorithm on day 1, 2-4, 5-7, 8-11 and 12-14.

Results: The analysis showed a significantly lower absolute edema volume (AEV) from day 2 till day 11 in women ($p=0.014$). Intracerebral hemorrhage volume (ICHV) in women showed a non significant graphical trend towards faster resolution during time course.

Conclusion: These data show that gender might influence perihemorrhagic edema evolution after spontaneous intracerebral hemorrhage and that female sex might predict lower perihemorrhagic edema. Possible clinical impact deserves further investigations.

AN ASSOCIATION STUDY OF MMP9 GENE'S SINGLE NUCLEOTIDE POLYMORPHISMS (SNPS) OR HAPLOTYPES WITH THE OUTCOME OF INTRACEREBRAL HEMORRHAGE (ICH)

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Objective: To investigate the relationship between SNPs or haplotypes of MMP9 gene and the outcome of ICH.

Methods: Mass-spectrometer was used to determine SNPs genotyping. The patients' death or disability were followed prospectively at 3 and 6 months. Unphased software was employed to construct haplotypes and analyze the association between SNPs or haplotypes of MMP9 gene and the outcomes of ICH.

Results: We recruited 181 patients with ICH in Chinese Han Population. The haplotypes of TGG (rs3918254-rs3787268-rs17577) (OR=0.51, 95%CI 0.27~0.97), and TG (rs3918254-rs3787268) (OR=0.50, 95%CI 0.26~0.96) were both associated with the declining risk of death/disability in the patients at 3 months. The same haplotypes of TGG (OR=0.49, 95%CI 0.26~0.94) and TG (OR=0.48, 95%CI 0.25~0.93) were both associated with the declining risk of death/disability in the patients at 6 months, too. The ICH patients with rs3787268 GG genotype may have a lower risk of death/disability at 6 months (OR=0.52, 95%CI 0.19~1.39). However, the 95% CI was too wide to giving definitive conclusion for small sample.

Conclusion: The haplotypes of TGG (rs3918254-rs3787268-rs17577) and TG (rs3918254-rs3787268) were both associated with the declining risk of death/disability in the ICH patients at 3 and 6 months.

PROGNOSTIC VALUE OF FLAIR MRI IN ACUTE CEREBRAL ARTERY OCCLUSION TREATED WITH COMBINED THROMBOLYSIS

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Background: Intravenous rt-PA given within 3 hours of stroke onset is considered the standard treatment of stroke. Persistent cerebral occlusion on MRA obtained just after IV thrombolysis, and unremitting neurologic deficits is a major factor in considering additional IA thrombolysis. And in this clinical setting, Fluid-attenuated inversion recovery (FLAIR) image performed simultaneously with MRA may pay an important role in deciding whether to go forward or not.

Methods: Based on a prospective stroke registry, we collected patients with acute ischemic stroke, who were presented within 2.5 hours of symptom onset, treated with IV thrombolysis, persistent cerebral occlusion in MRA performed immediately after IV thrombolysis, and eventually underwent IA thrombolysis. A total of 57 patients were selected for the analyses.

Results: FLAIR hyperintense lesion (FHL) was observe in 56.1% (n=32). The incidence of sHT during hospitalization was 4.0% for FHL negative group and 9.4% for FLV positive group. Patient representing good early outcome with NIHSS 0, 1 was 36% (n=9) in FHL negative group and 9.4% (n=4) in FHL positive group, for 3 month mRS 0, 1 proportion of patients were 32% (n=8), 21% (n=7) respectively. In ordinal logistic regression, FHL was associated with higher follow up NIHSS, after adjusting for relevant covariates (adjusted OR, 3.01; 95% CI, 1.01 - 9.07).

Conclusion: The presence of FHL within acute infarction lesion may predict poor neurological outcome and development of sHT in combined thrombolysis treated patient.

LARGE ANEURYSM OF THE INTERNAL CAROTID ARTERY PRESENTING AS BITEMPORAL HEMIANOPIA

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Background: Depending on their size and location, cerebral aneurysms can have a variety of effects on the eye and its pathways. Accordingly, an intracranial internal carotid artery(ICA) aneurysm may cause devastating damage to the visual system.

Case report: A 63-year-old woman presented at our clinic with an inability to see out of both eyes. Neuro-ophthalmic examination revealed 10/20 visual acuity OU and OD. Confrontation fields revealed a bitemporal hemianopia. A cerebral angiogram confirmed a right internal carotid-ophthalmic aneurysm, projecting posteromedially. A coil embolization of the right ICA aneurysm is planned.

Conclusion: A patient with a visual field defect or other neuro-ophthalmic manifestations with no discernable cause should undergo brain imaging to rule out a treatable cerebral aneurysm.

STUDY OF LEUCOARAÏOSIS IN PATIENTS VICTIMS OF ISCHEMIC STROKE ATTACK IN TOGO

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Introduction/background: the stroke attacks represent the first mortality factor in neurology department of subsaharian Africa. In 2020, the stroke attacks will pass Hiv/Aids in the number of victims and become the major health public problem. Leucoaraïosis is a neuroradiologic entity but it presence in association of an ischemic stroke attack can't be without consequences. The aim of our study is to determine the prevalence of leucoaraïosis in the ischemic stroke attack and its place in the evolution, the gravity and the prognostic of this stroke attack.

Method: A prospective multicentre study was carried from January 1st to July 31th 2005. This study concerned 133 consecutive patients hospitalized in the neurological department of Lome Teaching Hospital for ischemic stroke clinically evoked and radiological diagnosed.

Result: Leucoaraïosis was diagnosed on 62, 3% with cerebral computerized tomography scan. The average age of patients with leucoaraïosis was higher (64 years against 52years). Leucoaraïosis was significantly associated with age (0R: 3,2 ; CI : 1,7-6,1), high blood pressure(OR: 7; CI : 2,9-17,9) and diabetes (OR : 3,69; CI : 1,7-7,8). It was a factor of relapse stroke (OR: 2, 6; IC: 0, 9-7, 2). There was no link between the Rankin Score Scale and the duration of patient's stay and the mortality rate.

Conclusion: Leucoaraïosis is an undeniable factor of recurrent stroke. It is not an aggravating factor, in fact, it is not associated with length of stay of patients, mortality, the modified Rankin scale or type of stroke.

INFLAMMATORY BIOMARKERS COVARY INVERSELY WITH HIPPOCAMPAL GREY MATTER VOLUME IN STROKE PATIENTS

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Introduction: Inflammation contributes to the progression of vascular dementia and aggravates outcome after stroke. Animal findings suggest that peripheral inflammatory markers are associated with hippocampal atrophy and cognitive function impairment.

Aims: To evaluate the association between inflammatory markers, hippocampal volume and long-term cognitive outcome in stroke patients.

Methods: The TABASCO (Tel-Aviv Brain Acute Stroke Cohort) is a prospective study of first-ever mild-moderate stroke patients. Inflammatory markers, brain imaging and cognitive tests were determined in patients without evidence of infection or inflammatory condition within 72 hours from stroke onset. The patients were followed for 18 months.

Results: A total of 296 patients were included. Inflammatory markers (C-reactive protein, white blood cells count, erythrocyte sedimentation rate (ESR)), cognitive scores and MR scan results (n=164) were analyzed.

Inflammatory markers on admission were inversely correlated with cognitive scores at baseline as well as 6, 12 and 18 months thereafter (such as $p=0.016$ for ESR and 6-month memory score). Next, we found an inverse association between inflammation and hippocampal volume. After controlling for age, gender, stroke severity, hypertension, diabetes, hyperlipidemia and total grey matter volume, a multiple regression analysis confirmed this relationship ($p< 0.001$), with ESR accounting for 10% of variance. ESR measures remain similar during admission and follow-ups, suggesting an "inflammation tendency".

Conclusions: This is the first report of a strong relationship between peripheral inflammatory biomarkers and hippocampal volume as well as with cognitive performance among post-stroke patients. Thus suggesting that peripheral low grade inflammation could relate to cognitive decline via hippocampal pathways.

POSTERIOR REVERSIBLE ENCEPHALOPATHY SYNDROME (P R E S) INA CHILD WITH POST STREPTOCOCCIQUE NEPHRITIQUE SYNDROME

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Introduction: Posterior reversible encephalopathy syndrome: is an acute neurological syndrome, associating seizures, headache, vomiting and visual disturbances and radiological anomaly cerebral posterior generally occurring, after an acute increasing blood pressure.

Case report: A 11 years old boy, with EAR infection in his recent medical history, hospitalized for seizures, blindness, and walk disorder evolving since the day before.

Clinical: Sleepy patient, swelling of the face with blindness, a tetraparesia and hypertension 190/110 mm Hg.

Biology: The biological assessment finds a nephritic syndrome, inflammatory syndrome and antibodies anti streptolysine O higher than 200 ui/l Magnetic resonance imaging (MRI) Lesions with a low signals in T1 and high signals in T2, bilateral, mainly located in the posterior brain.

Evolution: Was done towards the clinical and biological improvement almost total, at the end, under of a few days treatment. MRI cerebral of control shows a spectacular regression of the lesions.

Discussion: It's a rare pathology in the child, a diagnosis based on clinical symptoms and especially MRI cerebral initial and MRI of control. In this case etiology is from a post streptococcique nephritic syndrome of dysimmunitaire origin.

Conclusion: The diagnosis of the P R E S rests on the knowledge of the concordant clinical and radiological signs with adapted treatment, allows a spectacular improvement.It is a pathology which remains rare in child.

TIME INTERVAL BETWEEN SYMPTOMS ONSET AND BRAIN CT SCANNING IN STROKE PATIENTS: PRELIMINARY RESULTS

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Background and purpose: Stroke diagnosis is based on Brain imaging. Any brain CT scanning delay will affect management of patients with stroke. The aim of our study is to evaluate the time interval between symptoms onset and brain CT scanning in stroke patients admitted at Fann Neurology Hospital and factors influencing delays of CT performing

Methods: We prospectively collected data from patients who presented to emergency unit of the neurology department with an ischemic or hemorrhagic **stroke** confirmed with a brain CT. Time of symptom onset could be clearly identified for all patients recruited. The time interval between symptoms onset and brain CT scanning was defined as the time from symptom **onset** to the time written on CT pictures. Univariate and multivariable regression analyses were conducted to evaluate factors influencing this time interval.

Results: We report data from 109 patients. The age range was (24-91) with 61.5% over age 59. The male to female ratio was 1:1. Only 7.3 % of patients underwent brain CT within the first three hours from symptoms onset one of them within the first 60 minutes. The median time interval was 1444 minutes. Geographic location significantly affected delays of brain CT (p=0,048), time of presentation at neurology department too (p=0.044). Age, gender and instruction level did not significantly affect **pre-hospital** delay times.

Conclusion: The time interval between symptom **onset** brains CT scanning is still long. Efforts should be made to have a CT scan machine available for emergency presentation.

NEUROIMAGING MORPHOMETRIC CHARACTERISTICS OF BRAIN LESIONS IN OBESE PATIENTS WITH ACUTE ISCHEMIC STROKE

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Background: Obesity increases risk of cerebrovascular events and may significantly worse the outcomes in acute strokes.

Methods: We examined patients with first ischemic strokes without arterial hypertension and diabetes mellitus in anamnesis: 157 patients with obesity I-II classes (BMI> 30kg/m^2) and 122 patients with normal body weight (BMI within 18,5 - 24,9 kg/m^2) matched for age and sex. We investigated the focal brain lesions: the volumes of non-lacunar infarctions (on T-2 weighted MRI images according to ellipsoid formula) and the number of lacunar cysts. Analyses of diffuse cerebral changes (which characterize the cerebral atrophy) were performed on T-1 weighted MRI images: determination the average width of convexital hemispheric sulcuses, calculation of the third ventricle's indexes and calculation of lateral ventricles bodies' indexes.

Results: In obese patients prevailed large vessel strokes (43%) and lacunar strokes (41%) compared with normal body weight patients (34% and 37% respectively). It has been determined the increasing of the cerebral non-lacunar infarctions volumes (22,9±3,1 cm^3 against 15,8± 2,8 cm^3, $p < 0,05$) and increasing the number of lacunar cysts (5,3±1,0 against 3,2±0,8, $p < 0,05$) in obese patients in comparison with normal bodies weight patients. Moreover, in patients with obesity it has been found the increasing of the lateral ventricular bodies' index (32,2±0,9% against 29,5±0,9%, $p< 0,05$) and increasing of the average width of convexital sulcuses (4,7±0,3 mm to 4,1±0,3 mm, $p< 0,05$).

Conclusions: Morphometric neuroimaging parameters showed a more severe course of ischemic strokes and chronic cerebrovascular disorders in persons with obesity.

STROKE AND MOYA MOYA

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Aim: Know radiological aspects of moya moya.

Methods: 4 patients aged 4 to 54, with an array of ischemic stroke in 2 cases and subarachnoid hemorrhage in 2 cases. All patients underwent an imaging section and a cerebral arteriogram.

Results: In all cases arteriography showed internal carotid arteries stenosis with development of a typical moya moya anastomotic network.

Conclusion: The Moyamoya disease (stenosis of the proximal circle of Willis) is rare. Ischemic events are more frequent in pediatric pathology, whereas haemorrhagic manifestations affect more adults. Imaging plays an important role in early diagnosis.

STROKE TYPES IN PRECONDITIONED BRAIN BY CAROTID STENOSIS

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Objective: To examine clinical, imagistic and evolution peculiarities of stroke caused by symptomatic carotid stenosis.

Material and methods: The study included 126 acute stroke patients admitted to Stroke Department during 2009-2011 with symptomatic carotid stenosis. Carotid duplex ultrasound (CDUS) showed in all patients' percentage of ipsilateral carotid stenosis more than 70%. All cases were confirmed by cerebral CT scan or MRI, which revealed ischemic cerebral area on the site of stenosis. Neurological impairment was appreciated according to NIH Stroke Scale. As control group were examined 50 acute stroke patients without or less than 50% carotid stenosis.

Results: It was noticed that in stroke patients with confirmed carotid stenosis higher than 70% institution of neurological deficit was relatively slow, till 24 hours from first symptoms. In 46 patients final neurological deficit occurred in 4 hours (progressive impairment), in 38 patients - 12 hours (relatively slow progressive impairment), in remained 42 patients oscillating evolution lead to final impairment in 24 hours. In the control group neurological deficit established suddenly during first hour. CT image in oscillating evolution of stroke, 42 patients corresponded to the image of borderzone infarction.

Conclusion: In cases with slow establishment of stroke clinical signs, during 24hours from onset of symptoms, imagistic picture was corresponding to borderzone infarction. This peculiarity indicates the preconditioning phenomena of cerebral ischemic tissue in patients with chronic cerebral hypoperfusion caused by more than 70% carotid stenosis.

INFARCTION OF THE SPLENIUM OF THE CORPUS CALLOSUM: CLINICAL IMPLICATION OF MAGNETIC RESONANCE IMAGING

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Background: MRI may display splenium of the corpus callosum (SCC) abnormalities unexpectedly. The clinical implications of this lesion are unclear and vascular lesions of the SCC are considered rare. However, only few demonstrations of SCC infarction are available. This study was performed to describe clinical presentations, etiology, clinical outcomes of patients with SCC infarction.

Methods: 2007 to 2010, we retrospectively reviewed consecutive patients with MRI reported SCC infarction. We analyzed clinical, imaging findings, etiology and outcomes of patients with SCC infarction on MRI.

Results: 15 patients (Male=7; Female=8, average 60.6 yrs old) had SCC infarction on MRI. Ataxia and hemiparesis were the most common clinical findings which account for 33%. Confusion (13%), dysarthria (20%), headache (26%), dizziness (20%), and mutism (13%) were other clinical features. In 2 patients had near complete recovery, 12 improved partially, and 1 died. The most consistent SCC infarction evident from MRI were reduced T1 signal intensities, increased T2 and fluid-attenuated inversion recovery signals, and increased diffusion-weighted imaging (DWI). Infarctions of the SCC were divided to SCC in situ (n = 12) and multiple lesion (SCC infarction with other site involvement) (n = 3). Clinical findings were relatively more severe with SCC infarction with multiple involvement. The main stroke mechanism was cerebral embolism.

Conclusion: Infarction of the SCC may be more common than previously thought. The MRI-reported splenium infarction may have connection with altered mentality, ataxia, dizziness, hemispheric disconnection features, dysarthria and convulsive movements. Clinical outcomes are comparatively good, especially in patients with isolated SCC infarctions.

EVALUATION OF CEREBRAL HEMODYNAMICS IN PATIENTS WITH SYMPTOMATIC ATHEROSCLEROTIC MOYAMOYA SYNDROME OF THE UNILATERAL MIDDLE CEREBRAL ARTERY

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Background: Moyamoya syndrome is the secondary intracranial arterial steno-occlusive disease that produces basal moyamoya-like vessels. We aimed to evaluate cerebral blood flow (CBF) and hemodynamic reserve measured by acetazolamide CT perfusion (CTP) imaging in patients with moyamoya syndrome associated with symptomatic atherosclerotic occlusion of the unilateral middle cerebral artery (MCA).

Methods: Ten patients with unilateral atherosclerotic moyamoya syndrome of the proximal MCA (mean age, 57.2 years) underwent cerebral angiography and CTP imaging. The control group consisted of 5 subjects (mean age, 52.4 years) without hemodynamically significant cerebral artery stenosis. Quantitative values of regional CBF (rCBF), cerebral blood volume (rCBV), and mean transit time (rMTT) were measured in the ipsilateral or controlateral anterior cerebral artery (ACA), MCA, and posterior cerebral artery (PCA) territories in patients and compared with those of the normal control group. The Cerebral vascular reserve (CVR) capacity was measured using acetazolamide.

Results: The baseline rMTT in the ipsilateral MCA territory of the atherosclerotic moyamoya syndrome group was significantly prolonged than that of the controlateral side or control group ($P < 0.04$). After acetazolamide infusion, the rCBF and rCBV ($P < 0.05$) were increased significantly and rMTT ($P < 0.03$) was shortened significantly only in the ipsilateral PCA territory. The CVR capacity was not significantly different among the territories of the ACA, MCA, and PCA.

Conclusion: These findings suggest that the affected MCA territory has decreased perfusion with relatively preserved vasomotor reactivity by abundant collateral circulation through the basal moyamoya vessels in patients with atherosclerotic moyamoya syndrome.

THE ROLE OF MRI IN CEREBRAL RADIONECROSIS AND POSTRADIQUE MYELOPATHY: REPORT OF 15 CASES

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Introduction: Radionecrosis of central nervous system is a rare but serious complication of cancer irradiation. it is secondary to medium and small sizes vessels ischemic mechanism. The magnetic resonance imaging (MRI) represents the high point of diagnosis.

Materials and methods: This is a retrospective study of 15 cases diagnosed at the Neurology Department of military hospital Mohamed V between 2000 and 2011, treated by radiotherapy for head and neck cancer in the average dose of 70 Gy fractionated from 2 to 2,5 Gy, and with concomitant chemotherapy in 9 cases. All our patients had benefited from a brain and / or spinal cord MRI as clinically indicated.

Results: The MRI showed necrotic lesions secondary to radiotherapy hypointense on T1, hyperintense on T2 with inconstant taking of contrast. The time of onset was 40.3 months. The location is medullary in 4 patients and cerebral in 11 patients. The treatment was based mainly on corticosteroids with a variable course.

Discussion: Postradique myelopathy and cerebral radionecrosis represent late and rare neurological complications of head and neck cancers irradiation. The positive diagnosis of radionecrosis is based on imaging including MRI. However, despite its sensitivity, MRI remains nonspecific and it'is the study of brain parenchyma dynamic perfusion that will allow differentiation between radionecrosis and tumor recurrence.

Conclusion: Radionecrosis is an extremely serious complication of radiotherapy. MRI allowed an early and accurate diagnosis. The treatment can in most cases a clinical and radiological stabilization.

CAROTID ARTERIAL PLAQUE AND CLINICAL FACTORS IN ACUTE STROKE PATIENTS

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Objectives: Carotid arterial diseases become more common risk factor for stroke patients in Asian area. We reviewed stroke database to investigate clinical factors related to carotid arterial stenosis, including intracranial arterial stenosis and peripheral arterial disease.

Methods: Acute stroke patients whose stroke onset were within 1 week when admitted at the National Health Insurance Corporation Ilsan Hospital from January 2005 to December 2010 with available carotid ultrasound study, transcranial Doppler(TCD) examination and ankle-brachial indexes(ABI) formed the analysis cohorts. Retrospective review was performed.

Results: A total of 304 patients were included during that period. By duplex ultrasound, common/internal carotid arteries are examined and the greatest diameter of plaques are recorded. 3 groups of carotid arterial plaques are defined: diameter is less than 2mm (112 patients, 37%), 2-4mm (174 patients, 57%) and greater than 4mm (18 patients, 6%). As the size of carotid arterial plaques increased, ABI is decreased (P=0.000) and the number of intracranial arterial stenosis is increased (P=0.008). Among the risk factors, Age, diabetes, male patients are increased (P=0.000, P=0.047, P=0.004) and smoking history showed tendency of increase (P=0.057) as diameter of carotid arterial plaque increase. However hypertension, total cholesterol, LDL cholesterol, HDL cholesterol, triglyceride and past stroke history are not correlated with carotid arterial stenosis.

Conclusions: Among the acute stroke patients, more than a half of them have carotid arterial plaque which diameters are greater than 2mm and these patients tend to have higher burden of advanced atherosclerosis as evidenced by a higher prevalence of diabetes, intracranial arterial stenosis and peripheral arterial occlusive disease.

PERSISTENCE OF HYPERDENSE MCA SIGN IS ASSOCIATED WITH POOR OUTCOME IN ISCHEMIC STROKE PATIENTS TREATED WITH INTRAVENOUS THROMBOLYSIS

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Background: Recovery from acute ischemic stroke (AIS) after thrombolysis remain highly variable. Early identification of reliable predictors of functional outcomes is important. Hyperdense middle cerebral artery sign (HMCAS) on pre-treatment CT scan represents presence of thrombus, often associated with poor clinical outcome. However, it is reliable only in AIS patients managed conservatively. In thrombolysed cases, it may disappear (clot dissolution) or persist (persisting clot) on the follow up CT scan. We aimed at evaluating whether persistence of HMCAS on follow-up scan predicts final outcome.

Methods: Consecutive AIS patients treated with IV-TPA from Jan2007 to March2010 were included. Posterior circulation strokes were excluded. HMCAS was assessed by 2 independent stroke neurologists, blinded to the patient data or outcomes. The data were analyzed for the early predictors of function outcome.

Results: Of the total of 1918 AIS patients admitted to our center, 189 (9.9%) eligible cases were thrombolysed. HMCAS was observed on the pre-TPA scan in 95 (50%) patients and persisted in 47 (50%) of them. Overall, 96 (51%) patients achieved good functional outcome (mRS 0-1 at 3 months). On the univariable anlaysis, age, AF, pre-TPA NIHSS score and HMCAS on the follow-up CT scan were associated with poor functional outcome. However, only pre-TPA NIHSS score (OR1.09;95%CI 1.04-1.16,p=0.001) & HMCAS on follow-up CT scan (OR 22.93;95%CI 8.81-54.52,p < 0.0001) remained significant on multivariate analysis.

Conclusion: Persistence of HMCAS on the follow up CT scan in AIS patients treated with IV-TPA can be used as an early predictor of poor functional outcome.

ISCHEMIC STROKE REVEALING WEGENER´S DISEASE ONE CASE STUDY (DISPLAYED COMMUNICATION)

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Patient aged 44 presenting clinically a Wallenberg syndrome associated with an immediately severe renal failure.

The objective MRI of ischemic lesions of the vascularized territory by the posterior-inferior *"cerebellar"* artery (PICA) as well as numerous diffuse cerebral ischemic lesions of different ages, some of which are recent, with the absence of cardiac cause and "*atheromatous"*.

The evaluation of auto-immunity (blood and LCR) has revealed high levels of auto-antibodies type ANCA PR 3. The search of other systemic localizations was positive with the presence of renal and ORL slur. Everything was in favor of Wegener´s disease.

Discussion: Wegener´s *"granulomatosis"* is a necrotizing vasculitis affecting small vessels involving inflammation of the vessel wall and peri-and extra-vascular *"granulomatosis".*

If neurological "impairment" is usually peripheral, central location is most rare.

The prognosis depends on the severity of renal disease and speed of installation.

Conclusion: Stroke in young patients may hide various etiologies for which treatment exists and one has to know how to look for to avoid relapses and other systemic complications.

SPECT IMAGING OF BRAIN IN ISCHEMIC STROKE CORRELATED TO CLINICAL SUBTYPES, CT IMAGING AND 3-MONTH CLINICAL OUTCOME

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Introduction: There is paucity of studies correlating the brain perfusion on single photon emission computed tomography (SPECT) to clinical and CT scan findings in stroke. We investigated association of ECD-SPECT perfusion pattern in Ischemic stroke to OCSP subtype, CT brain imaging and clinical outcome.

Methods: 101 ischemic stroke subjects managed in an acute stroke unit between January to December 2010 and followed up in a dedicated stroke clinic in a tertiary care centre who underwent SPECT imaging of brain between 4-6 weeks of the clinical event constituted the study group. The outcome at 3 months was assessed using mRS and NIHSS by a neurophysiotherapist.

Results: M:F ratio was 77:24. Mean age 54.7 (Range 20-91). OCSP distribution was as PACS 68, TACS 11, LACS 14 and POCS 8. TOAST large artery disease 84, small vessel disease 12 and cardioembolic stroke 3. In 65% of lacunar strokes and 55% of TACS, the SPECT hypoperfusion areas extended beyond and oft involved cortex with normal CT appearance. The area of perfusion deficit on SPECT matched well with ischemic areas on CT in 23, exceeded in 44 and fell short in 7. In opposite hemisphere, SPECT picked up additional cortical defects in 10 cases, while CT identified additional basal ganglia lesions in as many. Perfusion defects on SPECT scan matched CT imaging in prognostic correlation with death/ disability at 3 months.

Conclusions: ECD-SPECT imaging is an excellent tool comparing well with CT scan in assessment of cerebral ischemia and prognostication in acute ischemic stroke.

REVERSIBLE CEREBRAL VASOCONSTRICTION SYNDROME OR ACUTE REVERSIBLE CEREBRAL ANGIOPATHY: CASE REPORT

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Postpartum Reversible acute cerebral angiopathy (RACA) is a neurovascular complication that remains unknown.We report a 44 years old patient, having presented in the context of a toxemia a postpartum RACA. Neuroradiological and clinical course lead to confirm the diagnosis.Postpartum Reversible acute cerebral angiopathy is radio-clinical syndrome that combines acute headache, sometimes accompanied by focal neurological deficits and / or seizures, and a segmental vasoconstriction of cerebral arteries reversible after one to three months.The mechanisms of postpartum RACA remain poorly explained. It has been reported with different situations as toxemia and after normal delivery followed by a prescription of vasoconstrictive drugs.

THE ANALYSIS OF DATA OF ULTRASONIC DIAGNOSTICS AT PATIENTS WITH ACUTE STROKE IN VERTEBRO - BASILAR FIELD ON GENDER SIGN

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Aim of investigation is analysis of detected cliniconeurologic, ultrasonic and Dopplerographic changes at patients with acute stroke in vertebro - basilar field.

Material and methods: 34 patients have been examined in the acutest period, 21 women (61, 8%) and 13 men (38, 2%). The women's average age was 59,2 ± 0, 19 years old, the men's average age was 60,1 ± 0, 38 years old. High resolution ultrasonic scanning of arteries of head and neck was carried out with the assessment of morphological and Dopplerographic changes of brachycephalic arteries.

Results: 13 women and 12 men had thickening of intima-media complex of the internal carotid artery (IMC). 14 women and 5 men had signs of hypertensive angiopathy. 5 women and 10 men had hyperechoic atherosclerosis plaques in carotid artery without significant stricture formation of lumen (stenosis less than 60%). One woman had stenosis of internal carotid artery more than 70%. Stenosis of vertebral artery more than 70% was detected in one case in a group of men. One woman and 9 men had stenosis of vertebral artery of a small diameter. 2 women and 4 men had reduction of blood flow. 3 women and 4 men had reduction of blood flow in posterior cerebral artery.

Conclusion: Men more often have thickening of IMC, hyperechoic atherosclerosis plaques, stenosis of vertebral artery, maldevelopment of vertebral artery with a small diameter, reduction of blood flow. Women more often have hypertensive angiopathy and stenosis of internal carotid artery.

INFLUENCE OF VASCULAR RISK FACTORS ON THE CAROTID ATHEROSCLEROSIS

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Background: The most important vascular risk factors are: arterial hypertension, Diabetes mellitus, smoking, dyslipidemia, alcohol abuse, etc. Color duplex ultrasonography provides the information on the carotid atherosclerosis.

Aim: Evaluate the influence of common risk factors on the development of carotid atherosclerosis.

Methods: The research was conducted retrograde on 253 patients, 128 men (50,6%) and 125 women (49,4%), average age 59,6 SD 14,3 years. The subjects were examinated in the Institute of Neurology Belgrade and Department of neurology Krusevac in period between June, 01, 2009 and June, 01, 2010. Color Duplex Ultrasonography Scanner is being used to determine intima-media thickness (IMT), plaque quality itself, and the degree od carotid stenosis. Statistical analyses were performed using Statistical Packages for Social Sciences (SPSS), with cross tables, χ^2 test and T test.

Results: The altered IMT was significantly more present within the group suffering from hypertension (χ^2 =26,923, DF=1, p=0,000), diabetes (χ^2=12,821, DF=1, p=0,000), and hyperlipidemia (χ^2=14,706, DF=2, p=0,000). Hypertension significantly increases the frequency of plaques in all quality, except lipid, and degree of stenosis, and diabetes and smoking of mixed plaques and degree of stenosis, while influence of hyperlipidemia and alcohol is of lesser import, which is consistent with literature.

Conclusion: The natural course and the outcome of carotid atherosclerosis may be affected by modification and elimination risk factors, laying special emphasis upon the young population.

CAROTID PLAQUE MEASUREMENT IS SUPERIOR TO IMT

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Background: Coronary calcium score and carotid IMT have been used for risk stratification, but cannot assess individual response to therapy. Carotid total plaque area (TPA), plaque volume (TPV) and vessel wall volume (VWV) are new approaches to risk stratification and evaluation of response to therapy for atherosclerosis.

Methods: Published results of studies with IMT, TPA, VWV and TPV were compared for their value in risk stratification and evaluation of new therapies.

Results: In vascular prevention clinics and in population-based studies TPA is more predictive of coronary risk or stroke than IMT or coronary calcium. Biological data and pathological analysis show that IMT is a different phenotype that is not true atherosclerosis; plaque measurement does represent burden of atherosclerosis. The annual change in IMT (~0.15 mm) is too small to be measured with carotid ultrasound because the resolution is ~0.3 mm. TPA changes by ~10mm2, TPV and VWV by 50-100mm3, so they can easily be measured by ultrasound. Sample sizes and duration of study to show effects of new therapies are reduced by 2 orders of magnitude by measuring 3D atherosclerosis burden. Treating patients according to plaque measurement has reduced the risk of patients with asymptomatic carotid stenosis significantly. Two-year risk of stroke declined from 8.8% to 1%, MI risk from 7.6% to 1%, by this approach.

Conclusion: Measurement of carotid plaque is much superior to IMT for stratifying risk and evaluating response to therapy. Treating arteries without measuring plaque would be like treating hypertension without measuring blood pressure.

MOTOR CORTICAL EXCITABILITY CHANGES AFTER ISCHEMIC STROKE

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Background: Ischemic stroke is associated with diffuse changes in cortical excitability of affected and unaffected hemispheres. The current study evaluated progressive changes in the excitability of the motor cortex following ischemic stroke using Transcranial Magnetic Stimulation (TMS).

Methodology: Thirty one patients (25 men and 7 women; mean age 37.29±8.23 years) were recruited for the study. Patients underwent conventional physiotherapy or Ayurveda (Indian system of medicine) therapies as part of rehabilitation. Magstim 200 stimulator and figure of eight coil were used for TMS. Resting motor thresholds (RMT) were measured in affected and unaffected hemispheres at 2nd, 4th and 6th week of ictus. Motor evoked potentials (MEPs) were recorded at 110%, 130% and 150% of the RMT. Surface EMG recordings were done from the first dorsal interossi (FDI) muscle of both hands. Central motor conduction time (CMCT) was calculated using the F wave method.

Results: In the affected hemisphere, the MEP was recordable in only 3 patients at baseline; CMCT was prolonged in these patients. At 4 weeks, MEP was recordable in 4 patients, CMCT remained prolonged; at 6 weeks, CMCT normalized in one patient. In the unaffected hemisphere, MEP was recordable in all patients at baseline; RMT reduced significantly over time (2nd week 43.52±9.60, 4th week 38.84±7.83, 6th week 36.85±7.27; $p< 0.001$); CMCT was normal and remained unchanged over time.

Discussion and conclusion: The reduction in the excitability of the unaffected motor cortex suggests that unaffected hemisphere had become progressively disinhibited, indicating a possibility of plasticity in the post stroke phase.

VALIDITY OF ASPECTS: CAN YOUNG DOCTOR INTERPRET EARLY CT SIGN CORRECTLY?

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Introduction: The Alberta Stroke Programme Early CT Score (ASPECTS) is a reliable tool to interpret early CT sign, on infarction of the middle cerebral artery (MCA).

In several studies, training of ASPECTS could improve reliability of radiological image reading. We hypothesized that one's career in medicine is equal to training on interpretation of radiograms, and sought to evaluate the relationship between years of experience and accuracy of image reading.

Method: Ten subjects (7 neurosurgeons and 3 neurologists, years of experience 3-30, average 11.8) in our hospital interpreted 11 cases with MCA infarction; male/female=8/3, age 46-87 years, average 67.4, NIHSS on admission 2-23, average 9.9, 7 atherothrombotic and 4 cardioembolic infarction, who came to our hospital within 2 hours from initial symptom for 13 months from April 2010 to April 2011, with MCA infarction. On each case, subjects were presented 2 slices of CT image based on ASPECTS by personal computer on the slide, and informed sex, age, side of hemiplegia, NIHSS, and elapsed time from onset to CT imaging. ASPECTS of each subject was compared with MRI diffusion-weighted images examined simultaneously with CT.

Result: Subjects were sorted 2 groups: experienced (6, years of experience 10-30, average 16.7) and young (4, years of experience 3-6, average 4.5). Average ASPECTS of each group, the former was 8, the latter was 7.1. Statistically, there was significant difference on the number of overdiagnosis between experienced and young groups.

Conclusion: These data suggest that young doctors tend to interpret the lower ASPECTS.

NORMAL 0 USEFULNESS OF CT ANGIOGRAPHY FOR THERAPEUTIC DECISION MAKING IN THROMBOLYZING DIFFICULT TO ASSESS PATIENTS WITH BASILAR ARTERY THROMBOSIS

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Background: Acute ischemic stroke (IS) due to basilar artery thrombosis (BAT) causes high mortality & severe disability. Early neurological assessment & timely thrombolysis might improve outcome. Emergency physicians often intubate such patients due to airway compromise, even before arrival of stroke neurologist. We evaluated the role of CT angiography (CTA) in acute BAT & facilitating systemic thrombolysis in intubated patients.

Methods: Consecutive acute IS patients presenting with history of sudden deterioration in level of consciousness within 6hours of symptom-onset & intubated before assessment by neurologist were included.

Results: Thrombolytic therapy, mainly intravenous tissue plasminogen activator (IV-TPA), was administered to 161 (8.4%) of 1917 acute IS patients admitted during the study period. Acute BAT contributed 10.9% (208 cases). 6 cases (4 males, mean age 72yrs) of acute BAT & airway compromise were intubated early, sedated & paralyzed before Neurologists' assessment. CTA showed BAT in all. IV-TPA was initiated at 236±40 minutes in 5 patients and 1 received intra-arterial TPA, initiated at 13hours. There was no intracranial hemorrhage & mean length of hospital stay was 11.8 days. Despite severe strokes at presentation, good functional recovery at 3 months (modified Rankin scale- mRS 1) occurred in 3 patients; mRS 4 in one& 2 died. 4 additional cases who met the inclusion criteria but had normal CTA were not thrombolysed. None of them showed new brain infarcts on subsequent neuroimaging.

Conclusion: In acute BAT patients, intubated before Neurologists' assessment, CT angiography is helpful in confirming the diagnosis & facilitating systemic thrombolysis.

EFFECTIVENESS OF TCCS IN DIAGNOSIS OF MIDDLE CEREBRAL ARTERY SPASM RESULTING SAH -COMPARED TO DSA AS REFERENCE STANDARD

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Purpose: Vasospasm of the cerebral vesse remains a maior source for morbidity and mortality after aneurysmal subaracnoid hemorrhage(SAH).The aim of our study was to determine the accuracy of transcranial color coded duplex ultrasonography (TCCS) for diagnosis of middle cerebral artery spasm, with digital subtraction angiography (DSA) used as the reference standard.

Methods: The study included 69 patients (age 55+/-10 years) who had aneurysm clipping surgery for SAH due to a ruptured aneurysm, admited to the St Sava Hospital from January 1 to December 31, 2010. At least one DSA was performed between day 3 and 14 after SAH, and at the same time total number of TCCS measurement was 207 (3 for each patient).MCA/ICA index and blood flow velocity (BFV) of the M1 and M2 branches were measured with TCCS and compared with DSA findings.

Results: PSV and MFV for both M1 and M2 were significantly higher in patients with spasm than in those without spasm($p>0.01$),and MCA/ICA index was >3.The ROC curve identified the best cut-off point for M1(PSV 250cm/s and MFV 125 cm/s) and for M2(PSV 160 cm/s and MFV 80 cm/s). Comparison of TCCS and DSA was possible in 58 cases.DSA showed vasospasm in 46 cases , confirmed by TCCS in 31 cases(67%).

Conclusion: Our results confirm the good diagnostic accuracy of TCCS for the detection of aneurysmal -related vasospasm. . TCCS monitors the hemodynamic state of the anterior part of the circle of Willis, which could expose the patient to a delayed ischemic deficit.

POST-STROKE DEPRESSION IN PATIENTS OF MARRAKESH UNIVERSITY HOSPITAL

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Introduction: Post-stroke depression (PSD) is the most frequent psychiatric complication of stroke with a prevalence ranging from 20 to 60%. DSM-IV criteria for PSD are: a diagnosis of "depression due to stroke with major depressive-like episode or depressive features". Only a minority of PSD patients are diagnosed and treated. As far as we know, it has not yet been studied in Marrakesh city. Our purpose was to determine the frequency of PSD in our university hospital and to compare our findings with the medical literature.

Patients and method: Among 107 stroke outpatients, sixty cases were diagnosed as PSD according to DSM IV criteria in one year survey.

Results: Mean age of our patients was 57.6 years with a female predominance (64.2%.) and an ischemic stroke in 86% of cases. Main clinical symptoms were: depressed mood, apathy, asthenia, low selfesteem, appetite disturbances and early awakening. Major depression was seen in 38.1% of cases and minor depression in 50%. Risk factors for major depression were: Hemiplegia (80.1%), family history of depression (66%) and aphasia (45%). All patients were treated with fluoxetine. Symptoms improved in 57.3% while 19.2% of PSD patients died.

Conclusion: The frequency of PSD in Marrakesh seems the same as in literature but PSD is still under diagnosed in our country. The most frequent risk factors in literature are: Age, female gender, personal and family history of depression, cognitive impairment and stroke severity. Specialized psychological management is needed in our country because early effective antidepressants improve depressive symptoms and rehabilitation.

IN HOSPITAL DIRECT COST OF STROKE IN BENIN

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Background: The burden of stroke is very high in sub-Saharan Africa but no reliable data exists on the real cost of the disease. The objective of this study were to evaluate the cost of acute stroke at Parakou Hospital.

Methods: We conducted a cross sectional study included all patient admitted to Parakou hospital between April 2010 and March 2011 for stroke defined according to WHO criteria and given their consent. The approach of collecting cost method was bottom-up. The direct cost is considered and estimated on the hospital period. The recovery of costs is made and costs are estimated at CFA franc (value March 2010). The resources on various consumption items have been valued and collected systematically. The point of view of cost considered here is that the patient and society.

Results: This study included 78 patients (52 males/26females). They are aged 36-80 years with a mean age of 57.0 years +/- 10.9. The neurological deficit assessed by the NIHSS at admission was on average 14 [4-30]. The length of hospital stay was 14.4+/-10.1 days. They were 46.2% ischemic stroke, 42.3% haemorrhagic and 11.5% unknown (CT-scan not done). The mortality rate was 21.8%. The mean cost of stroke was 316,810 CFA francs (SD = 230,774FCFA) per patient (approximately 704 +/-512 Euros). The main associated factors of the high cost were the type of stroke (p=0.002), NIHSS at admission (p=0.009), length of hospital stay (p=0.0001), age (p=0.03).

Conclusion: This study, suggest the high cost of current management of stroke in Benin.

MASSIVE FATAL STROKE: A RARE COMPLICATION OF DECOMPRESSION SICKNESS SYNDROME

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Objective: To report a fatal stroke due to decompression sickness syndrome (DCS)

Background: Decompression sickness is known to cause neurological complications as described in the literature. Most are benign complications and severe outcomes are very rare.

Method: Case report and literature review.

Results: A 14-year-old boy was feeling lethargic while ascending from an 18-meter dive in the sea. Upon coming out of the water, he complained of intense itchiness and bilateral wrist joint pain. Soon after that, he developed status epilepticus. On arrival to the emergency department he was noted to be unresponsive with dilated pupils and sluggish reaction to light. Other brainstem reflexes were absent. He had skin changes suggestive of cutis mamorata. His MRI brain showed acute large, multi-territorial infarcts bilaterally. His EEG showed evidence of severe diffuse encephalopathy. He also had developed a small right pneumothorax. He was treated in the intensive care unit including hyperbaric oxygen therapy but could not be saved. DCS accounts for many neurological complications but they are generally benign. Apart from headache, dizziness, paraesthesia and sometimes paresis due to cerebral injury, massive stroke with poor outcome is very rare.

Conclusion: Fatal stroke as a result of decompression sickness or arterial gas embolism is an uncommon phenomenon. This report highlights the importance of pre-diving fitness check as well as prompt treatment of major DCS complications.

ATTITUDE TOWARDS ACUTE STROKE CARE COMPARED TO ACUTE CORONARY SYNDROME CARE IN A TERTIARY HOSPITAL IN OMAN

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Objective: The purpose of this study is to assess the attitude of the health professional towards acute care of stroke patients and to compare it with acute coronary syndrome (ACS) patients.

Methods: A prospective study conducted in a tertiary hospital in Oman. The study included adult patients admitted with a confirmed diagnosis of acute stroke, transient Ischemic attack (TIA) or ACS.

Results: A total of 90 patients were included in the study (40 diagnosed with acute stroke or TIA and 50 with ACS). For the acute stroke group, the mean time from arrival at the hospital till triage was 9.52±22.9 minutes, till seen by emergency doctor was 22±20 minutes, till CT brain was 96±136 minutes, till seen by medical on-call was 144±77 minutes, and till receiving antithrombotic therapy was 265± 254minutes.

For the ACS group, the mean time from arrival at the hospital till triage was 1.64±3.97 minutes, till seen by emergency doctor was 19±18 minutes, till seen by medical on-call was 161±103 minutes, and till receiving antithrombotic therapy was 50±75 minutes.

When comparing the ACS group with the stroke group, the time from arrival at hospital till triage and the time from triage till administration of antithrombotic therapy were significantly shorter in the ACS group (mean 1.64 minutes and p= 0.019, mean 50 minutes p=0.000) respectively.

Conclusion: Still delay takes place in initiating immediate management of patients with acute stroke. More efforts should be made to educate first line doctors in the importance of acute stroke management and prevention.

CHARACTERISTICS OF CLINICAL ASPECTS OF COGNITIVE DISORDERS AND NEURO-PSHYCHOLOGICAL STATUS OF ELDER PATIENTS WITH STABLE CEREBROVASCULAR PROCESS

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Introduction: Cerebrovascular process is usually associated with development of vascular cognitive disorders.Degree of manifestation at the equal stage of disease,regular treatment may differ.Study objective was to reveal characteristics of cognitive functions,psychoemotional status of elder patients(average age(women76,5±2,4,men-70,3±3,1)with stable disease state.

Methods: We performed neuropsychological examination with assessment of short/long-term memory by Luria,personal/reactive anxiety by Spielberg,depression degree by Beck,attention volume and possibility to switch by Shultz.

Results: Analysis of clinical and neuropsychological data showed that main patient´s group had interim position between two groups-middle age patients(45-55y.o.)with favorable cerebrovascular insufficiency and same-age patients with rapidly progressed cerebrovascular process.Elder patients group was heterogeneous and consisted of 2 subgroups.First subgroup(22 patients)had interim position between I and II stages of cerebrovascular insufficiency.Second subgroup(29 patients)had II stage with favorable disease state.Patients in 1st subgroup had moderate personal anxiety(37±1,8points),patients in 2nd subgroup had high personal anxiety(48±1,1points,$p< 0,005$).Low reactive anxiety was typical for both subgroups(22±1,2points,$p< 0,005$).These changes in both subgroups associated with depression absence,high irritability,good short/long-term memory(particularly in 1st subgroup),good volume of attention.Based on the analysis of clinical status,paraclinic examinations and age we revealed 2 main characteristics of favorable and unfavorable disease state.Favorable stable disease state is defined as age-specific cerebrovascular changes and more late formation of cognitive disorders.Pathological component reflects rapid progression of cerebrovascular insufficiency with possibility of severe cognitive disorders in patients of 45-60 y.o.

Conclusion: Revealed characteristics of cognitive and psychoemotional status of elder patients with stable disease state(low reactive anxiety,depression absence,good memory and attention)provide longer safety of compensatory mechanisms and decrease risk of vascular cerebral pathology progression and exacerbations development .

PROGNOSTIC IMPORTANCE OF MORPHO-DENSITOMETRY PARAMETERS OF ERYTHROCYTES FOR EVALUATION OF PROGRESSION OF CEREBROVASCULAR INSUFFICIENCY

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Objectives: To study characteristics of erythrocytes morpho-densitometry parameters to reveal markers of progression of cerebrovascular insufficiency on early stage of disease.

Methods: 484 patients of 35-55y.o. were examined(average age 41,0±1,4) (152 male and 332 female). 282 patients had I stage and 202-II stage. 65 healthy volunteers analogous by age, sex formed control group.In addition to standard laboratory examinations we performed computer morpho-densitometry (CMDM) of erythrocytes to count summary percentage erythro-diagram,spicular index, surface area of erythrocytes, average integral index of local curve of erythrocyte's membrane.

Results: Summary erythro-diagram of each patient with division of erythrocytes under subpopulations in percentage was done as a result of CMDM. I stage was associated with gradual decrease of percentage of discocytes(60±2,2%), stomatocytes (2,6±0,2%), increase of percentage of pathological forms-spherocytes (11,1±0,3%), leptocytes (2,2±0,1%), echynocytes(4,6±0,2%). II stage of cerebrovascular insufficiency was associated with continued decrease of percentage of discocytes (49,8±1,8%), stomatocyte (1,4±0,15%), increase of percentage of sphero- (12,3±0,2%), lepto- (3,6±0,2%), echynodiscocytes (9,3±0,3%), appearance of discospiculocytes (4,0±0,01%), spiculosytes (4,2±0,015%). All changes in I and II stages were statistically significant ($p< 0,05$). Spicular index increased at I stage from 0,1±0,02 to 0,15±0,01 and at II stage to 0,3±0,02. Local changes of curve of erythrocytes membrane were discovered.That allowed us to count integral index of changes.These parameters were considered as additional markers of cerebrovascular process stage. t increased at I stage to 12,5±1,5 ($p< 0,05$), at II stage to 34,0±4,0 ($p< 0,05$). We found erythrocytes with big surface area: at I stage to 26,979±0,3, at II stage to 30, 12±0,34 ($p< 0,05$).Increase of modified forms of erythrocytes was accompanied by increase of aggregation, rigidity of erythrocytes which confirms progression of vascular process.

Conclusion: Morpho-functional changes of erythrocytes (discovered by CMDM analysis) promote microcirculation disorders which forming ischemic brain hypoxia and could be used as early diagnostic criteria of upcoming ischemic process.

OUTCOME OF LARGE HEMISPHERIC INFARCT IN NORTHEAST MALAYSIA

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Intro: Large hemispheric infarcts cause high mortality and morbidity. Historically large hemispheric infarct carries a mortality of 50-80%. Several studies have shown that decompressive hemicraniectomy potentially decrease mortality, morbidity and improve functional outcome. The aims of the study were to determine the morbidity and mortality outcome of large hemispheric infarcts patients.

Methodology: A cross-sectional observational study was conducted from January 2008 to December 2010 in Hospital Universiti Sains Malaysia, located at the northeast of Malaysia. All patients with large hemispheric infarcts based on CT criteria were offered decompressive hemicraniectomy except those in deep comatose state on arrival with GCS of 5/15 and those who were hemodynamically unstable. Patients who refused surgery and not offered surgery were treated medically. Clinical outcome was evaluated using the modified Rankin scale (mRS). Statistical analysis was performed by chi-square test.

Results: A total of 28 patients (12 male and 16 female) were included. The mean age was 60.2 years (range from 28-80 years old). Only 8 patients presented less than 4.5 hours to the hospital. Two patients had hemorrhagic transformation. Among all the risk factors, diabetes mellitus was a significant risk factor for mortality (p value 0.036). Only 9 patients had undergone decompressive surgery and they had lower mortality outcome (33% versus 74%), p value 0.041 and better clinical outcome compared to those who did not undergone surgery.

Conclusion: Decompressive hemicraniectomy should be performed in patients with large hemispheric infarct before clinical signs of herniation develop.

REPORT OF A KNOWN CASE OF RHEUMATOID ARTHRITIS AND CEREBRAL VASCULITIS WITH PROPER RESPONSE TO CORTICOSTEROID AND CYCLOPHOSPHAMIDE PULSE THERAPY

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Cerebral involvement in the setting of rheumatoid arthritis is rare but delay in treatment will lead to high morbidity and mortality.

Case report: A 65 year old man with a history of rheumatoid arthritis and chronic consumption of prednisolone 10mg/day since 10 years ago presented with drowsiness and decreased level of consciousness following a generalized pulsatile headache and was admitted in intensive care unit and neurology consult was requested. His initial examination revealed right sided hemiparesis and central facial palsy. In spite of starting antiplatelet and anticoagulant regimen, patient's neurological signs were exacerbated and after 72 hours he developed quadriplegia, horizontal gaze palsy and disorientation. Considering his history of collagen vascular disease and no evident of cardiovascular risk factors, a methylprednisolone pulse therapy was started with suspect to a cerebral vasculitis. After the third dose, lateralized deficits were decreased and eye movement improved. After ninth day his consciousness reached to normal level. Probable diagnosis of cerebral vasculitis was confirmed by finding a characteristic change in vessels on brain CT angiography.

Conclusion: It seems that central nervous system involvement is a rare finding in rheumatoid arteritis. But in the setting of a collagen-vascular disease, development of encephalopathy and rapid progression of focal neurological deficits, when other risk factors of atherosclerosis are absent, cerebral vasculitis should always be considered. Regarding to the high morbidity and mortality, it is important to start corticosteroid pulse therapy as soon as possible after other etiologies such as infection and vascular accidents were ruled out.

STROKE IN HEART TRANSPLANTED POPULATION IN COLOMBIA

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Introduction: Heart transplantation is still the surgical treatment for patients with end-stage CHF refracted to medical therapy. The haemodynamic inestability, the coagulopaty disorders, bypass procedures. and arrythmias would predispose to an increased stroke risk. In authopsy up to 94% of heart transplanted patients have brain lessions.

Objective: To characterize patiients with stroke in a heart transpanted population.

Design: This is s a descriptive retrospective study.

Material and methods: The heart transplantation program at the Clinica Cardiovascular is one of the oldest and bigger in Latin America. The database from december 1985 up to april 2009 had registered 281 patients

From this databank the medical records of stroke complicated patients were reviwed, and analysed. The stroke was confrimed by brain CT Scan.

Results: From the 281 patients, 91,45% were adults and 8.54% chlidren. Stroke occurred in 9 (3,2 %) patients, 5 adults and 4 chlidren. I.S.occured in 4 patients and hemorrhagic in 5.

In 5 patients the stroke occurrence was during the following week after transplant, 4 were hemorrhagic and one ischemic. Between the second and fourth week 2 stroke occured, one ischemic and one hemorrhagic. After the 13th week there were 2 IS

Conclusions: There is little information in the litearture about stroke complication in heart transplanted patients. In 2002 we reviwed the neurologic complications in our heart transpanted patients and the two major complications were delirium and seizures. The stroke has a low incidence, the majority are hemorrhagic and tend to occur in the following week after transplant.

MAN-IN-THE-BARREL SYNDROME WITH COMBINATION OF INFARCTIONS IN THE LEFT UPPER MEDIAL MEDULLA AND BILATERAL CEREBELLUM

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Object: The Man-in-the-barrel syndrome(MBS) is characterized by bilateral upper extremity paresis with intact motor function in the lower extremities. This MBS is quite unusual and is distinct from more frequent paraplegia.

Case report: A 74-year-old woman present with sudden onset of both upper extremities weakness, dysarthria and dizziness. On neurological examination, she revealed a predominantly distal paresis of both arms(3/5 proximally and 1/5 distally in the left arm; 4/5 proximally and 3/5 distally in the right arm on the Medical Research Council scale) with no leg weakness and no ataxia. All sensory modalities were normal. Brain magnetic resonance imaging(MRI) showed acute left upper medial medullar infarction and bilateral cerebellar infarctions in the PICA territory. Contrast enhanced magnetic resonance angiography demonstrated stenosis of left intracranial vertebral artery. Cervical MRI showed no abnormal signal changes.

Conclusion: There are other cases where this syndrome is due to cerebral metastases, hemorrhagic contusion by craniocerebral trauma, involvement of the pons, medulla and the cervical spinal cord as in ALS and LMND. Although the etiology of the MBS is varied, we describe the rare case of MBS by infarctions in the left upper medial medulla and bilateral cerebellum in the PICA territory.

CORRELATION OF CIRCLE OF WILLIS MORPHOLOGY AND WHITE MATTER LESION LOAD IN SUBJECTS OF CAROTID ARTERY STENOSIS

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Background: Various cerebral pathological changes have been attributed to leukoaraiosis (LA). We hypothesized that circle of Willis (CoW) anomalies may contribute to LA in severe carotid artery stenosis victims through impaired cerebral autoregulation. We conduct a retrospective review of cerebral magnetic resonance pattern in patients with severe symptomatic carotid artery stenosis and compared white matter lesion load with or without complete circle of Willis.

Methods: Leukoaraiosis on fluid attenuation inversion recovery (FLAIR) magnetic resonance (MR) images at the levels of the centrum semiovale and those of the frontal horns at both cerebral hemispheres were scored in 106 contiguous patients (men/women= 64/42; mean age 68.7 ± 9.2 years, range 44-82) with unilateral carotid artery stenosis. Subjects were attributed to complete CoW and incomplete CoW group according to cerebral MR angiography. The complete and incomplete CoW group difference of leukoaraiosis scores was analyzed.

Results: Subjects with a complete circle of Willis demonstrated a decreased white matter lesion (WML) load at the level of centrum semiovale (5.62+-2.12 v.s 2.78+-1.17, p =0.02) and at the frontal horns (4.22+-1.83 v.s 2.21+-0.79, p =0.01) WMLs compared with subjects with incomplete configuration of the circle of Willis.

Conclusion: Our results support the importance of a complete CoW that could be protective for white matter lesions in case of carotid stenosis.

PREHOSPITAL DELAYS AFTER STROKE ONSET: PRELIMINARY RESULTS

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Background and aims: Early identification and assessment of patients with stroke is necessary for effective management. The aim of our study is to evaluate the time interval between symptom onset and presentation to Fann Neurology Hospital and factors influencing delays in presentation.

Methods: Prospective data were collected from patients who presented to emergency unit of the neurology department with an ischemic or hemorrhagic **stroke** confirmed with a brain CT. Time of symptom onset could be clearly identified for all patients recruited. **Pre-hospital** delay was defined as the time from symptom **onset** to arrival at the Neurology department. Univariate and multivariable regression analyses were conducted to evaluate factors influencing delay in presentation.

Results: Preliminary data is reported for 109 patients. The age range was (24-91) with 61.5% over age 59. The male to female ratio was 1:1. Pre-hospital delay was less than 60 minutes for 6.4 % of patients, and less three hours for 22.9% of patients. Only 21.1% presented directly to the Fann Neurology Hospital after symptom onset. The remaining 79.9% consulted first general practitioner or other specialists before coming to the neurology department! Only one patient used emergency medical services to join the neurology department. The median pre-hospital delay was 960 minutes. Pre-hospital delay was significantly affected by patient geographic location (p=0,045).

Conclusions: The time interval between symptom **onset** and arrival to the neurology department is far from optimal. Efforts are needed to educate non neurological medical personnel and population to reduce extent of delay.

MULTIPLE ISCHEMIC STROKES AS THE INITIAL PRESENTATION OF A CONCEALED PANCREATIC MALIGNANCY: TROUSSEAU'S SYNDROME (CASE REPORT)

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Background: Armand Trousseau (1801 - 1865) stated that an unexpected or migratory thrombophlebitis could be a forewarning of an occult visceral malignancy. Stroke associated with a pancreatic malignancy has been reported in 4 cases (Perez-Lazaro et.al., 2004; Schattner et.al., 2002; Medina et.al., 2000; Chen et.al., 2004). Stroke is seldom encountered as the first manifestation of cancer. When it occurs, it usually precedes its diagnosis by days or months.

Case: We report here a case of a 67-year-old male with multiple strokes as the initial presentation of a pancreatic malignancy. He had a 3-month history of epigastric pain and had two strokes in a span of 1 month, with multiple infarcts in both hemispheres, anterior and posterior circulation. A large silent pancreatic mass was seen on abdominal CT scan measuring 4.4x3.7cm.

Diagnostics: Cranial MRI showed multiple recent infarcts in both cerebral and cerebellar hemispheres without confirmation to a vascular territory. Elevated transaminases and alkaline phosphatase, conjugated hyperbilirubinemia, hypoalbuminemia, and deranged bleeding parameters were noted. A non-contrast abdominal CT scan showed a soft density at the pancreatic tail measuring 4.4x3.7cm, with multiple hypodensities seen in the liver and spleen. The CA 19-9 is 63,074 U/mL.

Conclusion: Stroke as the initial manifestation of a pancreatic malignancy is rare. However, in patients with repeated strokes and a steep downhill course, this should prompt further investigation such as a possible underlying malignancy. The patient had multiple ischemic infarcts due to a hypercoagulable state secondary to a pancreatic malignancy.

CELIAC DISEASE AND ISCHEMIC STROKE

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Introduction: Neurological manifestations of celiac disease are various. An association with ischemic stroke is not common and has not been well documented. We report two cases.

Observations: The first patient had an acute ischemic stroke involving the territory of the right middle cerebral artery. Investigations revealed celiac disease with no other recognizable etiology. The clinical course was marked by persistent hemiparesis, but no new vascular event. The second patient had been followed for celiac disease confirmed by pathology and serology tests. She was on a gluten-free diet. The patient had an ischemic stroke involving the territory of the left middle cerebral artery. Apart from a positive serology for celiac disease and iron deficiency anemia, the etiological work-up was negative.

Discussion: The mechanisms of vascular involvement in celiac disease are controversial. The most widely incriminated factor is autoimmune central nervous system vasculitis, in which tissue transglutaminase, the main auto-antigen contributing to maintaining the integrity of endothelium tissue, plays a major role. Other mechanisms are still debated, mainly vitamin deficiency.

Conclusion: Being a potentially treatable cause of ischemic stroke, celiac disease must be considered as a potential etiology of stroke of unknown cause, particularly in young patients, and even without gastrointestinal manifestations.

CLINICAL PRESENTATION OF INTERNAL CAROTID ARTERY DISSECTION IN SERIES OF 24 PATIENTS

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Background and aim: Cervical artery dissection is defined by the existence of a hematoma in the arterial wall. Internal artery dissection (ICAD) is an important cause of stroke among young and middle-aged patients. The aim was to analyze the spectrum of clinical presentation in 24 ICAD patients.

Methods: 24 patients with ICAD, 22 with unilateral and 2 with bilateral, aged 35-59 (mean age 48,2) were evaluated in the last 10 years period. The ICAD diagnosis was established in all cases using MRI, MRA and duplex sonography.

Results: Facial and neck pain and Horner´s syndrome were the only presenting symptoms in 5 patients; facial pain, Horner´s syndrome and contralateral sensorimotor deficit in 6; headache and contralateral sensorimotor deficit in 4; contralateral sensorimotor deficit in 9. ICAD was triggered by mild trauma in 5 patients (1 while unloading sacks of corn, 1 following sudden head turning, 1 during sports activity, 1 during sexual intercourse, and 1 in car accident), and spontaneous in 19. MRI revealed infarction in 19 patients, while in the 5 patients presenting with facial and neck pain and Horner´s syndrome MRI did not show evidence of infarction. Good outcome (defined as modified Rankin score of 0-2) was seen in 22 patients (91.66%). Recanalization of ICAD was associated with a favorable prognosis. There was no lethal outcome in our series.

Conclusion: The clinical presentation of ICAD is variable and can be similar to the symptoms of any other stroke.

MOYAMOYA DISEASE (MMD): MOVEMENT DISORDERS SERIES AND CLINICAL SERIES TODAY

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Introduction: From the initial descriptions in the series by Suzuki (Arch Neurol 1969) to posterior stat-of-the-art (Stroke 1983) , sampling and sizing in moyamoya disease (MMD) has growth exponentially.Actual and nowadays descriptions (1985-2010) are related to clinical phenomenology and manifestations added to lesion distribution and disease severity.

Methods: Compaartives and descriptives considering recent series:

-MMD associated to movement disorders (Gungnam Severance Hospital , Yonsei University College of Medicine + literature review ; Baik JS and Lee MS 2010)

-MMD with localisation , severity and perfusion status (Seoul National University Hospital ; Kim JM et al 2009).

Linear correlations between ischemic lesions and cortex/subcortex ; anterior vs posterior distribution ; presence or absence of movmeent disorders (tipology) and Suzuki´s grade (I-V) categorization.

Results: Rank correlation between both series in cortex distribution lesions is r= 0.89. The r assigned to MMD-MD and general ischemic series regarding anterior lobes distribution is 0.44.

Hypoperfusion mechanisms are described in both series , too , with a linear correlation of r= 0.58.

Conclusions: General series with anterior lobes (frontal -temporal areas) and movement disorders series (MMD-MD) are significatively related (r = 0.44) , and cortex related distribution.Angiographic grade are related considering r=0.141) .Limb-shaking TIA may be related (comparative sampling) with transient movement disorders in MMD (relapsing myoclonus, functional dyskinesia, athetoid movements).

POSTERIOR REVERSIBLE ENCEPHALOPATHY AND PERIPARTUM CARDIOMYOPATHY COMPLICATING ECLAMPSIA

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Introduction: Complications of postpartum are multiple. Posterior Reversible Encephalopathy (PRE) and postpartum cardiomyopathy (PPCM) are rarely described. We report a case of a PRE associated with a PPCM caused by eclampsia.

Observation: Nineteen years old female, primipara, presented with coma complicating eclampsia at 34 weeks of gestation. She was cesared because of placental abruption with fetal death in utero. Recovery from coma, the patient had a right hemiplegia, akinetic mutism and depression. MRI showed T2 white matter hyperintensities in posterior regions. Lumbar puncture was normal. Cerebral arteriography showed vasculitis lesions. cardiological assessment showed severe systolic dysfunction. The evolution was favorable with symptomatic treatment.

Discussion: The term PRE refers to a clinical-radiological syndrome characterized by the association of, acute or subacute, seizures, headache, vomiting, coma and visual disorders and reversible impairment of white matter located preferentially in the posterior regions. It is secondary to eclampsia in 20% of cases. MRI is the gold standard investigation. Treatment is based on identification and control of risk factors.

Our patient had PRE with eclampsia as a risk factor. The particularity of this case is the association of PRE with PPCM, which is also a rare disease of unknown etiology and may be secondary to eclampsia too. PRE and PPCM are reversible provided rapid treatment which was the case of our patient.

Conclusion: The PRE and PPCM are two rare complications of post-partum, still exceptionally reported in association, which are commonly reversible, but they may cause significant sequalae, whence the importance of monitoring of pregnancies.

NEUROLOGICAL MANIFESTATIONS OF DURAL SINUS THROMBOSIS

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Dural sinus thrombosis is a clinical syndrome that has a diversity of signs& symptoms that can be easily misinterpreted with other common neurological diseases such as brain infections.

Objective: To study the clinical presentation of dural sinus thrombosis among 50 Sudanese patients seen in Elshaab teaching hospital.

Methodology: This is a prospective ,descriptive, cross sectional, hospital based study conducted in Elshaab teaching hospital, in the period(November 2008 - July 2010), 50 patients were included in the study.

Results: The study showed that 49patients (98%) of our studied group were females. It appeared that 44 patients(88%) were housewifes,4(8%) were students and 2 patients(4%) were unemployed. Delivery was found to be the most common,17 patients(56,7%), followed by pregnancy8 (26,7%), Pills 3 (10%) and abortion 1 patient (3,3%). Headache, neck pain & stiffness were the frequent neurological symptoms. Papilledema was the commonest neurological finding. The study showed that the most common radiological findings were saggital sinus thrombosis which was detected in 24 patients(48%),followed by transverse sinus thrombosis& Infarction+Haemorrahe 8 (16%),normal imaging 5 (10%), multilpe sinuses 4 (8%) and cavernous sinus+anyersym was seen in 1 patient (2%).The outcome of the study was found to be as follow :36 patients were improved (72%), 7 (14%) left with residual weakness, 4 (8%)lost their vision, and 3 patients(6%) died.

Conclusion: Dural sinus thrombosis is uncommon neurological problem, however the diagnosis should always be considered in the right clinical setting, as it is a treatable condition.

PLASMATIC BRAIN NATRIURETIC PEPTIDE AND URINARY POLYCLONAL LIGHT CHAINS IN CEREBROVASCULAR DISEASES

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Object of study: Chronic activation of stress response causes a dysfunction of the executive homeostatic network, responsible of an increased susceptibility to diseases. The aim of our study was to assess Holter Pressure (HP) values, plasmatic Brain Natriuretic Peptide (pBNP) and urinary Polyclonal Light Chains (uPLC) concentrations in cerebrovascular diseases (CVD).

Material and methods: We recruited 118 patients, 32 (age79.87 sd 10.42) affected with acute stroke (AS), 73 (age76.78 sd 11.16) with chronic cerebrovascular (CCVD) and 13 (age 47.54 sd 15.01) with other neurological diseases (OND). Haematological and urinary parameters were detected within 12-24 hours. Five patients of each group underwent to HP, 56 patients to echocardiography. Data were analyzed by unpaired T test, Pearson's correlation and regression.

Results: Our preliminary data show increased level of pBNP (p 0.002) and confirm higher concentration of urinary k (p 0.0009), l (p 0.03) light chains, reduced k/creatinin (cre) (p 0.009), l/cre (p 0.01) ratio in AS (Fiori P. et al, 2010); reduced ejection fraction (p 0.009) in CCVD. Significant correlations were found between Systolic (r -0.89), Dyastolic (r -0.95), Mean (r -0.99) HP and pBNP levels, the latter and k (r 0.74), l (r 0.75), k/l ratio (r 0.90) in AS, k (0.94), k/l ratio (r 0.95), k/cre (r 0.94), l/cre (r 0.95) in CCVD.

Conclusions: A systemic cranio-caudal cascade occurs in CVD, causing BP variations, altered membrane permeability, increased pBNP and uPLC levels, predictive of hearth and renal failure, unless a prompt treatment is administered.

IMPACT OF MLC601 ON NEUROFUNCTIONAL RECOVERY IN MODERATE-TO-SEVERE DISABLE PATIENTS AFTER THEIR FIRST EVER ISCHEMIC STROKE

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Introduction: Neuroplasticity is a key factor that may interfere in neurofunctional recovery processafter ischemic stroke.Recent clinical trials have established the safety profile of MLC601 in both acute and latestages of stroke, whereas its effect may improve functional outcome.

Objective: The aim of this observational study is to evaluate the possible effect of MLC601 on neurofunctional recovery among Lebanese patients who developed a first ever ischemic stroke.

Material and methods: 14 patients with moderate-to-severe disability after a first ever ischemic stroke included in the study were given MLC601 at the therapeutic dose at initiating visit (V0), for two consecutive months (M1 and M2). Patients were assessed using the Modified Rankin Scale (mRS), the National Institute of Health Stroke Score (NIHSS) and the Barthel Index (BI) at V0; three outcome scores were done at M1, M2 and at M3. The primary endpoint was defined by at least 2 points improvement on the mRS score at M3 compared to V0 score. Independence was defined for a BI score of ≥ 60.

Results: Study patients had an average of 4 on the mRS at V0 with moderate-to-severe disability. 57 % reached the primary endpoint and 83.3 % became “functionally independent” at M3.

Conclusion: From this observational study MLC601 as add-on therapy may contribute in favoring neurofunctional recovery and independence in patients who developed a first ever ischemic stroke.

WHEN A CENTRAL LESION PRESENTS AS PERIPHERAL VERTIGO: A CASE SERIES OF NODULAR INFARCTS

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There are only a few cases reported of isolated nodular infarction. Patients with this rare disorder commonly presents with acute vertiginous giddiness and a dearth of other focal neurological deficits that closely resembles a peripheral vestibulopathy. We describe 3 patients with this rare condition here

The head impulse test has been described as a reliable method to detect a unilateral peripheral vestibulopathy and this has been reported to be especially sensitive during the acute stage.

A negative head impulse test during the acute phase of vestibulopathy in conjunction with an accompanying spontaneous nystagmus is suspicious of a central lesion as seen in all patients of our series. Patients with pure vestibulopathy are usually able to stand with the help of their intact proprioception and visual inputs.

All 3 patients in our series were unable to stand hinting that a possible central lesion was involved causing dysfunction of the vestibulocerebellum system.

Our series showed that the appearance of a peripheral localization of giddiness can be misleading.

A central cause should be considered if the head-impulse test is negative in acutely vertiginous patients falling opposite to the direction of nystagmus.

SERIAL NON-INVASIVE HEMODYNAMIC AND AUTONOMIC PROFILE OF ACUTE ISCHEMIC STROKE: A STUDY WITH THORACIC ELECTRICAL BIOIMPEDANCE

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Introduction: The pathophysiology of hypertension in acute ischemic stroke (AIS) has not been well studied. Transthoracic Electrical Bioimpedence (TEB) is a non-invasive method of studying hemodynamics, comparable to pulmonary artery catheter in performance.

Aim: To study serial hemodynamic and cardiovascular autonomic changes among patients with AIS using TEB.

Patients and methods: Adult patients presenting with AIS underwent daily study over 4-6 days of hemodynamic functions with TEB, and cardiac autonomic functions by beat to beat analysis (using fast fourier transformation) of heart rate, BP and stroke volume. Outcome was classified as good (modified Rankin Score 0-3) or poor (MRS 4-6).

Results: 22 patients with AIS (Age: 60$\pm$4 yrs; M:F::14:8) were studied. 9 had good outcome at discharge; 13 had poor outcome. Poor outcome was associated with lower GCS (p=0.036); higher NIH Stroke Score (p=0.049); higher stroke volume (p=0.016); higher cardiac output (p=0.05); trend of lower systemic vascular resistance (SVR, p=0.071); lower power in low frequency (LF) and high frequency (HF) of heart rate variablity (p: 0.036 & 0.021); and baroreceptor sensitivity to head tilt (p=0.007). Mean BP correlated with SVR.

Conclusions: Among patients with acute ischemic stroke, serial, daily hemodynamic evaluation revealed that poor outcome was associated with higher stroke volume and cardiac output, lower systemic vascular resistance, and with significant changes in cardiovascular autonomic parameters. Blood pressure is primarily influenced by SVR rather than cardiac parameters. Complex interplay of several factors likely influence hemodynamic and autonomic changes in acute stroke.

POST STROKE DEPRESSION IN ACUTE STROKE; CORRELATION WITH SITE AND STROKE SEVERITY

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Background: Post Stroke Depression (PSD) is a well documented morbidity that affects functional status and alter outcome

Aim: We aimed to assess the frequency of depression following acute stroke, correlate it to stroke site and disability.

Methods: We prospectively recruited sixty consecutive patients admitted to acute stroke unit, at King Fahad Medical City. Patient with prior history of depression/mood disorder, alcohol abuse, severe aphasia, GCS≤10 and stroke were excluded. The acute stroke was diagnosed clinically and confirmed by neuroimaging. Disability of stroke was determined by modified Rankin Scale (mRS). Presence and severity of depression was assessed by Hamilton Depression Rating scale (HDRS), 5-7 days after admission.

Results: Forty two males and 18 females with mean (± SD) age of 58 (±14) years were recruited . Predominant stroke type was ischemic in 95% of patients (n=57) and 5% hemorrhagic (n=3). Twenty three patients presented with right hemispheric, 20 with left hemispheric and 17 with brainstem stroke's. Average modified Rankin Score was 1.8 (±1.4). Ten patients (17%) were classified to have depression. Mild depression (HDRS:10-13) was seen in 7 patients, moderate (HDRS:14-17) in 2, and severe (HDRS: > 17) in 1 patient. All depressed patients had ischemic strokes involving the right hemisphere in 5, left hemisphere in 3, and brainstem in 2 patients. Mean mRS for depressed patients was 2.6(±1.3) vs.1.7 (±1.3) in non-depressed.

Conclusion: Post Stroke Depression was seen in 17% of patients . No definite correlation with the stroke site, however may be related to severity of disability.

ANEMIA AT ADMISSION IS AN INDEPENDENT PREDICTOR OF DEATH IN PATIENTS WITH ACUTE ISCHEMIC STROKE

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Purpose: To investigate factors that influence anemia on admission and association between anemia and clinical outcomes in acute ischemic stroke.

Methods: We prospectively registered consecutive Chinese patients with acute ischemic stroke within 24 hours of symptom onset. The anemia (define as a blood hemoglobin level of < 120g/L for women and < 130g/L for men) was analyzed by using multivariate logistical regression to evaluate the influencing factors for anema and to determine association between anemia and outcomes. The main outcomes were death, death/disability(disability defined as mRS>2) at 12 month after stroke.

Results: Of the 1176 cases, 351 cases had anemia at admission, which accounted for 29.8%. The distribution of hemoglobin on admission was similar to normal distribution and the mean was 131.54±21.07g/L. The independent influencing factors of anemia were age(OR=1.02, 95% CI: 1.01-1.03), history of hemorrhagic stroke (OR=3.34, 95% CI: 1.17-9.56), alcohol consumption (OR=0.59, 95% CI: 0.38-0.92), estimate glomerular filtration rate < 60ml/min/1.73m^2 at admission(OR=1.34, 95% CI:1.00-1.80). After adjustment for age, NIHSS, vascular risk factors and renal function, anemia at admission was the independent prognostic factor for death at discharge and12th month(OR=1.66, 95%CI,1.08-2.56; OR=1.56, 95%CI,1.05-2.31;), but not for death/disability at 12th month(OR=1.01, 95%CI, 0.71-1.44).

Conclusions: Our study indicated that more than 1/4 of acute ischemic stroke patients had anemia. Anemia is a independent predictor of death in acute ischemic stroke patients.

CORRELATION OF GLOMERULAR FILTRATION RATE AND ACUTE STROKE IN A TERTIARY HOSPITAL: A RETROSPECTIVE STUDY

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Objective: This study aimed to determine the correlation of glomerular filtration rate and acute stroke in a tertiary hospital from January 1, 2010 to June 30, 2010.

Design: This study employed a retrospective study design through chart review.

Participants: There were a total of 113 charts reviewed of stroke patients from the ages of 21 and above admitted in a tertiary hospital from January 1-June 30, 2010. Subjects included were those with clinical findings of stroke confirmed by neuroimaging.

Research instrument: The instrument used in this study was a data sheet. It included the patient's initials, age, sex, type of stroke whether ischemic or hemorrhagic, weight, height, computed body mass index, serum creatinine, estimated GFR computed based on the Cockcroft Gault equation and the blood pressure on admission.

Result: Creatinine level in mg/dL was shown to be significantly higher among patients with hemorrhagic stroke (mean 1.3 ± 0.6 vs. 1.0 ± 0.4, p=0.038) while glomerular filtration rate (GFR) was lower among patients with hemorrhagic stroke (66 ± 32 vs. 71 ± 28).

Conclusion: This study of retrospective stroke admissions confirms the previous studies cited at the review of related literature that there is a graded inverse association between GFR and occurrence of hemorrhagic stroke that was independent from other vascular risk factors. The study also confirms that serum creatinine level was found significantly higher in hemorrhagic stroke than ischemic stroke subtypes.

CEREBRAL INFARCTION ASSOCIATED WITH AUTOIMMUNE HEMOLYTIC ANEMIA

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Background: Autoimmune hemolytic anemia (AIHA) is characterized by the production of autoantibodies against the patients own red blood cells leading to increased hemolysis which manifests clinically as pallor, jaundice and splenomegaly. There have been several reports describing venous thromboembolism of AIHA. We present a case of cerebral infarction associated with AIHA.

Case: A 69-year-old woman with a history of hypertension presented with headache and dizziness. He had been treated with aspirin, amlodipine, and telmisartan for ten years. There was no relevant family history. Physical examination was unremarkable except for pallor and mild dehydration. Neurologic examination showd mild dysarthria. Laboratory findings showed a hemoglobin of 6.6 g/dL, a hematocrit of 19.9%, a red blood cell of 1.73 x 10^6/mm^3 and a reticulocyte count of 13.6%. Peripheral blood smear showed anisocytosis, polychromasia, poikilocytosis with pappenheimer inclusion bodies. The direct Coomb´s test and anti-E antibodies were positive. Brain diffusion MRI showed acute ischemic lesion in the left splenium of the corpus callosum. MR angiography findings were normal. Transesophageal echocardiogram showed concentric left ventricular hypertrophy and moderate resting pulmonary hypertension. The patient was treated with steroids and recovered completely within 3 weeks.

Conclusion: We report a rare case of old female AIHA patient presenting with acute cerebral infarction. Although the pathogenesis of cerebral infarction remains unknown, hypercoagulable state associated with AIHA and coexistent cardiovascular risk factor may be considered for the increased thrombotic risk.

RELATIONSHIP BETWEEN DIABETUS MELLITUS, UNREVEALED DIABETES, CEREBRAL VASOSPASM AND SECONDARY CEREBRAL INFARCTION IN ANEURYSMAL SUBARACHNOID HEMORRHAGE

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Background and aims: Diabetes mellitus(DM) is known to affect the vasoactive properties of vessels, but it has not been definitively correlating with cerebral vasospasm (CV) and secondary cerebral infarction (SCI), which are a serious sequela of SAH. The our goal to establish this links with or without a prior diagnosis of DM.

Patients and methods: 89 (age 54, 8; male/female 29/45) aneurismal SAH patients with good Hunt-Hess Score were investigated for the DM or unrevealed DM(UDM). For establishing the level of cerebral vasospasm Dopplerography was performed and CT scan-to identify the secondary ischemic lesion. Glucouse level were determined at admission, FPG on subsequent day and OGTT with 2-h post-load value on the 4th and 7th day of SAH onset. 75g of anhydrous glucose dissolved in water was used as glucose load to identify unrevealed DM.

Results: From 89 patients 21(23,5%) had SCI. DM had 2 patients. Among non-diabetic patients hyperglycemic range revealed in 16 (17,9%) cases. Spontaneous decline glucose levels to normal had 11 patients,in 5(31,2%) patients diabetes mellitus was diagnosed for the first time in their life. DM had significant correlation with mild-moderate CV, but not SCI.UDM strongly correlated with severe CV and with SCV ($P < 0.001$), therefore reflecting the worse outcome and disability.

Conclusion: DM was reflected by vasospasm, but not by outcome of SAH. UDM was associated with severe vasospasm and developing SCI worse outcome and quality of life. It remains to be clarified if UDM can be a marker of poor prognosis in SAH due to vasoregulation damage.

RELATIONSHIP BETWEEN LEFT VENTRICULAR MASS INDEX (LVMI), WHITE MATTER HYPERINTENSIVITY (WMH) AND COGNITIVE PERFORMANCE IN HYPERTENSIVE STROKE PATIENTS

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Background: Cardiovascular risk factors in cognitive decline were extensively studied during the past years. Blood pressure (BP) is a predictor of concurrent and subsequently measured white-matter hyperintensity (WMH), but interaction between Left Ventricular Mass Index (LVMI),WMH and cognition not have been established yet.

Aim: To identify the correlation between LVMI, WMH and cognitive decline in hypertensive stroke patients.

Methods: The hypertensive 134 stroke patients (mean age 68±5,2 male/female ratio 76/ 58) were divided into 3 groups: I group(54)- mild LVMI, II group(42)-moderate LVMI, III-severe LVMI(38). In acute stage after stroke and 3 months later the depression symptoms and cognitive profile were evaluated by Hamilton Depression and Anxiety Rating Scale, neuropsychological battery tests (executive function, visuospatial, verbal and visual memory, reasoning, recall, digit span and ect.) Neuroradiological assessment of WMH have been done.

Results: There was not any relationship between LVMI and WMH and cognitive decline. In II group LVMI strongly correlated with mild WMH with mild cognitive impairment as well as HAM-D. In a III group LVMI strongly correlated with moderate-to-severe WMH ($p< 0.0005$). and cognitive decline, especially impairment memory, mostly short-term memory. ($p< 0.005$), as well as moderate-to-severe HAM-D and HAM-A($p< 0.005$).

Conclusion: The level of LVMI due to severity of hypertension, may reflect the cognitive impairment , because of cardiocerebral and haemodynamic damage. These patients may prevent and improve quality of life, cognitive and psychological symptoms by the strict control of the hypertension as well as by receiving the antidepressants and inhibitors of the enzyme acetylcholinesterase.

APHASIA DUE TO RIGHT-HEMISPHERE LESION IN STROKE PATIENTS

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Aphasia due to right-hemisphere lesion (ARH) consists of aphasia in right-handers, that is, “crossed aphasia (CA)” and aphasia in non-right-handers (ANRH). The aim of this study is to analyze the feature of ARH (CA and ANRH) compared with aphasia due to left-hemisphere lesion.

Subject and methods: Aphasia patients due to cerebrovascular accident (CVA) were studied. The inclusion criteria included,

(a) a clear presence of right or left-hemisphere lesion showed by CT scan or MRI,

(b) the estimated handedness,

(c) a diagnosis of acquired language impairment,

(d) the absence of previous brain damage(e) following examination of aphasia.

Language was examined by Standard Language Test of Aphasia (Japan Society for Higher Brain Dysfunction).

Results: There were 1301 aphasia patients (ARH 37 patients, 2.8% : LHA 1264 patients, 97.2%) due to CVA. 37 ARH patients (29 male, 8 female : age 37~75) consisted of 15 CA (40.5%) and 22 ANRH (59.5%). The incidence of CA was 1.15%. Aphasia types of LHA were Broca's 203(16.4%), Wernicke's 189(15.0%), Amnesic 62(4.9%), Conduction 46(3.7%), Global 506(40.3%), Striatal 180(14.3%) and Others 70(5.6%). Aphasia types of CA were Broca's 9(60.0%), Amnesic 1(6.7%), Conclusion 1(6.7%), Global 3(20.0%) and Others 1(6.7%). Aphasia types of ANRH were Broca's 9(40.9%), Wernicke's 2(9.1%), Conduction 3(13.6%), Global 3(13.6%), Striatal 4(18.2%) and Others 1(4.5%).

Conclusion: RHA patients tended to be younger than LHA patients. There were more male than female RHA patients. The incidence of CA was 1.15%. RHA patients showed various types of aphasia and the high frequency of non-fluent type of aphasia like Broca's aphasia.

HOW MUCH PEOPLE KNOW ABOUT STROKES WITHIN THE POLISH SOCIETY

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Introduction: Thrombolysis - modern treatment of acute ischemic stroke - is possible to perform, when a patient is admitted to hospital very fast. People's knowledge about strokes seems to be a main factor in this process.

Aim: The purpose of this study was to assess how much people know about strokes within the Polish society.

Material and methods: An authorized anonymous questionnaire was used in this research. It contained 15 questions related to strokes. 1623 individuals were surveyed: 246 first year medical students, 234 sixth year medical students and 1140 people in general population, who were divided in two groups (25-44 year olds and 45-75 year olds).

Results: The question “What is a stroke?” was answered correctly by 17% respondents in general population, 10% of 1st year medical students and 75% of 6th year medical students. 93% of people in general population stated that a stroke is life threatening. Almost everybody (96%) claimed that first aid is strongly required, while 57% of respondents did not know specific symptoms of stroke. Society campaign about prevention of uteri cervix cancer has reached 79% of respondents while only 13% of respondents have heard something about stroke campaign.

Conclusions:

1. It seems that knowledge about stroke in Polish population is apparently low in comparison to the problem.

2. Mass media give information about strokes not often enough.

3. During years of medical training of students in Silesian Medical University the knowledge about symptoms of stroke and necessity of immediate medical intervention is increasing.

A COMPARISON OF INTRACRANIAL PATIENTS WITH EXTRACRANIAL ATHEROSCLEROSIS AND EXTRACRANIAL ATHEROSCLEROTIC PATIENTS IN RISK FACTORS OF STROKE

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Background: In Korean patients, intracranial atherosclerotic lesions are more frequent rather than extracranial lesions compared to Caucasian patients. Recently, extracranial lesions are increasingly recognized in Korea. The aim of our study is to determine the frequency of mixed atherosclerotic lesions and to analyze the differences in stroke risk factors between patients with pure extracranial carotid atherosclerosis and those who have mixed atherosclerosis.

Methods: We included 50 consecutive patients with extracranial carotid artery stenosis (defined as >50% narrowing of diameter) or occlusion proven by a conventional angiography. We compared the distribution of atherosclerotic lesions and compared risk factors for atherosclerosis between the pure extracranial carotid occlusive group and the mixed extra- and intracranial atherosclerotic group.

Results: Of the total 50 extracranial atherosclerotic patients, mixed atherosclerosis was seen in 23 patients and pure group was 27 patients. Multivariate analysis showed that diabetes mellitus was the only factor that was associated with the mixed extra- and intracranial atherosclerotic group [8/23 (34.7%) vs. 4/27 (11.1%), $p< 0.05$].

Conclusion: The mixed extra- and intracranial atherosclerotic lesions were frequently seen in Korean patients. Diabetes mellitus may play an important role in the development of intracranial atherosclerosis in patients who have mixed extra- and intracranial atherosclerotic disease.

DEEP CEREBRAL VENOUS SYSTEM THROMBOSIS PRESENTED WITH TRANSIENT ISCHEMIC ATTACKS

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Cerebral venous thrombosis is a relatively uncommon type of stroke. The clinical manifestation and prognosis are variable depending on which venous systems are involved. The main clinical features of thrombosis of the deep cerebral venous system (DVS) are severe dysfunction of the diencephalon such as altered mentality. We present a patient who had a transient ischemic attack (TIA) despite extensive thrombosis in the dural sinus and DVS resulting in lesions in bilateral thalami. A 43-year-old man with advanced gastric cancer suddenly developed global aphasia and altered consciousness during the waiting for outpatient consultation. Initial non-contrast brain CT showed no hemorrhage. We tried to infuse intravenous thrombolysis because he was arrived at the emergency department within 3 hours after symptom onset. However, his clinical symptoms were completely normalized shortly before injection of recombinant tissue plasminogen activator. Diffusion weighted image taken at that time showed bilateral high signal intensities in bilateral thalami and basal ganglia. T1 weighted image and MR venography revealed thrombosis in the superior sagittal sinus and DVS. Fibrinogen, d-dimer and fibrinogen degradation product were elevated. After recovering his initial neurologic deficits, he did not show any focal neurologic deficits except headache and mild bilateral 6th nerve palsies suggesting increased intracranial pressure during the anticoagulation. Follow up MRI showed partially recanalized dural sinus. In conclusion, DVS thrombosis resulting in bilateral thalami lesions could be the cause of TIA. So even though initial brain CT reveals no parenchymal abnormality, physician should consider the possibility of cerebral venous thrombosis involving DVS.

CEREBRAL VENOUS THROMBOSIS DEVELOPED AFTER IN-VITRO FERTILIZATION EMBRYO TRANSFER WITHOUT EVIDENCE OF OVARIAN HYPERSTIMULATION SYNDROME

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Cerebral venous thrombosis (CVT) is a relatively rare stroke. It is usually developed in hypercoagulable states such as prothrombotic conditions or in woman taking oral contraceptives or during the peripartum periods. Ovarian hyperstimulation syndrome (OHSS) is a serious complication of ovulation induction during in-vitro fertilization (IVF) embryo transfer (ET) characterized with ovarian enlargement, ascites, renal dysfunction, and rarely thrombotic complications. We report a patient developed CVT after IVF ET without OHSS. A 39-year old woman visited outpatient clinic complaining of headache for 5 days. She had been well before admission and had no risk factor for stroke. Her headache was aggravated when she was supine or right lateral decubitus position and relieved when she was upright posture. She had been undergoing IVF ET treatment for infertility 1 day before headache. Neurologic examination revealed intact consciousness with normal vision and no weakness. T2 weighted image taken at admission showed high signal intensity in the right sigmoid sinus without parenchymal change. MR venography, however, showed occlusion in the superior sagitaal, right lateral and sigmoid sinus with cortical venous engorgement. Her initial urine hCG and serum β-hCG were not elevated. She was treated with intravenous unfractionated heparin. Her headache was relieved after intravenous mannitol therapy. Abdominal sonography showed no ascites and routine laboratory test was within normal limits. In conclusion, we present a patient developed CVT without evidence of OHSS after IVF ET. Physician should be concerned the possibility of CVT even though headache is the only manifestation in women with IVF ET.

LUXURY PERFUSION IN EARLY POST-STROKE PERIOD DESPITE PERSISTENT ARTERIAL OCCLUSION

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Background: Cerebral autoregulation (CA) maintains uniform blood flow. In acute ischemic stroke (AIS), CA is impaired with impaired vasomotor response, rapid recanalization of an occluded artery might result in abnormally increased regional blood flow- 'Luxury perfusion' (LP). We describe LP and its hemodynamic consequences in a patient with persistent arterial occlusion

Result: A 49-years old man presented with 1-day history of multiple transient episodes of right-sided weakness. Brain MRI revealed multiple acute infarcts in left middle cerebral artery (MCA) territory. Catheter angiography suggested left internal carotid artery (ICA) dissection. Considerable neurological fluctuations occured during first few days, related to change in blood-pressure and body position. CT perfusion imaging demonstrated prolonged Mean transit-time in left MCA territory with elevated cerebral blood-volume and blood-flow, representing LP (despite occluded ICA). Perfusion and vasodilatory reserve evaluated by HMPAO-SPECT confirmed LP in the left hemisphere (55% counts versus 45% on right) on baseline scan.

Interestingly, vasodilatory challenge with acetazolamide induced paradoxical reduction in perfusion in left hemisphere (counts 47% versus 53% on right). Intracranial steal phenomenon (reversed Robin Hood syndrome) was observed during vasomotor reactivity (VMR) assessments with transcranial Doppler.

Anti-thrombotics, statins and 'head-down' position with liberal intravenous fluids for 2-week resulted in good clinical recovery. No intracranial steal phenomenon was noted on TCD-VMR evaluations at 3 months. He has remained symptom-free during 11 months of follow up.

Conclusion: Luxury perfusion can occur in patients with persistent arterial occlusion & appears protective. However, it may not withstand vasodilatory challenges & contribute towards neurological fluctuations.

CHILDHOOD POSTERIOR CIRCULATION ISCHEMIC STROKE: AN UNCOMMON CEREBROVASCULAR DISEASE. CASE REPORT

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Introduction: Stroke is characterized as a sudden onset of neurological deficit that results from a cerebrovascular event and limited data exist on childhood posterior circulation arterial ischemic stroke.

Case report: A 1 year and 8 months of age girl was admitted presenting a history of two episodes of vomits, irritability, continuous crying and strabismus that started suddenly and was noted by the mother on the morning of the same day. The patient past medical and familial history was unremarkable for any infectious, metabolic and/or vascular disease and she was presenting an appropriate neuropsychomotor development. On neurological assessment, we found divergent strabismus with right medial rectus muscle palsy and reduced right pupillary reflex to light associated with instable gait. Laboratorial blood examination and computed tomography of the brain was found within normal range. Brain magnetic resonance imaging (MR) showed an ischemic lesion on the right ponto-mesencephalic region. MR angiography did not show any vascular steno-occlusive lesion. Laboratorial hypercoagulability investigation did not revealed abnormalities. Transthoracic echocardiogram showed anatomical cardiac chambers and no anomalous communication. The patient received clinical support and, on the fifth day, was discharged home in good clinical conditions, stable gait and persistence of the divergent strabismus with aspirin. After 2 months, the patient presented complete recover of the right medial rectus muscle movement and is currently been followed on outpatient appointments.

Conclusion: Childhood posterior circulation ischemic stroke is an important cause of morbidity and mortality on pediatric population and must be remembered to avoid diagnostic delay.

ISCHEMIC STROKE INDUCED BY CHEMOTHERAPY FOR BREAST CANCER: STUDY OF AN OBSERVATION

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Introduction: Antineoplastic chemotherapy leads to a broad spectrum of neurologic complications. Among those complications, ischemic brain stroke is a rare condition with an incidence about 0,14%. We report the case of a patient who presented an ischemic stroke after chemotherapy for breast cancer.

Observation: A 46 years old female, is followed for epilepsy under treatment, and without any cardiovascular risk factors. She presented after 2 cycles of Fluorouracile and Doxorubicine based chemotherapy an ischemic brain stroke in the territory of middle cerebral artery. Cardiologic investigations, including Doppler ultrasound of the neck vessels and transthoracic echocardiography were normal, as well as the laboratory tests, the blood clotting tests, and the analysis of cerebrospinal fluid with search of abnormal cells.

Discussion: The diagnosis of chemotherapy induced brain stroke was retained on the absence of vascular risk factors, and the negativity of etiologic investigations.

As often reported, Cisplatine, alone or associated with Fluorouracile, is the most recurrent cause of stroke. In our patient, fluorouracile could be the principal factor behind this incident.

Several mechanisms can induce this complication: hypercoagulability, vascular toxicity of antineoplastic agents, cardiac damage.

The investigations must be as complete as possible, to not ignore another etiology. To our knowledge, there is no specific protocol for managing those incidents. The prognosis seems to be more severe.

Conclusion: Our observation underlines the severity of postchemotherapy neurologic complications, and the therapeutic dilemma, in the absence of a management codified protocol.

CORD COMPRESSION BY LIGAMENTUM FLAVUM CALCIFICATIONS, ABOUT 2 CASES

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Introduction: Calcification of the ligamentum flavum is commun in Japan but rare in western countries. Myelopathy of variable severity is a possible complication. Extension of lesions over several levels at thoracic spine is exceedingly rare.

Materials and methods: We report two cases of calcification of ligamentum flavum of the thoracic spine causing myelopathy, for two patients, one with 51-year-old and the other with 44-year-old.

Myelopathy was revealed by a spastic paraparesis in both cases, sensory disturbances and sphincter disturbances.

Magnetic resonance imaging (MRI).of the thoracic spine showed calcium-density masses that were in contact with the neural arches and bulged into the spinal canal at D10 and D11 for the first and D9 and D12 for the second patient.

Result: Surgical decompression by laminectomy was followed by a favorable outcome for the both patients.

Discussion: Calcification of the ligamentum flavum is a rare entity. The diagnosis is easy but the pathogenesis remains unclear. Literature regarding this pathology is reviewed.

CITICOLINE (CERAXON) ADJUVANT TREATMENT IN SECONDARY ISCHEMIC DAMAGE OF SUBARACHNOID HEMORRHAGE AFTER ANEURISMAL CLIPPING

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Background: Secondary ischemic damage (SID) due to vasospasm is the leading cause of the disability and mortality after subarachnoid hemorrhage (SAH). A number of studies have been conducted to find the methods how to prevent and reverse the ischemic complication.

Methods: 67 SAH (mean age 47, 25/42 m/f) clipped aneurism patients with SID were separated as : group I- patient with SID, receiving standard treatment , group II- receiving citicoline adjuvant treatment (1g once a day,14 days). The effectiveness was evaluated by transcranial Doppler Sonography of the middle cerebral artery,cerebral blood flow (CBF) and level of cerebral vasospasm, The patients were assessed by NIHSS, Rankin Scale (mRS).Barthel Index (BI), Western Aphasia Battery (WEB) in acute stage, on 14th day and at 3 months. The side effects and the 3 month mortality were recorded.

Results: We did not found the differences between the two groups after treatment and 3 months later in CBF mean flow velocity (150 ±20 and 55±15mm/sec in I group and 145±20and 60±15 mm/sec in II group respectively). At the end of treatment there were no differences in NIHSS score, mRS and BI($p>0.5$), but the slightly positive improvement was found in WEB in II group as compared with I group($p< 0.005$).The follow-up showed the more better score of NIHSS, mRS and WEB ($p>0.5$) in the citicoline group.

Conclusion: The novel agents, such citicoline, having the neuroprotective effect that modifies destructive biochemical and inflammatory pathways and leads to the reduction of disability after SAH.

CONGENITAL THROMBOPHILIA -IMPORTANT RISK FACTOR FOR CEREBRAL VENOUS THROMBOSIS IN CENTRAL INDIA

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Background and aim: Incidence of Cerebral Venous Thrombosis (CVT) is more in central India as compared to other parts of the countryThe risk factors for CVT can be aquired or genetic-congenital Thrombophilia.This study was done to find the prevalence of congenital thrombophilic states in subjects with CVT.

Patients and methods: Fortynine patients (27 men and 22 women) previously diagnosed to have CVT and on follow up Brain and Mind Institute Nagpur were analysed for Protein C,Protein S ,Antithrombin III and Factor V mutation (Activated Protein C resistance). The tests were performed after the subjects were of anticoagulant treatment for more than one month.

Results: Of the 49 patients, abnormal values were observed in 22 (45 %). There were 20 (41%) patients having Protein S deficiency ,7 (14 %) patients with Protein S deficiency, while 6 (12 %) had both Protein S and C Deficiency. Antithrombin III and Factor V Leiden Mutation was noticed in one each.Interestingly one woman had deficieny of all the three factors.Of the 22 patients with these deficiency states ,8 also had acquired Hyperhomcysteinaemia and one had sickle cell trait.

Conclusion: This study reveals that protein S deficiency is the most common genetic risk factor for CVT in central India. CVT is usually a multifactorial disease and congenital and acquired risk factors may coexist.

STROKE DURING PREGNANCY

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It is known that pregnancy increases the risk of stroke, fortunately, that appears to be relatively rare. Proper treatment of pregnant women with stroke is a clinical challenge.

Case presentation: I.S. age 23 years,in the seventh month of pregnancy,hospitalized because of progressive leftside weakness. Until then, for the family she was healthy, exept she was smoker.In the first three months of pregnancy had headaches. On admission normotensive,afebrile, cardiorespiratory compensated. Urgent laboratory tests findings normal.Underwent cranium MRI show fresh lesion in the left cerebellum, in the right thalamus area, irregular contours of the arteries bazilaris. Over the next few hours the situation is worsening, neurologic deficit deepens to the paralysis, occurs disturbance of consciousness to sopor. Becomes febrile, hematemesys occurs. Consulted infectologist, gastroneterologist, anesthetist and gynecologist, and immediately moved to gynecological clinic because it is decided in the best interest of mother and child to perform birth with sectio Caesarea. Born female child was alive for the next seven days patient was monitored by a neurologist and angiologists.Then moved to the Department of Neurology for treatment continuing.After it was noticed that the leftside paralysis eased but developed right sided weakness and divergent strabismus.Control cranium MR show bleeding into the lesion in the cerebellum,and it has developed a fresh ischemia in the left thalamus. MRA shows significant changes in blood vessels of the posterior circulation with fresh thrombus in the right vertebral artery. During hospitalization, patient treated with low molecular weight heparin, conducted physiotherapy. The course of stay without complications,and neurological deficit in a gradual regression. At discharge mobile with the help of one person. Rehabilitation program continued at a clinic for Physiotherapy.

LATE-LIFE MIGRAINE ACCOMPANIMENTS SECONDARY TO CORTICAL HEMOSIDERIN DEPOSITION FROM AMYLOID ANGIOPATHY

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Objective: The etiology of migraine aura presenting in the elderly (late-life migraine accompaniments [LLMA]) is unknown. Recurrent aura has been described in patients with hemosiderin deposition secondary to cortical subarachnoid hemorrhage. We report an elderly patient with LLMA and propose the possibility that cortical microhemorrhages from amyloid angiopathy may be a cause in a proportion of patients.

Methods: Case report.

Results: An 80 year-old woman presented with recurrent episodes of expressive aphasia, variably associated with transient visual obscurations and mild to moderate bilateral headaches. She had experienced approximately 20 episodes over a period of 2 years, each lasting 20 minutes to 4 hours. The patient was treated with several antiplatelet agents for a tentative diagnosis of transient ischemic attack. Physical exam was consistent with mild cognitive impairment, without focal, long-tract, or lateralizing neurological findings. Brain MRI revealed confluent T-2/FLAIR signal abnormality in the subcortical white matter of both hemispheres as well as the pons. Gradient echo (GRE) sequences revealed multiple foci of cortical hemosiderin deposition with a prominent focus in the medial left temporal lobe suggestive of cerebral amyloid angiopathy.

Conclusion: LLMA in the elderly may be secondary, in a proportion of patients, to hemosiderin deposition from amyloid angiopathy. LLMA must be distinguished from TIA, and elderly patients presenting with LLMA should ideally undergo MRI with GRE sequences to screen for cortical sulcal microhemorrhages. This will prevent misdiagnosis and the initiation of a potentially harmful treatment plan with antiplatelet and/or anticoagulant drugs.

VESTIBULAR SYMPTOMS IN PATIENTS WITH ACUTE STAGE OF ISCHEMIC CEREBELLAR STROKE; EVALUATION OF THE TOAST CLASSIFICATION

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Introduction: Ischemic cerebellar infarctions account for about 3% of all strokes. Vertigo in acute stage of ischemic cerebellar stroke may suggest wrong diagnosis of vestibular syndrome. TOAST classification is used for evaluation of brain strokes.

Methods: We retrospectively analysed 115 adult patients with diagnosed ischemic cerebellar infarction. The evaluation of symptoms in the acute phase of stroke, risk factors, subsequent stroke incidents were made retrospectively on the basis of medical history analysis and survey sent to all patients (52 responded). We also analysed the correlation between clinical presentation and topographic localization of the lesion in CT scan.

Results: 40 patients out of 115 were women (35%). The most frequent risk factor was hypertension (58%) and atrial fibrillation (30%). The most common manifestation of ischemic cerebellar stroke in acute phase was vertigo and occurred at 72% of patients in which case the distribution of lesion was in the posterior inferior cerebellar artery (PICA). The following other symptoms occurred: dizziness (17%) dysphagia (28%), hearing loss (26%), hoarseness (19%). Cerebellar stroke re-occurred again in 6 persons (13%). According to the TOAST classification, the pathophysiologic causes were not established at 50% of patients; cardioembolic infarction was found at 25%, large artery infarction at 24%.

Conclusions:

1. Vertigo occurring in the acute stage of ischemic cerebellar stroke make the diagnosis more difficult.

2. Applicability of the TOAST classification is limited in case of cerebellar stroke.

ATRIAL FIBRILLATION AND FEMALE GENDER- FATAL COMBINATION FOR STROKE?

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Background: Atrial fibrillation (AF) and female gender are independent risk factors for stroke. In women with AF stroke is associated with high disability and morbidity, thus its prevention is in an important goal in AF patients´ management.

Objective: To study the impact of AF in stroke development and evolution in Moldavian patients.

Methods: Retrospective evaluation of all ischemic stroke patients admitted during one year in a municipal hospital.

Results: The study included 735 patients with ischemic stroke, of whom 54.7 % women with a 29.6% rate of AF. Female subjects with AF had a broader spectrum of co-morbidities and thromboembolic risk factors vs. men, namely arterial hypertension (93.3% vs. 80.5%, $p< 0.05$), rheumatic valve disease (12.6% vs 4.6%; $\rho< 0.05$), and previous thromboembolic events (34.5 % vs. 24.1%, $\rho< 0.05$). Majority of patients (77 %) have developed a constituted stroke, mostly in the AF group (84% vs. 74.3%, $p< 0.05$). Female patients with stroke have presented more signs of severe cerebral damage as compared with sinus rhythm patients (72.2% vs. 27.2%, $p< 0.01$), including more severe consciousness disturbances, motor and language deficits with a higher hospital mortality as compared with sinus rhythm group (33.6% vs. 16.2%, $p< 0.001$). For high risk patients (with CHADS2 ≥2) oral anticoagulation was initiated in only 1.9%, the majority of 47.1% remaining on aspirin.

Conclusions: AF patients, especially women, have a high risk of stroke with a more severe evolution and serious consequences, but oral anticoagulants even in high risk patients remain much underused.

PIOGLITAZONE DELAYS PROXIMAL TUBULE DYSFUNCTION AND IMPROVES CEREBRAL VESSELS ENDOTHELIAL DYSFUNCTION IN NORMOALBUMINURIC PATIENTS WITH TYPE 2 DIABETES MELLITUS

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Introduction: Endothelial behaviour is different in various vascular territories, such as the kidney and the brain. Consequently, pioglitazone may exert both nephro- and neuroprotective effects by different mechanisms.

Methods: A total of 68 normoalbuminuric type 2 DM patients(p) were enrolled in a one-year open-label randomized controlled trial: Group A-34p treated with pioglitazone plus metformin vs. Group B-34p treated with glimepiride plus metformin. All p were assessed at the initiation, at 6 months and by the end of the study concerning urinary albumin: creatinine ratio(UACR), urinary alpha1-microglobulin, urinary beta2-microglobulin, plasma asymmetric dymethyl-arginine(ADMA), serum creatinine, GFR, hsC-reactive protein(CRP), fibrinogen, HbA1c; pulsatility index, resistance index in the internal carotid artery and middle cerebral artery, intima-media thickness in the common carotid artery; cerebrovascular reactivity was evaluated through the breath-holding test.

Results: At 1 year there were differences between groups regarding ADMA, urinary beta2-microglobulin, urinary alpha1- microglobulin, parameters of inflammation, serum creatinine, GFR, UACR, the cerebral haemodynamic indices. Significant correlations were found between alpha 1-microglobulin-UACR(R^2=0.143; P=0.001) and GFR(R^2=0.081; P=0.01); beta2-microglobulin-UACR(R^2=0.241; P=0.0001) and GFR(R^2=0.064; P=0.036); ADMA-GFR(R^2=0.338; P=0.0001), parameters of inflammation, HbA1c, duration of DM, cerebral indices. The cerebrovascular parameters improved in group A vs. group B and correlated with plasma ADMA, C- reactive protein, fibrinogen, duration of DM, HbA1c, and GFR.

Conclusion: PT dysfunction does not parallel endothelial dysfunction and precedes albuminuria in early DN. Endothelial dysfunction in the cerebral vessels precedes glomerular endothelial dysfunction. Pioglitazone delays PT dysfunction and improves cerebral vessels endothelial dysfunction in normoalbuminuric p with type 2 DM.

KNOWLEDGE ABOUT RISK FACTORS AND SYMPTOMS OF STROKE IN YOUNG PEOPLE IN POLAND

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Background: Stroke is one of the leading causes of death and disability worldwide. The public knowledge about stroke is one of the main factors influencing both prophylaxis and time of hospitalization after the onset of the disease. The aim of the study was to evaluate the knowledge about risk factors and symptoms of stroke in young people in Poland.

Material and methods: The examined group consisted of 207 randomly selected people in the mean age of 27+/-8.5 years. To all of them the questionnaire was applied (13 questions assessing the social and demographic situation of the examined persons and their knowledge about stroke, its risk factors, symptoms and proper behavior in the case of stroke suspicion).

Results: Only 30% of examined people knew at least one risk factor. To the most often mentioned belong: hypertension (21.7%), smoking (9.7%), alcohol abuse (4.8%) and coronary heart disease (4.3%). At least one symptom of stroke was known by 71% of examined people. To the most often listed symptoms belong: loss of consciousness (25%), headache (24.6%), limb paresis (24.6%), nausea and vomiting (22.7%) and vertigo (19.8%). Most of respondents (79%) knew that in the case of suspicion of stroke an ambulance should be called.

Conclusions: Knowledge about risk factors and symptoms of stroke in young people in Poland is not sufficient. Good wide-spread educational programs should be prepared to improve it.

PRIMARY ANGIITIS OF THE CENTRAL NERVOUS SYSTEM: REPORT OF 3 CAES

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Primitive angiitis of the central nervous system (PACNS) is a rare, poorly understood form of vasculitis limited to the brain and spinal cord. We report 3 cases of PACNS.

There were 2 women and one man with a mean age of 38 years. Two patients exhibited headaches, fever, epileptic seizures and confusion. One patient presented encephalopathy, ataxia, bilateral hearing, visual loss and epileptic seizures. Brain MRI showed diffuse demyelination in 2 cases and right insular hematoma in one case. All patients had in the cerebrospinal fluid (CSF) an elevated white cell count with a high level of proteins. Cerebral arteriography objectified paterns of diffuse angiitis in all cases. Histologic findings confirmed diagnosis in one case. Evolution was favorable under corticosteroid therapy for all patients after a long follow up.

Limited data are available concerning PACNS (Birnbaum and Hellman; 2009). The poor specificity of the diagnostic tests and their multiple mimics create a major diagnostic challenge. Clinical features are not specific consisting mainly in progressive headaches and insidious cognitive impairment. Cerebral arteriography notes bilateral beading of multiple regions of narrowing in a given vessel with interposed regions of ectasia. Secondary vasculitis to neoplasms, infections and systemic diseases are easily excluded by biological tests. PACNS should also be differentiated from reversible cerebral vasoconstriction syndromes which are characterized by acute-onset, recurrent thunder clop headaches, normal CSF analysis and reversible vasoconstriction. Diagnostic is confirmed by neuropathology showing patterns of granulomatous vasculitis. Treatment requires long term corticosteroids therapy associated usually with cyclophosphamide.

CLINICAL PROFILE AND OUTCOME OF CEREBRAL VENOUS THROMBOSIS - A HOSPITAL BASED STUDY

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Introduction: Cerebral venous thrombosis is an uncommon cerebrovascular disease with protean manifestations and good prognosis.

Objective: To study clinical profile, risk factors and outcome of patients with CVT.

Methods: We performed prospective and retrospective analysis of adult CVT patients admitted from 2001 to 2010. Details regarding demographic profile, symptoms, signs, hospital stay, imaging, etiology, outcome at discharge and followup were obtained.

Results: Among 204 patients aged 17 to 81 years, there were 121 males and 83 women. Postpartum CVT occurred in younger women (P< 0.000). Presenting symptoms included headache (85%), seizures (60%), altered consciousness (38%) and limb weakness (35%). Examination revealed Glasgow Coma Scale less than 10 in 25%, hemiplegia in 37%, papilloedema in 32%. Cerebral imaging revealed infarction in 177 patients (120 hemorrhagic). Single sinus was involved in 99 patients, multiple sinuses in 103. Isolated superficial venous system involvement was seen in 167, deep in 12 and cavernous sinus in 6 patients. Risk factors included postpartum status (44), antepartum (2), hormonal preparations (7), infection (12), retroviral disease (5), ulcerative colitis (1). Seventy-five patients had anemia and 26 had hemoglobin above 17gm/dl. Women had lower hemoglobin (P< 0.000). Homocysteine was elevated in 58 patients. 183 patients received anticoagulation. Thirteen patients died and women had higher mortality (P< 0.000). Among 191 survivors, 49 had modified Rankin score (MRS) ≥ 3 at discharge; 88 patients at one year had MRS ≤ 2.

Conclusion: Cerebral venous thrombosis has diverse etiologies with male predominance. Good recovery occurs in majority of the survivors.

FREQUENCY OF CARPAL TUNNEL SYNDROME IN HEMIPLEGIC POST STROKE PATIENTS

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Background: Painful shoulder is one of the commonest stroke complications and develops in 18-85% of post stroke patients. Complex regional pain syndrome is one of the supposed mechanisms of post stroke painful shoulder and leads to arm and forearm swelling. Wrist tissue swelling can cause carpal tunnel syndrome.

Objectives: The study included 120 stroke patients, CT confirmed. All strokes in territory of middle cerebral artery with different degrees hemiparesis, examined during 1 month after onset. Patients with polyneuropathies were excluded from the study. Control group included 100 aged matched healthy subjects, without pain complains in upper limbs.

Methods: Neurography exam was performed 10 or more days after stroke onset and comprised median, ulnar, radial, tibial and peroneal nerves bilaterally. Carpal tunnel syndrome was diagnosed according to Luca Padua criteria.

Results: Median age in stroke group 62,6 years (43-74years), in control group 64,2 (47-72)years . Neurography was performed at 14,8 (10-26) days after stroke onset. Signs of carpal tunnel syndrome on paretic side were found in 34 patients, 28,3% from stroke patients group. On healthy side mild electrophysiological signs of carpal tunnel were found in 10 patients - 8,3%. In control group mild carpal tunnel was diagnosed in 7 patients, 7% of control group.

Conclusions: Carpal tunnel syndrome is more frequent on paretic side in post stroke patients and its severity correlated with clinical sings of complex regional pain syndrome. Carpal tunnel can be one of etiological factors in development of Post Stroke Upper Limb Pain.

PARAOXONASE-HDL INTERACTION AND CHOLINERGIC SIGNALING ATTENUATE ATHEROSCLEROSIS AND ARTERIOSCLEROSIS IN STROKE PATIENTS

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Background: The paraoxonase PON1 protein has long been known to limit oxidative stress damages through its HDL interaction. Therefore, its multiple single nucleotide polymorphic variants were explored as risk factors for atherosclerosis, also in stroke; however, the underlying structural and molecular mechanisms remained unknown. Since the vascular risk factors of stroke patients often include low HDL measures, we hypothesized that the declined PON1 levels after stroke relate to HDL deficiency.

Procedured: Carotid artery intima-media thickness, cerebral white matter lesions, serum enzyme activities and PON1 polymorphisms were determined in 237 stroke patients. Structural modeling was employed to explore the effect of PON1 genetic polymorphisms and HDL interactions. Pure HDL effects on enzymatic activities were tested in patient serum samples.

Findings: Inter-correlated PON1 and Acetylcholinesterase (AChE) activities were each inversely linked with exacerbated atherosclerosis. Molecular modeling predicted facilitated substrate hydrolysis for PON1/HDL interaction of the 192R, but not 192Q allele. Added HDL enhanced serum PON1 hydrolytic capacity of all variants, except for 192Q. Correspondingly, homozygous carriers of the debilitated PON1 192Q allele showed less correlation between serum PON1 and AChE activities than those with the more robust 192R genotype ($p< 0.001$).

Conclusions: Our findings suggest a structural basis for the association between PON1 hydrolytic and antioxidant activities and its role as an anti-atherogenic mediator in stroke patients. We show that one´s capacity to regain PON1, together with acute phase cholinergic signaling influence the atherosclerotic state, suggesting that HDL administration could improve PON1 activity and might limit post-stroke atherogenesis, for all non-192Q carriers.

UNILATERAL LIMB ASTERIXIS RELATED TO HYPOPERFUSION OF MIDDLE CEREBRAL ARTERY TERRITORY

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Background: Unilateral limb asterixis related to cortical infarct or drugs is an unusual clinical picture. We found this association in one patient. Magnetic resonance imaging (MRI), MR anginography (MRA), somatosensory evoked potentials (SEPs), electroencephalogram (EEG) and electromyographic recording were performed.

Case descriptions: He developed an acute left ataxia with left limb asterixis. This consisted of frequent arrhythmic loss of extensor muscle tone on instruction to maintain the wrist and fingers extended. Voluntary electromyographic activity in the left extensor digitorum communis muscle showed abrupt periods of interruption ranging from 50 to 100 milliseconds in duration. SEPs were normal. No definitive acute brain lesions were dectected in MRI. But MRA were represented right MCA M1 occlusion. EEG showed generalized slow on right hemisphere. One day later, aucte left ataxia with left limb asterixis were disappered. Rechecked EEG was normal.

Conclusions: Our cases suggest that the hypoperfusion of cerebral hemisphere without structural lesions might be unilateral asterixis.

STROKE AWARENESS IN CAPE VERDE ISLANDS: KNOWLEDGE AND ACTION IN A POPULATION-BASED SURVEY

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Background: Cape Verde is experiencing the epidemiological transition resulting from the ageing of the population-the increasing importance of cardiovascular diseases, in particular cerebrovascular disease being the major cause of death. From the practice of European countries adequate public campaigns on prevention, recognition of signs and timely action are needed. The objective of this study is to assess awareness of stroke in the population - risk factors (RF), warning signs and reaction.

Methods: A 5% sample of residents aged 18 years and older in the islands of Santiago (n=84,095) and Maio (n=4,662) was contacted in November 2009. A self-administered questionnaire was distributed door-to-door in the smaller island and in Santiago to persons attending public administration institutions.

Results: Of the 531 participants, 50% were aged 25-53 years and 54.4% were women. About 4% already had a stroke/TIA and in the last year for 20.5% of them there was a stroke/TIA in the family. The RF most recognized were alcohol abuse (63.5%) and smoking (56.7%). Only 45.4% indicated the brain as the organ affected, and weakness/difficulty in moving arm/leg (60.3%) was the most recognized sign. In case of stroke 63.3% of participants would go to the hospital and after adjusting for confounding, the odds of going to hospital increases with education (OR=2.4) and with recognition of speech/language disturbances (OR=1.9) as a stroke sign.

Conclusions: The reduced awareness of stroke is apparent in the RF not specific of stroke and body location. Education is more important for adequate reaction than recognition of stroke signs.

MALIGNANT INFARCTION OF THE MIDDLE CEREBRAL ARTERY IN ELDERLY: A POINT OF CONTROVERSY FOR DECOMPRESSIVE SURGERY - CASE REPORT

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Introduction: Malignant middle cerebral artery (MCA) infarction is a life-threatening cerebrovascular event characterized by complete or partial occlusion of the MCA.

Case report: A 63 years-old right-handed man was admitted complaining of difficulty raising his left arm. His past medical history was notable for hypertension and heavy cigarette smoking during 35 years. Neurological examination was notable for left facial weakness sparing the forehead, mild dysarthria, 3/5 strength in the left arm. Magnetic resonance (MR) imaging confirmed a right MCA superior division infarction with hemorrhagic transformation and MR angiography (MRA) was consistent with severe stenosis of the right internal carotid artery just beyond the carotid bifurcation. On the fourth day of hospitalization, the patient suddenly evolved mental confusion, moderate headache and increasing difficult to arouse associated with left face, arm and leg plegia with left Babinski's sign, right gaze preference and no blink to threat on the left. New MR imaging showed a large infarct in the right MCA territory associated with brain swelling and right-to-left midline shift. Complete occlusion of the right internal carotid artery was identified on MRA. No signs of uncal herniation were verified. The patient was discharge home with recovery of mental status and persistence of the motor deficits on the tenth day.

Conclusions: A great amount of patients with large ischemic stroke are older than 60 years of age and the benefits from surgery remains unclear. Further scientific investigation is extremely necessary to determine the real value of the surgical procedure in elderly people.

A SERIES OF 3 PATIENTS WITH MASSIVE DOLICHOECTATIC VERTEBROBASILAR ARTERIES

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Vertebrobasilar dolichoectasia has an incidence rate of up to 5.8% and usually diagnosed by visual impressions as there are no generally accepted quantitative criteria for the diagnosis. Although the histological features are characteristic, the natural history of this condition, its prognosis and the appropriate management is still unclear.

We present a series of 3 patients with massive symptomatic dolichoectatcic arteries. They all presented with acute ischemic stroke resulting form the occlusion of the perforating arteries arising from the vertebrobasilar arteries. All 3 patients were treated in the acute period with antiplatelet therapy as well as strict blood pressure control.

We describe the clinical course and management of these 3 patients as well as a review of the current literature.

VENOUS THROMBOSIS CAUSED BY HYPERHOMOCYSTEINEMIA REVEALING PERNICIOUS ANAEMIA: A CASE REPORT

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Pernicious anaemia can lead to thrombotic manifestations through hyperhomocyteinemia. Although this hyperhomocysteinemia is frequent in PA thrombosis are not very frequently described during PA. We described the case of a 30 years old man, who was admitted for regressive conscience's trouble. Clinical examination was normal. The magnetic resonance imaging showed an extensive thrombosis of longitudinal and left lateral sinus. Routine biological analysis were normal except a slight elevation of MCV (114,3 fl, normal range 80-95 fl). Aetiological research for the thrombosis revealed an important hyperhomocysteimemia (69,34mmol/l, normal range < 15mmol/l). The diagnosis of pernicious anaemia was made with a low level of vitamin B12 (106 pg/ml, normal range 180-1160 pg/ml). Anti-intrinsec factor antibodies were positive and gastric specimen showed chronic fundic atrophy. We also found a heterozygote C677T mutation's of MTHFR. All other investigations were normal (proteins S and C, antithrombin, Leiden factor V and II, factor VIII, antiphospholipid antibodies, and thyroid function). The patient was treated with anticoagulant and with oral vitamin B12 and folates. Within 2 weeks, the patient remained asymptomatic and all biological abnormalities returned to normal range.

This observation demonstrates two important remarks: first pernicious anaemia can present with only thrombotic manifestations without haematological abnormalities, and second that it can be effectively be treated by oral substitution.

SCUBE1 BIOMAKER IS ELEVATED IN THE PLASMA OF PATIENTS WITH ACUTE STROKE-LIKE EPISODES DUE TO MUTATION OF THE MITOCHONDRIAL DNA

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Background: We have firstly shown that a novel signal peptide-CUB-EGF-like domain protein-1 (SCUBE-1) is elevated in the plasma of patients with acute ischemic stroke [Dai DF, et al 2008]. We herein report on this biomarker in patients with mitochondrial disease (MtD) and acute stroke-like episodes.

Methods: Four unrelated probands with acute stroke-like episodes due to mtDNA mutations and 15 patients with acute lacunar infarction (LI) were recruited. Plasma concentration of SCUBE1 was measured by ELISA in all patients.

Results: Among patients with MtD, two had genotype of A3243G mutation and phenotype of MELAS. Another two patients had large scale deletion of the mtDNA and phenotype of stroke-like episodes without lactic acidosis. Mean age at onset was younger in the MtD group (34.5 y) as compared to the LI group (69 y). The mean ($\pm$ S.D.) plasma concentration of SCUBE-1 was 471.6 mg/dL ($\pm$ 10.30) in the MtD group, and 26.9 mg/dL ($\pm$ 0.03) in the LI group, respectively ($p< 0.001$).

Conclusion: SCUBE1 is remarkably elevated in the plasma of patients with acute stroke-like episodes due to mutation of the mitochondrial DNA. The mechanism of platelet activation in MtD is not clear.

INCOMPLETE WALLENBERG SYNDROME: REPORT OF A CASE AND A DESCRIPTION OF THE MAIN STRUCTURES INVOLVED IN WALLENBERG SYNDROME

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Introduction: The Wallenberg syndrome (WS) is defined as any pathological disorder, usually an acute cerebrovascular ischemic event, which involves the lateral-dorsal region of the medulla oblonga and its eloquent structures resulting in classical symptoms.

Case report: A 42-years-old man was admitted on the Emergence Department referring a sudden history of numbness in left side of the face and instable gait with a tendency to fall to the left side that started 7 hours before admission. His past medical and familial history was unremarkable, except for a bariatric surgery performed 12 months before the rise of current complains. On neurological examination, the patient showed ataxic gait with abnormal tendency to fall to the left side, slight undulating coarse movement during execution of finger-to-nose testing with the left hand and reduction of pain and temperature sense on the left side of the face. The left corneal reflex was absent. Encephalic diffusion-weighted magnetic resonance imaging (MRI) showed a hyper-intense sign in the left dorsolateral bulbar region. Cervical and encephalic angioresonance study was normal. The patient was maintained with clinical support to prevent recurrence or additional damage of the vascular event and presented an uneventful follow-up. By the fifth day of admission, he was discharge home, with a remarkable recovery of the neurologic deficits, and referred to an outpatient follow-up to control the cerebrovascular risks.

Conclusion: The understanding of the neuroanatomical connections in the human brainstem is an extremely important tool to precisely locate a lesion and correctly guide any complementary exam.

THE EFFECT OF RAMADAN FASTING ON CEREBRAL STROKE: A PROSPECTIVE HOSPITAL-BASED STUDY

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Introduction: Fasting is a radical change in lifestyle for the period of a lunar month (Ramadan). The objective of this study was to investigate whether Ramadan fasting has any effect on stroke frequency and type.

Patients and methods: We prospectively studied consecutive Muslim patients hospitalized with stroke one month before, and during Ramadan over two successive years 2007 and 2008. The age of presentation, gender, risk factor profiles including smoking status, hypertension, hypercholesterolemia, diabetes mellitus, and pre-existing cardiovascular disease were analyzed. The NIHSS score was used for clinical assessment of all patients at admission. The exact time of stroke onset in fasting patients, the time of the last meal before starting fasting from which we calculated the duration of fasting before the onset of stroke.

Results: A total of 517 patients were studied over a period of 4 months; a month before Ramadan and Ramadan in 2 successive years. The age distribution of patients was not significantly different between the fasting and non fasting group. There was no statistical significant difference in the sex ratio, risk factors, mean baseline NIHSS score and ratios of hemorrhagic and ischemic stroke between the two groups ($P > 0.05$). There was no statistically significant difference in the laboratory findings, Also, no correlation was found between the duration of fasting and both the frequency and the type of stroke.

Conclusion: Ramadan fasting has no effects on stroke frequency, type, and severity. The duration of fasting has no effect on either frequency or type of stroke.

CONCOMITANT PULMONARY THROMBOEMBOLISM AND ISCHEMIC STROKE AS INITIAL PRESENTATION OF HEMOGLOBIN SC DISEASE

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Background: Hemoglobin SC disease (HSC) results from double heterozygous mutation with varied prognosis. We report a case of HSC with pulmonary thromboembolism and multiples areas of ischemic stroke.

Case report: A 57 year-old, African-Brazilian woman was admitted with 5 days of dyspnea and acute afasia with right hemiparesis. She was previouly diagnosed with “sickle-cell anemia”, with no symptoms. She was hypoxemic (SatO2 88%) and had expression afasia with complete right hemiparesis. Brain MRI disclosed multiple small ischemic areas on the left frontal, parietal and temporal lobes and in both occipital lobes on diffusion-weighted and FLAIR sequences. Thoracic angiotomography disclosed multiple thrombi in distal branches of pulmonary arteries and small infarction areas. Transesophageal echocardiography showed an enlarged right atrium and pulmonary hypertension (46 mmHg). Transcranial Doppler had no signs of microembolism. Laboratory work-up was unremarkable, save for reduced S (48; normal range 55-160%) and C (52; 55-125%) proteins. Anticoagulant treatment with unfractioned heparin was started and later substituted for warfarin. She was discharged after 15 days with complete remission of both neurological and pneumological symptoms.

Discussion: Sickle-cell disease has a wide range of clinical presentations, from asymptomatic sickle-cell trait carriers to severe ischemic events. HSC is an intermediate form, often presenting with retinopathy or femoral head osteonecrosis. Hypercoagulability and reduced levels of S and C proteins lead to in situ thrombosis from deposition of sickle-cell erithrocytes; bone marrow infarction leads to fat embolism.

Conclusion: Although uncommon, HSC with embolic phenomena might be the etiology of stroke in young adults.

FREQUENCY OF EPILEPTIC SEIZURE IN TOTAL ACUTE CEREBROVASCULAR DISEASE ISCHEMIC STROKE PATIENTS AND HEMORAGIC STROKE PATIENTS AND THEIR FREQUENT RELAITION

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Methodology: Statistical processing of data obtained from the computerized database of St. Sava Hospital was approved.

Aim: Determination of number of patients with first epileptic seizure as a symptom of acute cerebrovascular disease-ishemic and hemoragic and their frequent relation with patient cured at St.. Sava Hospital during 2010.

Introduction: Vast majority of patients with acute cerebrovascual disease in the whole teritory of Belgrade are treated in St. Sava Hospital. It is welknown that first symptom of cerebrovascular disease could be epileptic seizure with patient who previously did not have epileptic seizure.

Results: During the year 2010.5.476 stroke patients were treated in St. Sava Hospital 4.004 patients survived. Out of them 2610 were ishemic stroke patients and 1394 were hemoragic stroke patients. As a first symptom epileptic seizure had 66 patients with ishemic stroke making 2,5% from total number of patients cured from hemoragic stroke. First epileptic seizure had 62 patients making 4,4%.

Conclusion: Based on results obtained by analysing total number of patients cured from cerebrovascular disease ,we made a concusion that frequency of epileptic seizure and first symptom is small in regard to other symptoms ,but it is more frequent with hemoragic stroke patients from number of patients with ishemic stroke.Having compared these results to those in studies conducted in the EU and the US,which show 2-4 % of the patients,there is not significant difference between the first epileptic seizure with our patients. Epileptic seizure is much more frequent with patients with hemoragic stroke.

THE RATE OF DISABILITY AFTER CEREBROVASCULAR DISEASE

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The objective of this research is to study the level of primary and repeated disability after cerebrovascular diseases (CVD) in the Guba-Khachmaz region of Azerbaijan within 2 years (2007-2008). The population is 486,500, which is 5.6% of the total country population.

We have retrospectively analyzed the data about CVD related disability from Regional Medical and Social Expert Commission. Level of primary and repeated disability falling to 10,000 persons has been counted ($^0/_{000}$ - propromille).

In 2007 for 20-29 aged population the rate of primary disability after CVD was $0.23\pm0.16^0/_{000}$, for 30-35 aged population $0.31\pm0.31^0/_{000}$, and for population older than 36 year it was $0.69\pm0.19^0/_{000}$. In 2008 the age of all registered primary invalids with CVD was more than 36, and the rate of primary disability in this age group was $1.0\pm0.23^0/_{000}$.

In 2007 the rate of repeated disability after CVD was $0.56\pm0.25^0/_{000}$ in 20-29 age group of population, and the rate was $2.1\pm0.33^0/_{000}$ among population older than 36. The rate of repeated disability was 0 among population between 30-35 ages. In 2008, the rate of repeated disability after CVD was $0.68\pm0.28^0/_{000}$ among 20-29 aged population, and $2.14\pm0.8^0/_{000}$ among 30-35 aged population $2.14\pm0.8^0/_{000}$, and rate was$12.9\pm0.39^0/_{000}$ for the population older than 36.

As a result of research, it is revealed that the rate of the severe disability from CVD remains high. The share of primary disability after CVD has made 1.2±0.2%, the share of repeated disability was 0.74±0.07%. With ages the rate of primary and repeated disability after CVD becomes higher.

ROBOTIC THERAPY OF THE PARETIC UPPER LIMB OF POST-STROKE PATIENTS: A RANDOMIZED TRIAL STUDY

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Introduction: At Padua University, Italy, we have developed NeReBot, a robotic device for treatment of post-stroke upper limb impairments in acute and subacute phases of rehabilitation.

Background and aim: In a previous study patients, who received supplementary robotic training to conventional therapy, showed greater improvement in motor and functional outcome. Purpose of our study is the assessment of effectiveness of a NeReBot training rehabilitation protocol compared to traditional rehabilitation therapy in post-stroke hemiparetic patients.

Design: Single-blind randomized controlled trial, with 3 and 7 months follow-up.

Patients and methods: Twenty one subjects within 3 weeks after stroke were randomized in the experimental group (EG; n=11) and control group (CG; n=10). Both received 120 minutes/day treatment for five days a week and for five weeks. The daily treatment in EG included traditional rehabilitation therapy (~65%) and robotic therapy (~35%, 20 minutes, twice a day) consisting of peripheral manipulation of the shoulder and elbow of the impaired limb, correlated with visual stimuli. The CG received only traditional rehabilitation treatment. The motor and functional outcome was measured at the end of treatment, at 3 and 7 months follow-up.

Results: Both groups, matched for demographic and clinical characteristics at baseline, showed a similar motor and functional recovery of the upper limb at the end of treatment and after 3 and 7 months follow-up.

Conclusions: NeReBot training seems to lead to an improvement in motor and functional outcome in upper limb of post-stroke hemiparetic patients similarly to the traditional rehabilitation treatment, and persists at the follow-up.

THE QUALITY OF LIFE AFTER THE STROKE

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Introduction: Stroke is a major cause of mortality and disability in survivors. The quality of life depends on the nature of disability and its perception by the patient, his or her environment and community. The aim of this study was to assess disability after stroke and its impact on quality of life of patients (victims).

Patients and methods: We conducted a prospective, longitudinal study from February 2008 to May 2009, at the Neurological Clinic of Fann. Patients were seen at the initial phase of stroke and 6 months later and answerd a questionnary containing 13 items like nature of stroke disability psychological emotional and socio-professional filds.

Results: 66% had a Barthel index between (60-100). The score was significantly better in young series (15-34), which all have a Barthel index between (60-100), more over 50% of patients in the portion above 75 years were in the range (60 - 100). Hemorragic stroke had the best results with 73.3% a Barthel index between (60-100), against 62.86% for ischemic stroke. On a professional level, only 12% patients were rehabilitated. 54.05% didn't notice any change in their marital life, 21.62% of poorly tolerated by his spouse. On the home front, 56% noted any change, 26% received an excessive affection and overprotection, 12% lived with a rejecting family. A large part of our series 44% accepted although their deficits, against 34% who lived their deficits with a sometimes depressive mode, and 22% who were indifferent. 70% didn't have any more free time activities.

SAFETY PROFILE OF NEUROAID IN 155 PATIENTS WITH ACUTE ISCHEMIC STROKE PATIENTS IN IRAN

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There is some study about the efficacy of Neuroaid in recovery period after stroke.

And one study have shown that maybe induces C.B.F after acute stage of stroke.

The safety of Neoroaid on hemostasis, hematology and biochemistry has been reported in normal subjects and patients with non acute stroke over a short treatment period. In this new trial we want to assess the safety of Neuroaid in patients with acute stroke treated for three months and six -month- follow up in an randomized placebo-controlled trial.

Methods: Lab. Data have collected at this six months period . A total of 175 patients were registered . Because of some miss data and miss-follow up we had 20 dropout in our trial (we analyzed 80 patients in case group and 75 patients in control group on placebo) and any Serious side effect were also evaluated. We followed these two groups for the period of treatment (three months after stroke) and three months after discontinuation of drug for evaluating its long term side effect .

Results: There were no statistically or clinically significant differences between case and control group in their lab data tests in this six-month-follow up study.

We have not found any clinically significant differences in the various parameters between baseline -3 months and 6 months follow up. We had no serious side effect reported in this period.

THE PROGNOSTIC VALUE OF SERUM CALCIUM LEVEL IN ISCHEMIC STROKE

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Objectives: Calcium homeostasis plays an important role in neuronal cell death after ischemia. We aimed to find the relation between serum calcium level at acute stage and clinical outcome after ischemic stroke.

Patients and methods: Forty-five ischemic stroke patients were enrolled prospectively in Konyang university hospital. All subjects have undergone rehabilitation treatment and checked NIHSS & K-MBI at 4 & 8 weeks after stroke. Serum calcium levels were obtained within 72 hours after stroke. Subjects were categorized into Ca^{2+} quartiles (Q1 : serum Ca^{2+}< 8.5mg/dL, Q2 : 8.5~9.0mg/dL, Q3 : 9.1~9.5mg/dL, Q4 : > 9.5mg/dL). The independent effects of calcium on clinical outcome were evaluated by χ^2-tests and logistic regression analysis.

Results: At 4 weeks after stroke, mean NIHSS/K-MBI scores in Q4 quartile were 10/89.9 and Q1quartile were 13/82.4. There were no significant difference between each Ca^{2+} quartiles in NIHSS/K-MBI scores at 4 weeks ($p=0.65$). At 8 weeks after stroke, mean NIHSS/K-MBI scores in Q4 quartile were 7/93 and Q1quartile were 10/85.8. Between the highest Ca^{2+} quartile (serum Ca^{2+}>9.5mg/dL) and lowest Ca^{2+} quartile (serum Ca^{2+}< 8.5mg/dL), NIHSS/K-MBI scores at 8 weeks had significant difference (p< 0.05). The highest Ca^{2+} quartile was associated with lower NIHSS score & higher K-MBI score and better 2-month functional outcomes.

Conclusions: Elevated serum calcium levels within 72-hour were associated with better functional outcomes at 8 weeks after ischemic stroke. So, serum calcium within 72-hour could be used to be a prognostic factor of functional improvement at ischemic stroke.

SEVERE TRAUMATIC BRAIN INJURY AND FACILITATED COMMUNICATION

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Facilitated communication (FC) describes the process by which a disabled person is physically assisted by another person (´facilitator´) to communicate using a communication board, modified typewriter or computer. The majority of controlled experimental studies have shown its invalidity in children with severe developmental disabilities. Nevertheless, proponents of FC propose the technique in communicatively impaired or non-communicative patients with acquired acute brain injury. We assessed the efficacy of FC in 3 patients with chronic disorders of consciousness following coma. Following auditory or visual presentation of a word or picture to the patient in the absence of the facilitator, the latter reentered the room and was requested to assist the patient to communicate the presented word or picture. Patients´ level of consciousness and motor communication were assessed using the Coma Recovery Scale Revised (CRS-R). Patient 1 was a 47 y-old male studied 26 years after an acute traumatic brain injury (TBI) (CRS-R total score of 11). Patient 2 was a 37 y-old male studied 25 years after TBI (CRS-R total score of 10). In both patients none of the presented words could be correctly communicated via FC. Patient 3 was a 46 y-old male studied 11 years after TBI (CRS-R total score of 20). In this patient all of the presented words could be correctly communicated via FC. In conclusion, despite the demonstrated usefulness of FC in one of the 3 presented cases, the use of FC in TBI patients should prompt controlled verification of the facilitator prior to its clinical use.

MASTERING AN UNCERTAIN EVERYDAY LIFE - EXPERIENCES AS CARERS TO A PARTNER AFTER STROKE

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Background: Rehabilitation resources are decreasing and formal elderly care at home has to be supplemented with informal care, particularly elderly spouses. Little is known about elderly carers life situation even if stroke is most likely to affect persons of +75 years.

Aim: To explore and learn from elderly women's experiences of caring for their partner at home after stroke.

Method: The qualitative focus group method was used. A total of 16 women (median age 74 years) who cared for their partners after stroke (median age 80 years) participated in four group discussions. All sessions were taped, transcribed verbatim and analyzed by two researchers.

Results: The discussions in the focus groups resulted in one comprehensive theme; “Mastering an uncertain everyday life” including both uncertainty and unpredictability. Three sub themes emerged: '*Living with another man'* where the carers discussed not only the marked change in their partner's personality, but also the loss of a life-companion and their mutual intellectual contact; ***'****Fear of it happening again'*, comprising the carers' experiences of fear and confinement, of always being “on line” and trapped at home; '*Ongoing negotiation'*, referring to the carers' struggling and negotiating not only with their partners, but also with themselves and formal care for time to themselves.

Conclusion: This study gave us an understanding of the uncertain and unpredictable everyday life as an elderly female carer to a partner after stroke. We have learnt from these carers the importance of developing an individual tailored, timely appropriate and continuous support to elderly carers.

THE CHANGES IN TYPE I AND III COLLAGEN IN THE PERIMYSIUM AND ENDOMYSIUM OF RAT SOLEUS MUSCLE AFTER EXTENDED IMMOBILIZATION

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This study examined the changes in type I and III collagens in the perimysium and the endomysium of the immobilized rat soleus muscle. Fifty male Wistar rats were divided randomly into experimental (n=25) and control (n=25) groups. In the experimental group, the ankle joints were fixed in full plantar flexion with plaster casts for 1, 2, 4, 8 or 12 weeks. Untreated control rats also were tested weekly. Although ankle joint mobility in the experimental group decreased with the duration of immobilization, it progressed markedly during the first 4 weeks of immobility. The semi-quantitative measurement of type I and III collagens using fluorescent immunostaining images showed that the levels of both type I and III collagens in the perimysium and the endomysium of the experimental group were significantly higher than in the control group. In particular, type I collagen in the endomysium increased gradually until 4 weeks after immobilization. Our findings suggest that immobilization of muscle tissue increased both type I and III collagen in the perimysium and the endomysium, and muscle fibrosis was induced. Additionally, the gradual increase in type I collagen in the endomysium for the first 4 weeks of immobilization may play a role in the progression of muscle contracture.

THE EXAMINATION OF VERTICALITY ESTIMATION IN HEALTHY AND PATIENTS AFTER ACUTE ISHEMIC BRAIN ATTACK

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Introduction: An adequate sense of verticality is essential for successfull balance maintenance in standing and walking. In patients with acute ishemic brain attack, except motor deficit, also can be affected a sense of verticality and spatial orientation. This inaccurate judgment of verticality can cause slower balance recovering process after stroke. The loss of the adequate visual verticality perception is a consequence of ocular torsion, conjugated eyeballs and head tilt.

Aim: To determine level and distribution of subjective visual vertical (SVV) misperception in patients with stroke. The visual perception of verticality was examined by using the following methods.

Methods: Test of Subjec:ive Visual Vertical was originally developed for the purpose of this research. It was applied in two groups: control group consisted of 95 healthy persons, experimental group consisted of 48 patients with stroke.

Results: Comparative analysis between group of healthy and group of patients shows that results were significatly more accurate in group of healthy persons.Comparative analzsis between the groups of patients shows that accuracy in perception of SVV depends on the localization of the brain arterial circulation. The patients with afected brain tissue in area of vertebrobasilar irrigation were less precise in SVV judgment.

Conclusion: This research is usefull because it provides data that could be used in planning and conducting the rehabilitation program of the persons with stroke.

USING OF ORIGINAL COMPUTED PROGRAMS FOR REHABILITATION OF POSTSTROKE COGNITIVE IMPAIRMENTS

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The frequency of occurrence of poststroke cognitive impairments are 20 - 30%, the association between the presents of cognitive impairments and repeated stroke and death are found in resent studies.

Twenty six post-stroke patients aged 57-69, (male - 12, female - 14) were examined and treated. In addition to usual restorative treatment all patients received a course computer programs training within 14 days, 25-35 min of duration. Tasks included training of attention with use of computed programs on the basis of Schulte's test, the task for training visual storing with a set of pictures and symbols, the switching test, correction optical and spatial gnosis with test of narrative images and the test «arrangements of hands of the clock» with possibility of a feedback. Initial level cognitive impairments and results of restoration were estimated with use of Mini Mental State Examination, Frontal Assessment Battery, the Clock Drawing Test, the Montreal Cognitive Assessment, Schulte's test. The patients of control group were treated with the use of based principles of poststroke management.

There were significant improvement of cognitive function according with MMSE, FAB, Clock drawing test, Schulte's test, Montreal Cognitive Assessment ($P< 0.01$) in basis group. The indicators of control group testing were not revealed significant changes ($P>0.06$) after the treatment. Difference in change was not significant for IADL and SS-QOL2 assessments administered.

Although the results are encouraging, further studies are required with larger samples and longer follow-up to identify characteristics of those most likely to benefit from computed training of cognitive functions.

COGNITIVE IMPAIRMENT IN PATIENTS WITH CEREBELLAR LESIONS

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Objectives: Since Schmahmann and colleague reported cognitive deficits due to cerebellar lesions as cerebellar cognitive affective syndrome (CCAS) in 1998, there has been a growing interest in the role of cerebellum in cognitive functions. The aim of this study was to investigate cognitive impairment in patients with cerebellar lesions.

Methods: The present investigation was based on 9 patients (6 men and 3 women) with cerebellar stroke who underwent the recovery phase rehabilitation program between May 2008 and April 2011. Their mean age was 67.7 years. All patients underwent Mini-Mental State Exam (MMSE) and Behavioral Inattention test (BIT). Seven patients had cerebellar infarction including 5 with right-side, 2 with bilateral and 1 with left-side lesion, and 2 patients cerebellar hemorrhage including 1 with right-side and 1 with left-side lesion. Those with previous neuropsychological deficts were excluded from the study.

Results: Neuropsychological evaluation revealed cognitive dysfunction in 4 of our 9 patients. Two patients with right-side cerebellar infarction showed attention disturbance which disappeared at the time of discharge. Two patients with left-side large lesions who underwent decompression surgery in the acute stage showed a persistent cognitive dysfunctions including impairment of recent memory and attention which disrupted their rehabilitation processes and their daily living activities.

Conclusions: Cognitive impairment is not rare in patients with cerebellar lesions, and the attention disturbance is frequently observed. Those patients with severe cognitive impairment who are regarded as CCAS may have a poor functional outcomes.

FETAL STEM CELLS IN POST-STROKE COGNITIVE DEFICITS

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Very often, stroke causes marked locomotor, speech and cognitive deficits resulting in disability. Nowadays, a large number of neuroprotectors are used for stroke patients. However, fetal stem cell transplantation (FSCT) can be regarded as effective method of post-stroke management.

27 stroke patients (17 M and 10 F aged 27-65 diagnosed in accordance with ICD 10) participated in the study: 12 - RCA lesion, 11 - LCA lesion, 4 - vertebrobasillar lesion. Patients were divided into 2 groups: I - 16 - conventional treatment, II - 11 - transplantation of fetal hematopoietic and non-hematopoietic mesenchymal and ectodermal stem cells harvested from germ layers of internal organs of 5-8 weeks old legally aborted embryos.

Examination before and 21 days after the treatment included physical and neurological examination, MMSE scale for cognitive status evaluation, frontal assessment battery (FAB), cerebral hemodynamics (transcranial Doppler).

Reliable improvement of cognitive function (CF) on MMSE scale were reported in group II: 23,89±0,51 (day 1) - 26,95±0,30 (day 21) vs. 23,43±0,59 (day 1) - 23,79±0,55 (day 21) in group I. On day, 21 reliable CF increase on FAB was reported in group II -15,84±0,33 vs. 14,21±0,39 in group I, $p< 0,05$.

Our experience has proved that FSCT is one of the most promising method of stroke management because it results in improved hemodynamics due to collateral network expansion.

THE EFFECT OF VISUAL SCANNING EXERCISES INTEGRATED INTO TASK-SPECIFIC ACTIVITIES ON THE FUNCTIONAL ABILITY IN PATIENTS POST STROKE

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Introduction: The possible influence of visual system impairment on the patient's functional ability and quality of life are still largely neglected in neurological rehabilitation. In the absence of a specific intervention addressing ocular and visual impairments, these deficits may become permanent since sufficient spontaneous recovery is poor or almost absent.

Objective: To determine the effect of visual scanning exercises (VSE) integrated with task-specific activities during physiotherapy on functionality post-stroke.

Methodology: A randomized controlled trial was conducted. Subjects were matched to functional activity level (Stroke Activity Scale) and allocated to a control (n = 12) or experimental group (n = 12). All patients received task-specific activities for a four-week intervention period; the experimental group received an "add-on" intervention (VSE). Assessments were conducted weekly for 4 weeks, thereafter monthly till 20 weeks.

Results: The experimental group showed a significant improvement ($p = 0.02317$) in the ability to perform ADL. The experimental group showed greater improvement on the Star Cancellation Test, Timed-up-and-go, The Hospital Anxiety and Depression Scale and Stroke Impact Scale.

Discussion: Results indicated that the control group presented with decreased sequential visual-spatial exploration skills and dynamic organizational visual scanning using saccadic eye movements. The control group showed decreased mobility, balance, locomotion, higher risk of falls, higher presence of depression and anxiety. A higher self-reported health status measure of quality of life was noted in the experimental group.

Conclusion: The study indicates that VSE integrated into task-specific activities have a significant effect on the functionality and quality of life in patients post-stroke.

THE IMPACT OF CAREGIVER NUMBER AND IDENTITY ON POST-STROKE REHABILITATION EFFICIENCY AND EFFECTIVENESS AMONGST COMMUNITY HOSPITAL INPATIENTS IN SINGAPORE

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Purpose: Stroke is a leading cause of disability. There is little data on impact of caregiver identity and number on stroke rehabilitation outcomes. We examined caregiver availability and impact of caregivers on stroke rehabilitation efficiency (REy) and effectiveness (REs) amongst inpatients in Singaporean community hospitals.

Methods: Data was obtained from all Singaporean community hospitals from 1996 to 2005. 3796 patients fulfilled inclusion criteria. Functional status was measured using Barthel Index (BI) and REy and REs calculated using admission and discharge BIs. Mixed logistic regression identified independent predictors of caregiver availability, while mixed Poisson modelling identified independent predictors of caregiver number. Mixed linear regression determined predictors of REy and REs.

Results: 95.8% (3640/3796) had caregivers and 90.3% (3429/3796) had primary caregivers. Of those with primary caregivers, 41.2% (1412/3429) depended on foreign domestic workers (FDWs), 27.6% (947/3429) on spouses and 21.2% (729/3429) on 1st degree relatives. Independent factors associated with caregiver availability and number included: age>70 years, female gender, being married, higher socioeconomic status, and being religious (all $p< 0.05$). Having relatives other than spouse, children or parent (β=-4.0, CI=-7.5--0.4, p=0.028) or having a FDW (β=-5.6, CI=-8.1--3.1, $p< 0.001$) as caregiver was associated with lower REs, compared to spouse; while having FDW as caregiver associated with lower REy (β=-0.1, CI=-0.2—0.001, p=0.045) compared to spouse.

Conclusion: There is high dependence on FDWs as caregivers for stroke rehabilitation patients in Singapore. Stroke REs, however, decreased with reduced closeness between caregiver and patient; and REy was poorer in patients with FDW as primary caregivers.

LIPOPROTEIN-ASSOCIATED PHOSPHOLIPASE A2 IN ARTERIAL HYPERTENSION, CARDIOVASCULAR AND CEREBROVASCULAR EVENTS. IS IT POSSIBLE TO INCLUDE THIS ENZYME INTO GUIDELINES?

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Introduction: Inflammation plays important role in atherogenesis and plaque vulnerability.LP-PLA2 is a vascular-specific inflammatory enzyme that increases risk of cardiovaskular and cerebrovascular events. .It represents important role for reducing inflammatory nature of atherosclerosis/plaque vulnerability.

Aim: To analyse LP-PLA2 in patients at risk of ischemic stropke(iCI),coronary artery disease (CHD), and arterial hypertension(AH).

Material and methods: 320subjects were divided into four groups:

1.C-healthy controls(n=90),mean age 65.3+/-11.2,men 58%,

2.AH pts(n=52),mean age 57.5+/-10.8,men 62%,

3.CHD-Coronary heart disease(n=82),mean age 64.3+/-6.9), men 65%),

4.iCI-ischemic cerebral infarction(n=96),mean age 76.2+/-11.8,men 66%.

Analysis of NIHSS,BI, mRS, Lp-PLA2activity, lipids,Fbg,Troponine,homocysteine,other biochemical parameters (ADVIA 1800-Siemens Co,USA).In all pts CT/MRI,USG,ECG, Carotid-femoral PWV, aortic augmentation index(applanation tonometry-SphygmoCor,AtCor,Sydney), long-term ECG/BP monitorin,baroreceptor sensitivity (BRS,Finometer,FMS,Amsterdam), heart rate variability(HRV VarCor PF7, DIMEA, Olomouc,CR).

Results:

1.significantly higher Lp-PLA2 in all followed groups:iCIs,AHs and CHDs ,with the highest levels in CHDs comparing to controls(iCIs:325.3+/-121.9:197.2+/-40.8, p=.001), AHs(257.08+/-91.5,p=.0001),CHDs(481.2+/-142.7). Significantly higher LP-PLA2 in CHDs comparing to AH,p=.00001) and iCIs (p=.0001). **Dyslipidemia** significantly more frequently in iCIs and CHDs(p=.002).

2. iCI group showed significantly higher aortic **PWV** comparing to age matched controls(11.2+/- 0.9 vs 7.20+/- 0.8,p=.0001).

3.BRS in AHs,CHDs and iCIs showed the close correlation with PWV and LP-PLA2.

4. Impaired HRV in all followed groups : AHs,CHDs and iCIs. Farther studies are needed for

an assessment an impact of this enzyme in atherogenesis and plaque vulnrability in comparison with HDLs, LDLs and LDL subfractions.

Conclusions:

1. Prospective multicenter,multidisciplinary study showed significantly higher LP-PLA2 in all followed groups:AHs,cardiovascular/cerebrovascular events,higher PWV,

decreased BRS and impaired HRV.

2. It is reliable risk marker of these events.Its impact should be confirmed in farther studies

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CEREBRAL STROKE AND SECONDARY PREVENTION. DIFFERENT EFFECT OF BP LOWERING DRUGS IN POSTSTROKE HYPERTENSIVE PATIENTS COMPARING TO HYPERTONICS. WHY?

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Introduction: Real life medicine(RLM) demonstrates low AH control in secondary CI prevention despite EBM documented good effect of antihypertensive therapy.

Aim: To compare effect of the same dosis BP lowering drugs in isolated AH and hypertensive poststroke pts.

Material: 3554 out-ward patients with moderate AH(BP150.4/94.2 mmHg, BM:28.9) were included in the prospective,multicenter,multidisciplinary open-labeled STAIRS study.Whole group divided into two subgroups:

1. hypertonics (AH) without complications(n=3292),mean age 59,2yrs,male 49.6%,

2. hypertensive poststroke patients(CI+AH,(n=262),mean age 69.3 yrs($p< 0.001$), male 50.4%(NS).

Methods: sBP/dBP monitoring every 4-6 weeks, tChol,LDL,HDL,TGI,urea,uric acid, smoking, DM, BMI,GF were analysed before study and at the end of the 3rd and 6th months. All pts treated by monotherapy (Amlodipin/Lizinopril) and their combination.

Results: CI+AH pts were 10 yrs elder comparing to AH($p< 0.001$).DM in13.7%vs5.5%,$p< .001$, smoking 4.6%vs7.5%($p< 0.02$).After 3 months signif. decrease in sBP,dBP in both followed groups but less marked inCI+AH ($p=.00001$) despite this group was treated by additional therapy with hypotensive effect. The same results after 6 months.Interpretation:1not appropriate therapeutic efficacy of poststroke pts?or 2.compensatory mechanisms are involved,guided by biological brain computer to prevent brain functions from BPlowering,consequently PP lowering and CBF lowering.Brain „rejected“ significant BP lowering and prefers „gently“ BP lowering, and „gently“ BP keeping.Compensatory circulatory mechanism prevent brain from PP and CBF lowering.Important role of baroreceptor sensitivity was found.

Conclusion: Different BP lowering less significant in hypertensive poststroke patients

comparing to hypertonics with the same dosis is interpreted as compensatory response (triggered by BRS) to prevent brain from CBF lowering.Unexpected decreased glomerular filtration should be explain.

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STRESS AS A PSYCHO-PHYSICAL RISK FACTOR FOR ICTUS

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Chronic psycho-physical stress is associated with cardiovascular diseases. The relationship is not so well established in stroke. Stress is influenced by vital life events, personality type, quality-of-life (QoL), and level of distress and anxiety

Objective: To assess the influence of prior psycho-physical stress as a stroke risk factor:

Material and methods: Case-control study (conducted between March 2007 and March 2010), paired by age (± 5y), of residents in the Community of Madrid. Cases: patients consecutively admitted in the Stroke Unit of the *Hospital Clínico San Carlos*, diagnosed as incident stroke. Controls: 2 neighbours per case recruited from the same population census. Sample size: 150 cases, 300 controls. Study variables: socio-demographics, risk factors, psycho-physical scores: Holmes and Rahe, ERCTA, SF12, GHQ 28:

Statistical analyses: A multiple conditional regression model was applied for each score using the STATA 9.0 statistical package:

Results: Significant associations between stroke and stress (patients vs controls) after adjustment for age, gender, diabetes, hypertension, hypercholesterolaemia, alcohol, smoking, and alterations in cardiac rhythm were: Holmes and Rahe score >150 (OR 4.9; 95%CI: 2.5-9.7; p< 0.001), ERCTA score >24 (OR 2.6; 95%CI: 1.5-4.7; p< 0.001), mental SF12 score ≤50 (OR:2.3; 95%CI: 1.3-4.0; p=0.005), psychical SF12 score ≤50 (OR: 2.1; 95%CI: 1.2-3.5 p=0.008), GHQ28 score >8 (OR: 1.3; 95%CI: 0.7-2.4; p=0.34).

Conclusion: Psycho-physical stress related to vital events, type A behaviour and low QoL were associated with a higher risk of stroke compared to healthy individuals. Conversely, levels of anxiety and distress did not appear significantly associated with ictus.

BLOOD C-REACTIVE PROTEIN CONCENTRATION WITH ABCD2 IS A BETTER PROGNOSTIC TOOL THAN ABCD2 ALONE

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Increased C-reactive protein (CRP) is a known predictor of vascular events. We assessed CRP levels in addition to traditional risk factors in a cohort of patients with TIA.

Methods: This is a prospective, longitudinal clinical evaluation of the efficacy of CRP as a prognostic indicator. CRP levels were measured in 194 TIA and in 1024 asymptomatic individuals. A clinical risk score was determined using the $ABCD^2$ score. The AUC was used to evaluate the significance of the markers as predictors. Two models were evaluated: Model 1 used the $ABCD^2$ score and Model 2 CRP levels in addition to the $ABCD^2$ score. The primary outcome was an ischaemic stroke.

Results: Within two years ischaemic strokes occurred in 33/194 patients. The Cox proportional hazards models identified CRP levels ≥3 mg/L and $ABCD^2$ scores ≥ 4 as independent predictors of stroke.The corresponding AUCs were 0.565 and 0.636, based on Model 1 and Model 2, respectively; this represented a statistically significant difference ($p = 0.043$). The absolute Integrated Discrimination Improvement (IDI) was 0.0249 ($p = 0.007$), and the relative IDI was 2.3710. The net benefit became significant from a predicted probability ≥10% and was 0.077 when based on Model 1 and 0.087 when based on Model 2.

Conclusions: Routine CRP measurements in the acute phase might be a useful tool for identifying TIA patients who are at a higher risk of ischaemic stroke. The additional use of CRP levels for the risk assessment in TIA patients improves risk definition in terms of the $ABCD^2$ score alone.

BASELINE DATA ANALYSIS OF A MULTI-CENTER TRIAL IN SECONDARY ISCHEMIC STROKE PREVENTION IN CHINA

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Background: Few information are available about the status of secondary ischemic stroke prevention in China. We conducted a multicentre, paralleled, randomized, open label, controlled trial (SMART trial) to evaluate the efficacy and safety of the standard medical management in secondary stroke prevention.

Methods: Patients were randomized to two groups: standard medical management group and usual care group. In the interim analysis, we reviewed the baseline data of the two groups to evaluate the current status of secondary ischemic stroke, no difference in intervention between two groups.

Results: At the time submission, the trial finished enrollment. Initial analysis was underway. 3904 patients were enrolled into the trial. Baseline characteristics of 3821 patients were available, 1795 patients in standard medical treatment group, 2026 patients in usual care group. Among the 3821 patients, average age was 60.85 years old, 68.02% were male, 23.76% have history of ischemic stroke, 6.7% of TIA , 63.41% of hypertension, 22.11% of diabetes mellitus, 15.37% of dyslipidemia, 32.43% were current smoker.Stroke subtype was defined according to TOAST classification, 43.6% were large-artery atherosclerosis ,49.51% were small-vessels occlusion, 2.38% were cardioembolism.

Conclusion: In China, hypertension is the first risk factor of ischemic stroke. Large-artery atherosclerosis and small-vessels occlusion stroke were the main type of stroke, cardioembolism stroke was much less than western countries.

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RELATIONSHIP BETWEEN PLASMA METALLOPROTEINASE-9 LEVELS AND VOLUME AND SEVERITY OF INFARCT IN PATIENTS WITH ACUTE ISCHEMIC STROKE

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Matrix metalloproteinases (MMP) constitute an endopeptidase family involved in various physiological and pathological processes. In this study, it was investigated whether there was a relationship between the levels of MMP-9 and the severity of stroke and infarct volume in patients with acute ischemic stroke.

Plasma MMP-9 levels in 32 patients and 30 control were measured by using ELISA . Computed tomography was performed at 48th hour and infarct volume was calculated using the Cavalieri method. National Institute of Health Stroke Scale (NIHSS) was checked at baseline, 12th,24th,and 48thhour.

MMP-9 levels of the patient at 12th,24th,and 48thhour were found significantly higher compared to the control group ($p< 0.05$). An important correlation between MMP-9 levels and the infarct volume was observed at 12th,24th,and 48thhour ($p=0.00$). Positive correlation was recorded between MMP-9 levels and NIHSS scores at 12th,24th,and 48thhour ($p=0.00$). MMP-9 levels of those of suffering moderate and severe damages were found significantly higher than mild damage ($p< 0 .05$). A significant relationship also observed between infarct volumes and neurological deficits and between neurological deficits and NIHSS scores ($p< 0.05$). MMP-9 levels of the patients at 48thhour were found to be significantly lower in recovered patients compared to those whose health condition remained unchanged or worsened ($p< 0.05$).

MMP-9 level substantially increased during the acute period of ischemic cerebrovascular disease and correlated with the severity of the disease and infarct volume. Ppreventing MMP-9 levels to increase during acute period may be effective in the severity and course of the disease.

RELUCTANCE TO ANTICOAGULATION IN ISCHAEMIC STROKE WITH ATRIAL FIBRILLATION-WHY SO?

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Background: Ischaemic stroke is reduced by anticoagulant therapy in high-risk patients with atrial fibrillation.

Objective: To assess anticoagulant use in patients with ischemic stroke and atrial fibrillation (AF) in Republic of Moldova.

Methods: A retrospective review of all patients admitted with stroke over a one-year in a large municipal hospital.

Results: We included 735 patients with ischemic stroke, and AF was noted in 28.4% (206/189). The majority were female, 57.8% (119/206) with a mean age of 70.1 years. On hospital admission AF patients had more signs of severe cerebral damage, as disturbed consciousness, motor and language deficits vs. sinus rhythm group (79% vs. 37%, p< 0.01), having also higher hospital mortality (30.6% vs. 13.2, p< 0.001). 63.9% were considered high risk for thromboembolic complications, 60 % were eligible for anticoagulation, only 5.8% received it prior to stroke. After the cerebrovascular accident all patients were considered to be at high risk, only a further 14.8% were anticoagulated and 4% had the therapeutic INR range 2,0-3,0. Physical disability and non-compliance were the most frequent reasons for declining to anticoagulation. At the next visit 65.3% were receiving aspirin, 20% were not having any antithrombotic medication. No hemorrhagic complications were reported after a mean of 14 months of follow up.

Conclusions: A significant proportion of patients (94.2%) with AF and high-risk characteristics are not anticoagulated prior to ischemic stroke for reasons as underestimation of antithrombotic benefit and fear of hemorrhagic complications from physician´s part and difficulties in systematic INR monitoring from patient´s part.

AETIOLOGIES OF STROKE IN YOUNG PEOPLE IN TEACHING HOSPITALS OF DAKAR

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The socio-cultural considerations and the lack of resources make the treatment of stroke difficult in Africa. In order to optimize stroke prevention in young adults, we conducted a cross-sectional study, bi centric, in Dakar on the causes of stroke in patients aged 14 to 50 years. Demographics, risk factors, the etiologic were identified. Our study population consisted of 60% or 24 cases of women with a mean age of 37.62 years. The ischemic stroke was more frequent (60%) and causes represented mainly by the heart embolism (54.16%) and arteriosclerosis (12.50%). High blood pressure (hypertension) was implicated in 75% of cerebral hemorrhages. Proper treatment of hypertension and angina may form part of effective preventive stroke for our population.

PROFILE OF PUERIPARTUM STROKES OBSERVED IN NEUROLOGY

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Introduction: Pueripartum strokes "PS" recognize specific entities as the reversible acute angiopathy of wich the best individualized are and those associated with eclampsia,with meadows cardiomyopathy or in more exceptional situation those described during a choriocarcinoma .....

Objectives: To review clinical and morphological expressions and mains aetiologies and evaluative profile of PS admissed in neurology department

Patients and methods: This is a retrospective study on patients files seen in consultation from January 1999 to December 2009 for PS

All strokes presentations are integrated as constitued or transient ischemic strokes, cerebral vein thrombosis and meningeal haemorrhage

All are immunocompetent

Protocol: All patients benefit from a exaustive investigations:

Cardiac vascular explorations(ECG,ECG holter,ETO,transaortic echo doppler..)

TDM and angioMRI cerebral

All patients are evaluated of CVRF and metabolic ones(lipid profile, glycemia,homocysteine,ApoB,ASAT...) and to identify PS aetiologies ,the usual investigations are realized as blood tests(NFS,kidney fonction ,inflammatoty tests) autoimmunity tests(AAN,ANCA,APL),thrombophilia tests(Pr S,C,Factors VIII, leiden factor mutation ..)

Results:

12 patients ,age means 31 years old ,age extremes (21-39 years old)

Specific aetiologies of PS are established 3 times(25%)

Eclampsia (2)

Meadows cardiomyopathy (1)

Acute posterior reversible angiopathy in SLE (1)

Evolution:

Fatal issue in short term (1)

Recurrence PS (2)

Sequels: motor , cognitive (4),congestive cardiomyopaty (1)

Treatment:

Medical TRT :

Symptomatically (stroke)

Aetiological

Preventive

Surgically TRT

Conclusion:

PS are of bad prognosis

Its recognize several and intricate mechanisms

Aetiology of wich identification must be collectively made by obstetricians,neuroradiologists,neurointernists is capital to reduce their morbi-mortality.

EMERGENCY THERAPEUTIC APPROACH AS A SECONDARY PREVENTION OF AN ACUTE ISCHEMIC STROKE IN PATIENTS WITH TIA

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Introduction: Patients with transient ischaemic attacks (TIA) have higher level of risk of re-stroke. According to different authors, it happens more than in 10% in the first 48h. That's why, improved methods of emergency therapy of patients with TIA are very important.

Methods: The clinical, Doppler ultrasound, MRI, transthoracic echocardiography examination of 187 patients aged 25 to 83 years (average-57.5±0.9 years) was performed. We used the classic 24-hour definition of TIA. Cases were reviewed by two neurologists to establish the correlation with the diagnosis. TIAs were divided into 4 subtypes according to the TOAST criteria. The patients were divided into 2 groups, depending on the applied therapy:

1- traditional therapy (n=91),

2- emergency complex therapeutic approach (n=96) according the the last ESO Guidelines for management of ischemic stroke and TIA.

Development of stroke was considered the primary endpoint.

Results: For 2-year period of observation stroke developed in 27 (29.6%) cases which received traditional therapy and in 16 (16.7%) cases - the proposed therapeutic range (OR(95%CI)=0.59(0.35-0.63), ARR=0.126,p=0.035). The probability of stroke has been the highest with patients with TIA and new ischemic lesion on MRI (OR(95%CI)=6.7(3.4-8.3)). The preventive effect of therapy was the most effective in patients with small vassal desease (ARR=0.03,p=0.049) and cardioembolic (ARR=0.05,p=0.086) pathogenetic subtypes of TIA. Correlation analysis revealed a high negative correlation between aspirin admission at a dose of 300mg (r=-0,329, p< 0.001) and re-srtoke.

Conclusions: Comprehensive emergency pathogenetic therapeutic approach significantly enhanced the effectiveness of secondary prevention acute ischemic stroke of patients with TIA.

INTIMA-MEDIA THICKNESS IN PATIENTS WITH TIA: CLINICAL FEATURES AND STROKE RISK FOR PATIENTS WITH DIFFERENT TIA PATHOLOGICAL SUBTYPES

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Increased common carotid artery intima-media thickness (CCA-IMT) has been associated with an increased risk of stroke. However, there are limited data regarding the potential significance of CCA-IMT in TIA patients predicting stroke events.

Aim is to study the relationship between the CCA-IMT and the possible risk of stroke.

Methods: The complex examination with Doppler ultrasound has been made for 178 patients with TIA, attended our hospital between September 2006 and December 2008. We used the classic 24-hour definition of TIA. TIAs were divided into subtypes according to the TOAST criteria. All patients divided into 2 groups according to the ultrasound detected CCA-IMT:

1- patients with CCA-IMT≥0,9mm (n=108(60,7%)), and

2- patients with normal values of this parameter(< 0,9mm) (n=70(39,3%)).

Results: Correlation analysis showed that CCA IMT≥0,9mm was determined mainly in females (r=0,56,p< 0.001) and correlated with age (r=0,67,p< 0.001), BMI (r=0,43,p< 0.05), duration of hypertension(r=0,38,p< 0.05), NIHSS points(r=0,68,p< 0.001) and with the level of stroke risk by ABCD2 (r=0,66,p< 0.001). Stroke developed in 47(88,7%) patients after TIA with CCA-IMT≥0,9mm and in 6(11,3%) cases in the 2nd group (OR(95%CI)=6,6(6,1-7,1),p< 0.001). 1st group patients had a significantly greater volume (p< 0.03), duration (p< 0.001) of neurological deficit and re-stroke risk, especially in the atherothrombotic (OR(95%CI)=3,04(1,6-4,5)) and cardioembolic (OR(95%CI)=6,9(5,9-7,9)) TIA pathological subtypes compared with 2nd group persons.

Conclusions: The duration and volume of the neurological deficit as the risks of stroke were much higher in patients with TIA with CCA-IMT≥0,9mm than in patients with normal values of CCA-IMT and differ depending on TIA pathological subtypes.

PATENT FORAMEN OVALE PERCUTANEOUS CLOSURE IN PATIENTS WITH CRYPTOGENIC ISCHEMIC EVENTS: THE DATA OF THE TURIN MOLINETTE HOSPITAL REGISTRY

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Object of study: To describe the results of the endovascular treatment in 110 patients affected by cryptogenic cerebral ischemic events (CCIE), Patent Foramen Ovale (PFO) and associated high risk conditions (interatrial septal aneurysm, hypercogulable state, multiple ischemic events, large shunt or shunt at rest).

Methods: Examination protocol included clinical and lab examinations, neuroimaging, duplex scanner, transthoracic (TTE) and transesophageal echocardiography (TEE). Antiplatelet agents were employed before and after closure. The follow up included a cardiological and neurological re-evaluation at 1 and 6 months and subsequently every 6 months, a TTE at 1 month, a TEE at 6 months. Subsequently TTE was repeated every year only if shunt persistence.

Results: In the periprocedural time a transient paroxistic atrial arrythmia was observed in 4 pts and 1 TIA occurred; no residual large shunts or hemorrhagic events were identified. During the follow up (mean duration 30,8 months) 9 small and 3 severe residual shunts were identified (2 treated with a second procedure), 1 stroke, 3 transient arrhythmias and an interatrial sept erosion occurred, 2 pts underwent surgery.

Conclusions: In our group percutaneous closure of PFO proved safe and effective in the short and mid term. Also if the sample is still narrow it seems promising the TIA-Stroke annual Recurrence Rate (RR) is 1,5% and the stroke annual RR is 0,3%, considerably lower than reported in literature. (Mas 4,8 and 3,8%, Nedeltchev 9,9% CCIE, Anzola 8,2% CCIE, Almekhlafi 4 and 1,6%, the FORI Study 4,2 and 3,4%).

DIETARY PATTERNS IN STROKE PATIENTS IN NORTHWEST INDIA

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Objectives:

1. To study the dietary patterns in stroke patients.

2. To correlate the dietary patterns with stroke characteristics.

Methods: All first ever stroke patients who gave informed consent were interviewed by the dietitian using oral diet questionnaire between March 2008 and September 2009. The demographic information, type of stroke, risk factors and outcome at one month (modified Rankin Scale [mRs] ≥3 poor outcome) were noted.

Results: A total of 210 stroke patients were enrolled. The mean age was 60.0 ± 14.4 years; majority were men 126 (60%) and 124 (59%) lived in a joint family. One hundred and forty nine (71%) patients had ischemic stroke; hypertension 167 (79.5%) and diabetes mellitus 87 (41.4%) were the common risk factors. Out of 210 stroke patients, 168 (80%) were vegetarians and 42 (20%) were non-vegetarians. All patients consumed cereals and beverages. The other food items in the diet were as follows; whole milk 203 (96.7%), saturated fats (butter, butter oil, cream) 133 (63.3%), bakery items 139 (66.2%), fried snacks 116 (55.2%), vegetables 207 (98.6%), fruits 96 (45.7%) and juices 20 (9.5%). Patients below 60 years (p=0.02) and with higher education (p=0.03) were more likely to take fried snacks. Patients with hypertension 99 (59.3%) were taking saturated fats (p=0.02).

Conclusion: Majority of the patients consumed milk and milk products. Saturated fats were used for preparing fried snacks and bakery items. Fruits and juices were consumed by a small proportion of patients. Our results provide opportunities for stroke prevention by diet modification.

SNEDDON SYNDROME: A YOUNG´S STROKE TO IDENTIFY!

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Introduction: Sneddon´s syndrome ´SS´ is defined as a no inflammatory brain arteriopathy with unknown etiology characterized by a neuro-skin achievement associate a livedo and recurring ischemic strokes).

Objectives: To report 2 clinical cases of SS observed in Internal Medicine Departement.

Case reports: 2 40-years-old women are investigated for ischemic recurrent strokes with a notion of repeated abortions. Both presented livedo at the level of the inferior limbs. The neurological examination reveals a dysarthria (1), hyperreflexia (2), epilepsy (1) and cognitive disorders (vascular dementia) . The extra neurological achievements observed are Libman Sacks endocarditis (1) and nephropathy (1).The brain imaging reveals bilateral diffusing damage (2) with sub acute and bilateral ischemic lesions in the territory of the average cerebral artery. Antibodies anti phospholipids are positive (2). The evolution is favorable in systemic manifestations but not improve dementia.

Discussion: The association of skin achievement (livedo) and strokes (whose exhaustive etiologic investigation showed negative) established the diagnosis of SS. The therapeutic is quickly introduced associating an immunomodulator with anti thrombotic effects (Hydroxychloroquine) and an antiplatelet drug. Corticosteroid and immunosuppressive drugs were justified in the case with nephropathy witch was attributed after the kidney biopsy to systemic lupus erythematosa.

Conclusion: The SS is a rare cause of ischemic and recurrent stroke occurring more to the young women. The data of anamnesis, of obstetrical history, of a meticulous clinical examination (livedo, valvular infringements, endocarditis of Libman Sacks, recurring thrombosis) coupled with the data of the cerebral imaging and immunology tests allow the diagnosis.

ISCHEMIC STROKE FOLLOWING INVASIVE DENTAL PROCEDURES: STUDY OF FOUR CASES

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Introduction: Treatment of periodontal disease may reduce cardiovascular risk in the longer term, but some studies have suggested a link between dental procedures and ischemic stroke .we report four cases of vertebrobasilar arterial ischemia related to invasive dental procedure. The clinical course, radiologic findings and management are described.

Case report: Four previously healthy men aged respectively 49,50,57, and 64 years had been admitted for acute neurological deficit. They underwent a dental filling procedure during which their neck remained in an extended and rotated position for about 1 hour. All of the four patients presented few hours later severe headache and neck pain, associated with vomiting in three cases. The symptoms were aggravated within 48 hours by appearance of balance disorder in three patients, and vertigo with ptosis in the fourth patient. Neurologic examination revealed cerebellar ataxia in three cases and Wallenberg syndrome in the last one. MRI showed ischemic lesions in the territory of vertebrobasilar system in all cases. Three patients had vertebral artery dissection demonstrated by angiographic sequences. Cardiac exploration was normal and there was no family history of dissections in four patients. Improvement was achieved with continuous intravenous heparin in three cases and antiplatelet in the case without artery dissection using a standard protocol of the stroke unit.

Conclusion: Prolonged neck manipulation during dental procedures, may cause ischemic strokes. Several mechanisms like dissection, hemodynamic changes, and arterial spasm have been discussed. With prompt diagnosis and therapy, the prognosis for this condition is generally good.

EARLY EFFECT OF FLUVASTATIN ON INFLAMMATORY MARKERS IN ACUTE ISCHEMIC STROKE

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Introductions: Statin reduced early recurrence of cardiovascular events and stroke. This supports the value of early statin use in acute ischemic stroke patients.

Objective(s): To investigate whether fluvastain affects the hs-CRP, CD40L, MCP-1 in acute ischemic stroke patients.

Method(s): We enrolled acute ischemic stroke patients for whose blood sampling was available within 72 hours symptom onset and total cholesterol was below 240mg/dL. Patients took 300mg of aspirin with or without Fluvastain 80 mg based on randomization for 4 weeks. We checked blood tests(lipid profile and hs CRP) at admission, 1week, and 4weeks and CD 40L, MCP-1- at admission and 4 weeks.

Results: A total of 106 patients were enrolled. The mean LDL cholesterol was 120.72±23.52 mg/dL, 95.63±21.38 mg/dL, 87.46±22.86mg/dL with fluvastatin and 120.11±19.74mg/dL,114.04±24.85 mg/dL, 123.22mg/dL without fluvastatin.(baseline, 1 week, 4 weeks, and p=0.88, p=0.0001, and p< 0.0001 respectivley). The mean hs-CRP was 1.98±7.18, 1.48±3.13, 1.95±4.06 on fluvastatin and 0.51±1.95, 0.73±2.16, 1.04±3.84 without fluvastatin(baseline, 1 week, 4 weeks, and p=0.01, p=0.08, p=0.01 respectively). But the change of hsCRP between baseline and week 4 was not statistically significant between those with and without fluvastatin.(p=0.71). The mean and change of sCD40L and MCP-1 concentration was not statistically significant regardless of statin use. But, sCD40L was decreased in patients with SVD using statin ,especially more than 30% lower in LDL cholesterol level compared to baseline.(p=0.047)

Conclusion: In patients with acute stroke, fluvastain did not show any changes of inflammatory markers. It may be associated with lower potency of study drug.

PREVALENCE OF RESISTANCE TO ACETYLSALICYLIC ACID APPLIED AS SECONDARY STROKE PREVENTION

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Aims of study: In some patients taking acetylsalicylic acid (ASA) regularly no anti-aggregative effect is achieved. This phenomenon is called “aspirin resistance”. Until now, there are no unequivocal data concerning frequency and causes of aspirin resistance in patients taking ASA as secondary stroke prevention. The purpose of the study was to examine platelet functions in patients with diagnosed transient ischemic attack (TIA) or ischemic stroke in the acute phase whom ASA was applied.

Material and methods: We examined 70 patients with TIA or stroke treated in the Department of Neurology in Zabrze taking 75-150 mg ASA daily (mean age 68.7±11 years). The assessment of platelet function was performed by multiple platelet function analyzer (Multiplate) using the method of impedance aggregometry in the whole blood.

Results: Aspirin resistance was observed in 6 patients (8.6%). We found no correlation between platelet aggregation and dose, age, sex, time of examination, degree of motor incapability, hypertension, coronary disease, atrial fibrillation, old myocardial infarction. However, we observed correlation between high platelet reactivity and LDL-cholesterol, high BMI and statin intake. No correlation was noted with other biochemical parameters and other drugs.

Conclusions: The applied method allowed to detect phenomenon of aspirin resistance in some patients with stroke, who were taking ASA in the acute phase. The correlation between antiplatelet effect of ASA and either some stroke risk factors or statin therapy was observed. The usage of by multiple platelet function analyzer to monitor antiplatelet effect of ASA should be further examined.

INTERMEDIATE-TERM OUTCOME OF INTRACRANIAL SELF-EXPANDABLE STENTING UNDER A STANDARDIZED RISK FACTOR CONTROL

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Background: The outcome of intracranial self-expandable stenting beyond 6 months is uncertain.

Methods: Patients who had Wingspan stenting for high-grade (60%-99%) symptomatic intracranial stenoses were recruited to receive a standardized medical regimen. The study was approved by the institutional review board and each participant provided an informed consent. Pre-specified treatment goals were low-density lipoprotein (LDL) ≤70 mg/dL, HbA1c ≤6.5%, and systolic blood pressure ≤140mmHg. Dual anti-platelet therapy was begun from 3 days pre-stent until 6 weeks post-stent. Primary end-point was in-stent restenosis (ISR) (≥50% luminal diameter loss) at 12 months by digital subtraction angiography. Secondary end-point was progression >20% from immediate residual stenosis.

Results: Of 60 patients (67 stenoses) who received Wingspan stenting, mean stenosis was reduced from 76% (inter-quartile range (IQR) 70-83%) to 26% (IQR 15-35%). Mean LDL, HbA1c and systolic blood pressure all reached target levels during follow-up. At one year, ISR was evident in 14 lesions (21%); and totally, 19 stenoses (28%) had progressed >20%. By contrast, 16 lesions (24%) were static, 14 (21%) minimally progressed, and 17 (25%) had positive remodeling, i.e. further regression of post-stent residual stenosis. Risk factor profile in patients with ISR was comparable to those without ISR (Mann-Whitney U test). In a mean follow-up of 40.3 months, the frequency of any TIA or stroke was 6.7% (n=4).

Conclusions: Despite a uniform risk factor control, the intermediate-term angiographic outcome was

diverse. Intensive control of atherosclerotic risks could not abolish ISR.

A STUDY OF THE ITINERARY OF A STROKE PATIENT IN MALI (WEST AFRICA)

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Introduction: The upsurge and impact of stroke in terms of mortality and morbidity in developing countries in general, and Africa in particular, are being documented.

Objective: Study the service resulting to stroke management in Mali by analyzing the itinerary of patients with stroke.

Methodology: This is a transversal, descriptive, and qualitative study including 180 patients with stroke admitted in the hospitals of Bamako (Mali).

Results: The mean of age was about 61 ±14.5 years, ranging from 24 to 93 years. Males were predominant with 53.9 %, that is, a sex ratio of 1.17. Stroke occurred in the evening in 45 % of the cases. High blood pressure was most frequent past medical history with 55 % of cases. In 76.7 % of the cases the patient was taking to the hospital using non-medicalized means, including personal car, taxi or motorcycle. The majority of patients, i.e. 61.7 %, were admitted to a hospital within 24 h following the first symptoms. A brain CT-scan was performed within 3 h following admission in only 36.1 % of patients. This delay was due to financial reasons in 33 % of the cases. Ischemic strokes were most common with 68.3 % of the cases.

Conclusion: Following the example of the other African countries, stroke is emerging in Mali. The magnitude of the problem necessitates a reorganization of the networks of patient care.

LONG-TERM OUTCOME OF PERCUTANEOUS CLOSURE OF THE LEFT ATRIAL APPENDAGE WITH THE WATCHMAN DEVICE

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Introduction: In > 90% of patients with atrial fibrillation, stroke is due to thrombotic embolisation from the left atrial appendage (LAA). The Watchman device is designed to close the LAA to prevent embolism in atrial fibrillation.

Methods: From January 2003 till January 2008 implantation of the Watchman device was attempted in 56 patients (52 - 82 years, mean 70 ± 7) with non-valvular atrial fibrillation. The mean CHADS(2) Score of the patients was 1.9. Patients were followed by clinical and transesophageal echocardiography at 45 days and 6 months with annual clinical follow-up thereafter. Post procedural medication included aspirin lifelong in addition to warfarin for 45 days followed by clopidogrel up to 6 months.

Results: In 49 of 56 (88%) patients the Watchman device was successfully placed. During a mean follow-up of 61±20 months occlusion of the LAA was achieved in 48/49 (98%) patients as noted on TEE. On routine TEE follow-up performed at regular intervals, 4 patients were noted to have a thrombus formation along the atrial surface of the implant. We observed 3 TIA and 1 stroke during follow up. The annualized stroke/transient ischemic attack rate was 1.6%. The anticipated stroke/TIA rate (with the CHADS(2) scoring method) was 4%/year; this means the relative stroke reduction was 60%.

Conclusions: During long-term follow up, percutaneous closure of the LAA using the Watchman device is effective and safe. Similar to anticoagulation therapy, left atrial appendage closure seems to reduce but not to eliminate embolic events.

ANTICOAGULATION IN PREVENTING RECURRENT ARTERIAL STROKES- A SMALL CASE SERIES FROM A TERTIARY CARE SOUTH INDIAN CENTER

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Introduction: After a first ischemic stroke the current practice is to start one anti platelet agent. When a second stroke happens usually a second antiplatelet agent is added. What to do when a third stroke occurs on two antiplatelet agents?

Object: To evaluate the role of anticoagulation in patients with recurrent arterial stroke on two antiplatelet agents.

Methods: Study was conducted in a tertiary care center in south India between January 2008 and January 2011. Case records of patients with recurrent arterial strokes on anticoagulation were reviewed in detail.

Results: During the three-year study period , we had three patients, two males and one female, with a mean age of 60.3 years (±9.5 years), with more than two arterial strokes while on two antiplatelet agents. They were compliant with the medications and had their vascular risk factors well controlled at the time of stroke recurrence. No surgically correctable lesion was identifiable in any of these patients after extensive work up, which included transoesophageal echocardiography and digital subtraction angiography. Detailed biochemical, hematological and procoagulant work up were unremarkable. They were treated with antiplatelet agents and anticoagulation with target INR of 2. Patients are under regular follow up and had no bleeding complications.

Conclusion: Anticoagulation with antiplatelet agents may be beneficial in patients who develop more than two arterial strokes, despite adequate antiplatelet therapy and good control of vascular risk factors. Randomized double blind placebo controlled studies involving larger number of patients are needed in future to confirm the above findings.

NEUROPROTECTIVE EFFECTS OF A MITOCHONDRIAL K^+-ATP CHANNEL OPENER (DIAZOXIDE) ARE MEDIATED BY BCL-2 EXPRESSION UPREGULATION

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Mitochondrial K^+-ATP (mito-KATP) channels play an important role in cellular function and survival following ischemic stress. The present results revealed that intervention with diazoxide, a mito-KATP channel opener, led to an increase in Bcl-2 expression in the cerebral cortex of rats subjected to cerebral ischemia reperfusion injury. In addition, the intervention also led to clear improvements in neuronal mitochondrial morphology and consciousness post-injury. Glibenclamide, a mito-KATP channel blocker, exhibited the converse effects. Both diazoxide and glibenclamide exerted dose-dependent effects (in particular, at 18 mg/kg diazoxide and 25 mg/kg glibenclamide). These findings suggest that diazoxide exerts a neuroprotective effect on cerebral ischemia reperfusion injury by opening mito-KATP channels and upregulating Bcl-2 expression.

CORRELATION OF SYSTOLIC BLOOD PRESSURE AND ARTERIAL STIFFNESS IN MEN AND WOMEN

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Aging causes reduction of vessel elasticity. Risk factors (RF) such as raised blood pressure (BP) accelerate this process by bringing imbalance into healthy aging process. Studies show positive correlation between reduced carotid elasticity and incidence of stroke.

The aim of our study was to show the correlation between changes in carotid arterial stiffness (AS) and systolic BP, and note differences between AS in men and women in correlation with systolic BP.

Fifty healthy volunteers participated in the study. Presence of carotid disease was eliminated by performing CDFI of carotid arteries before measuring carotid elasticity. Subjects with an IMT >8mm at 1.5 cm proximal of carotid bifurcation were excluded from the study. Subjects had no clinical signs of stroke, TIA, diabetes or other serious illness. Measurements were done on both common carotid arteries, 1.5 cm proximal of carotid bifurcation, using an Aloka Prosound 5500 ultrasound machine with eTracking software application.

Subjects were grouped into 5 categories of systolic BP, from 110-150mmHg. In women, a continuous increase in AS was noticed in categories of 110-150mmHg. In men, changes of systolic BP from 110-140mmHg did not show a significant increase in AS. A significant increase in AS was noted in group of male patients with systolic BP from 140-150mmHg.

We found indices that men and women react differently to systolic BP raise in means of AS. Systolic BP increase above 140mmHg causes a serious reduction in carotid artery elasticity and presents one of most important modifiable RF for CVD for both sexes.

BRAIN NATRIÜRETIC PEPTID LEVEL AND MICROPROTEINURIA IN PATIENTS WITH ISCHEMIC STROKE

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In this study, brain natriuretic peptide (BNP) level in serum and microproteinüria level in 24 hours collected urine were measured in patients with acute cerebral ischemia. The relation between BNP and microproteinuria levels with cranial CT infarct volume, infarct location and their relation with prognoses were investigated. We studied 60 patients and 30 controls. While the average BNP level was 415.17±507.36 pg/ml, proteinuria level was 197.35±175.04pg/dl in the patient group, the average BNP level was 22.0±78 pg/ml, proteinuria level was 23.17±12.97 mg/dl in control group with statistically significant difference (p□ 0.001). There was statistically significant positive correlation between BNP and proteinuria levels (r=0.39, p< 0.001). While the average BNP and proteinuria levels were 590.08±547.05 pg/ml and 265.96±224.29 pg/dl respectively in bad prognoses group; the average BNP and proteinuria levels were 272.06±429.56 pg/ml and 141.21±90.23 mg/dl. respectively in the group with favorable prognoses with a statistically significant difference (p< 0.004,p< 0.005). A positive correlation was found between infarct size in cranial CT and BNP as well as proteinuria levels (r=0.36, p=0.03; and r=0.28, p=0.0,28 respectively).

The obtained results have showed that serum BNP and micro proteinuria levels were high in patients with acute cerebral infarct. The positive correlation between BNP levels and infarct volume may suggest considering whether the infarct area may be the source of BNP, and the positive correlation between both parameters and bad prognoses may be used as prognostic indicator. However large scale studies are needed to confirm our finding.

ATRIAL FIBRILLATION AS AN INDEPENDENT RISK FACTOR FOR STROKE

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Introduction: The percentage of ischemic stroke from cardioembolic origin is approximately 15-25%. Atrial fibrillation (AF) is the most common cause of cardioembolic stroke,accounting for nearly half of the cases. The aim of this study was to analyse stroke patients who also had AF.

Method: We analysed stroke patients with AF that were treated in the Stroke unit of Emergency neurology department in Belgrade, Clinical Centre of Serbia, from 01.01.2009. to 01.01.2011.

Results: There were 42 stroke patients who had AF, 24 (57.1%) were men. Patients were from 25 to 91 years of age, and 32 (76.2%) were older than 60 years. Ischemic stroke was seen in 32 patients (76.2%), hemorrhagic stroke (intracerebral hemorrage or ischemic stroke with hemorrhagic transformation) was registered in 9 (21.4%), while 1 patient had cerebral venous thrombosis. Fatal outcome was registered in 7 (16.7%) cases. Before stroke, 36 patients (85.7%) knew that they had AF, and one third of them was on oral anticoagulant therapy (OAC), with 3 patients (25%) who had International normalized ratio (PT INR) within the therapeutic frame. During hospitalisation OAC was given in 26 (61,9%) patients. In patients with ishemic stroke, in 28 cases (87.5%) the stroke occured in the anterior circulation. From patients with hemorrhagic stroke 3 (33.3%) were on previous OAC therapy, but none of them had PT INR above the upper limit.

Conclusion: Atrial fibrilation is a significant risk factor for ischemic stroke in the developing countries because it is often untreated in the primary prevention.

”TOP OF THE BASILAR” SYNDROME-CORRELATION BETWEEN CLINICAL PRESENTATION AND EARLY PROGNOSIS

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Background: We examined 44 patients admitted into primary care center (department of neurology), who had infarction limited to the part of brain supplied by arteries originating around the top of the basilar artery. The aim of investigation was to make correlation between clinical presentation and early prognosis of disease.

Methods: We undertook a prospective study, incorporating patients with stroke, diagnosed by results of clinical findings and CT brain scan results. Etiological work up was on case - to - case basis. All patients were evaluated according to NIHSS on admission and discharge. Results were statistically correlated by T-test. Diagnosis have been made by CT in 16,MR in 28 patients and MRA revealed stenosis or occlusion of the basilar artery in distal part in 24 .

Results: Clinical manifestation were variable included sudden onset in 32,consciousness disturbanses in 28 (GCS 4-5 in 12, GCS 8-9 in 10, GCS 10-11 in 8 patients) and differential neurological abnormalities(papillary and oculomotor abnormalities,cerebellar,memory disturbances. After one month of hospital and medical treatments 10 patients recover completely,18 had oculomotor and pupillary abnormalities (8 had cortical amaurosis), 7 had cerebellar or pyramidal simptomatology, one had vegetative state while 8 died.

Conclusion: Assosiation between sudden onset, consciousness disturbanses and other neurological abnormalities (particulary oculomotor and pupillary disturbances) had pure outcome in our group of patients with” top of the basilar” syndrom. Widespread and bilateral lesions of temporal, occipital lobe, thalamus, midbrain, pons and cerebellum on MR with severe clinical presentation have usually pure prognosis of disease.

READINESS TO CHANGE AS A PREDICTOR OF SMOKING CESSATION AFTER FIRST-EVER ISCHEMIC STROKE

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Background and aim: The readiness to change smoking behaviors has never been considered as a predictor of successful smoking cessation in stroke survivors. The primary aim of the study was to assess possible correlations between the readiness to change in the acute stroke phase and smoking status at 3-month follow-up. The secondary aim was to compare the validity of the Readiness to Change Questionnaire (RTCQ) and 100-mm Visual Analog Scale (VAS) for predicting smoking abstinence in stroke patients.

Methods: Ninety cigarette smokers with first-ever ischemic stroke (aged 29 to 82) admitted consecutively to the Departments of Neurology of the Institute of Psychiatry and Neurology between December 2005 and December 2007 were prospectively enrolled to the study. The patient's readiness to change smoking behavior was determined by a Polish version of the RTCQ (Rollnick et al., 1992).

Results: Patients were classified into one of three stages of change based on the RTCQ score: precontemplation (n=0), contemplation (n=51) and action stage (n=38). At follow-up the smoking cessation rate among patients who were allocated during T0 assessment to the contemplation and the action stage was 23.5% (12/51) and 50 % (19/38), respectively ($\chi 2=6.72$; $P=0.0095$). Moreover, higher self-reported readiness to change measured using VAS at the baseline assessment predicted a greater likelihood of smoking cessation at 3-months follow-up.

Conclusions: Our results may indicate that short questionnaires measuring readiness to change (e.g. RTCQ) and/or VAS may be useful as instruments used for assessment of nicotine dependence (e.g. the FTND) and monitoring of stroke patients.

FACTORS INVOLVED IN THE OUTCOME OF ISCHEMIC STROKE AMONG ASIAN POPULATION: A CHINESE STUDY

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Background: The outcome of ischemic stroke usually depends on events,causation and the medical care facilities present in the health care system.The outcome in first world countries with modernized technology is much better than the same in third world. The aim of this study was to evaluate the outcome of ischemic stroke among Chinese patients.

Methods: This study was conducted at Tongji Medical College hospital,Wuhan,China from Jan2010 till Dec2010.A total of 374patients,confirmed cases of ischemic stroke for the first time were recruited.Mean age was 55±8years. 60% were males. Information was obtained using a standardized questionnaire including demographic details, symptoms, risk factor profile, Glasgow Coma Score (GCS), severity, base line investigations and presence of complications. All were closely followed-up to monitor progress and document complications. The end point was mortality or survival at 1 month from the day of stroke.

Results: Strong factors predicting mortality were ruled out to be stroke severity on the admission (74%) ,hypertension (67%), admission hyperglycemia (54%), and presence of complications (94%)especially concomitant renal or cardiac failure and chest infections during the hospitalization period. Of these factors, presence of complications had the strongest correlation with fatality ($r = 0.52$;$p = 0.001$). Overall, 1month fatality was 31%.

Conclusion: Our study clearly reflected that overlapping complications seem to be the strongest factor for mortality among patients of ischemic stroke. Early detection and prompt treatment can easily prevent these condition and responsibility lies primarily on the physician and paramedical staff to monitor these complications in every case of ischemic stroke while taking care of the general stroke management.

IMPACT OF TABACCO IN STROKE: A PROSPECTIVE STUDY ABOUT 109 CASES IN NEUROLOGICAL UNIT IN DAKAR

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Stroke, a real health public problem, is accessible to prevention by the control from its risk factors. Tobacco which high prevalence and consequences on morbimortality, is an stroke´s risk factor. therefore, studying association between vascular diseases and tobacco much interest. This work is to evaluate relation between tobacco and stroke. Tobacco can be avoid; the aim in context of developing country, is to plan inexpensive and effective prevent'strategies.

Results: We study during 6 months (October 2009 - March 2010) 100 nicotinic patients admit for stroke. Age of patients varied between 26 and 86 years. Group of 65_74ans was most representative (31,19%). The other risk factors were arterial hypertension, cardiopathy, diabetes... 93,58% of patients started smoke after 16 years old. 75,26% of patients had smoked during more than 20 years and 53,2% of patients used 20 packages-years. Frequency of stroke increases with the number of packages-years. The prevalence of stroke is inversely proportional of duration of stopping smoke.

Conclusion: The interaction between the various risk factors seems to be synergistic. Thus, when the risk factors are combined, the disease risk is multiplicative rather than additive: Tobacco associated with hypertension involves risk of IDM and stroke more higher than among hypertensive not smokers; Tobacco with diabetes multiply X 2 risk of cardiovascular disease in diabetics smokers... Stroke pays a heavy tribute in morbi-mortality; its early and adapted treatment´s programs is necessary, especially by risk factors´ management. Tobacco is a quiet killer which acts in shadows; dont await accident for stopping smoke.

THE PROGNOSIS OF DISTANT RESULTS AND THE ANALYSIS OF FACTORS WHICH ARE INFLUENCING ON THE RESULTS OF CAROTID ENDARTERECTOMY

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Aim: To develop the formula for prognosis of distant results of carotid endarterectomy (CEA) and to estimate influencing factors.

Methods: The study group included 101 patients. We perform neurological and neuropsychological examination, carotid ultrasound examination, brain MRI. The period of the observation after CEA was 18±8,6 months (M±σ). The first subgroup (good results of CEA) included 86 (85,2%) patients without stroke/TIA, neurological and neuropsychological worsening after CEA. The second subgroup (unsatisfactory results of CEA) included 15 (14,8%) patients with stroke/TIA or/and with neurological, neuropsychological worsening after CEA. We compared these subgroups by multivariative analysis.

Results: The formula for prognosis of distant results of CEA: Result = 1,25 - m1f1 - m2f2 - m3f3 - m4f4 - m5f5 - m6f6 - m7f7. F- meaning of factor which is influencing on results of CEA: if the patient has this factor then F=1, if this factor is absence then F=0. F1- patient's age is 65 and elder. F2- TIA or stroke in anamnesis before CEA. F3- atherosclerotic plaque 2 type according classification by Grey-Weale (1988). F4- the level of cholesterol more 6,5 mmol/l. F5- arterial hypertension 3 degree. F6- combination of 3 and more diseases (arterial hypertension, coronary heart disease, dyslipidaemia, diabetes mellitus 2 type). F7- the combination carotid stenosis with contralateral obstruction. M- coefficient for each factor. M1= 0,30; M2=0,07; M3= 0,22; M4=0,31; M5=0,12; M6=0,11; M7=0,13. Result more 0,5 prognosticates a good effect of CEA.

Conclusion: It would be useful to use the described formula for prognosis of outcome of CEA.

TREATED MICROALBUMINURIA DOES NOT HAVE TO BE A PREDICTOR OF STROKE IN DIABETIC PATIENTS

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A prospective study was performed during the period February 1st 2007 to February 1st 2010. The study group included 50 patients (33 women) aged 65.4±8.9 years, with diabetes mellitus (mean duration 11.5±6.6 years) and microalbuminuria (the average value 70.5±147.1mg/mmol. The control group consisted of 50 diabetic patients (35 women) aged 65.6±9.1 (44-80) years without microalbuminuria (mean value 1.2±0.8 mg/mmol) and average duration of diabetes 10.6±6.1 years. Average values of glycosylated hemoglobin in the study group were 9±2.6% and was significantly higher (p=0.033) than in control group, which amounted to 8±2%. Average serum triglyceride level in the test group (2.9±1.47 mmol/L) was also significantly higher (p=0.0004) compared to control (where it was 1.9±1.1 mmol/L. Also the level of serum creatinine in the test group (82±35.9 mmol/l) was significantly higher (p< 0.0001) compared to the control group (75.7±25.7 mmol/l), but there were no significant differences (p=0.96349) in creatinine clearance (84.9±28.9 ml/min/1.73m2 tested and 85.2±30.3 ml/min/1.73m2 control group). During the three years the 6 diabetic patients with microalbuminuria had a stroke, while the number of patients suffered stroke was even higher in patients without microalbuminuria, although without statistical significance (p=0.2694) - 9 in total although microalbuminuria in diabetes is one of the predictors of stroke, an insignificant difference in frequencies of stroke compared with diabetics without microalbuminuria can be explained by the intensive medical care: frequent control by the doctor of family medicine and better control of risk factors in relation to the control group.

ASPIRIN RESISTANCE IN THE FIRST AND SECOND CLINICAL MANIFESTATION OF NEUROVASCULAR DISEASES

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Background: The first objective of this work was to determine the prevalence of aspirin resistance in neurovascular patients with clinical non-responsiveness to aspirin treatment and a high-risk of atherothrombotic complications using two interpretable and independent methods (aggregation after the use of propyl gallate and examination of primary hemostasis using the semi-automatic measurement of platelet activity (PFA 100). The second objective was to find the correlation between both assays and to evaluate the results in groups at risk for various cerebrovascular diseases.

Patients and methods: Laboratory tests of aspirin resistance were performed on 79 patients with clinical non-responsiveness to aspirin treatment suffering from neurovascular diseases in the year 2007. Patients undergoing dual antiplatelet therapy and possessing cardioembolic etiologies were excluded. Patients were divided into the following two groups: expected low risk for aspirin resistance due to the first manifestation of a neurovascular disease (n=34) and expected high risk due to the second clinical manifestation of a neurovascular disease (n=45).

Results: The prevalences of aspirin resistance in both groups combined as determined by the PFA-100 and CPG techniques were 50.6% and 17.7%, respectively. No correlation was found between the two techniques, and neither group demonstrated a statistically higher probability of aspirin resistance.

Conclusions: No significant prevalences were demonstrated by either method despite the heterogeneous pathophysiological mechanisms of the two groups. However, we are presently unable to provide an accurate opinion on the value of laboratory test result or routine monitoring of resistance to platelet therapy in clinical neurology

KNOWLEDGE OF RISK FACTORS AND STROKE SYMPTOMS AMONG NON-STROKE PATIENTS HOSPITALISED IN NEUROLOGICAL DEPARTMENTS IN POLAND

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Background and purpose: To evaluate the knowledge of stroke warning signs, stroke risk factors, treatment and understanding prevention of stroke among non-stroke patients treated in 5 neurological departments in Poland.

Methods: A questionnaire was designed, divided into two sections:

1) demografic data,

2) knowledge of stroke risk factors and stroke symptoms and actions undertake if they had probably stroke, and awareness of thrombolytic therapy.

Results: 481 patients (59.7% women) were included in the study. Hypertension was reported as a risk factor in 91.1% of the participants. About 70% responders had known that hypercholesterolaemia and smoking are risk factors of stroke, but only one third identified diabetes mellitus as a risk factor. 8.4% of participants were familiar with cardiac arrhythmia as a risk factor of stroke. One-third - specified three and more symtoms of stroke but only 18.8% in a rural areas. 25% of patients were not awere any symptom of stroke. Less than half identified slurred speech as symptom of stroke, but below 10% identified consciousness disturbances, any numbness, and dizziness as stroke symptoms. The majority of responders did not know about the appopriate treatment from stroke.

Conclusions: The knowledge of some risk factors principally cardiac arrhythmia, diabetes mellitus, and some symptoms of stroke was unsatisfactory particularly in rural area. Knowledge about hypertension as risk factor was good, and about hypercholesterolemia and smoking quite good. The public campaigns to improve stroke knowledge are needed, particularly in rural area, with special attention focused on cardiac arrhythmia and diabetes mellitus.

CEREBRAL INFARCTION IN DIABETES: CLINICAL PATTERN, STROKE SUBTYPES, AND PREDICTORS OF FACTORS MORTALITY

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Background: Stroke is the second most frequent cause of death worldwide. Diabetic patients have a 1.5 to 3-times higher risk of stroke, than non-diabetic subjects. there are some differences of stroke patterns between diabetic and non-diabetic subjects

Patients and methods: Diabetes was diagnosed in 80 of patients with stroke included in our hospital over a 2-year period. Demographic characteristics, cardiovascular risk factors, stroke subtypes, and outcome in ischemic stroke patients with diabetes were compared with the literature.

Results: Eighty patients, 38 males and 42 females with mean age of the patients with ischemic stroke 65±9.8 years were enrolled. Diabete type 1 is less frequent (3.75%) than diabete type 2 (96.25%). Cardiovascular risk factors included hypertension in 30%, atrial fibrillation in 2.5%, hyperlipidemia in 15.3%, ischemic heart disease in 8.75%, chronic nephropathy in 22.5%, stroke history in 36.5% and peripherique vascular desease in (8.75%).

Hyperglycemia >13 mmol/l was noted in 66.25%. Hb 1AC was higher than 10% in 17.5%.

The frequency of stroke subtypes was as follows: atherothrombotic infarction in 48.75% of patients, lacunar infarction in 40%, cardioembolic stroke in 11.25%. Poor vital prognosis factors were: Patient's age (P=0.03), sexe (P=0.04), and history of stroke (P=0.05).The poor founctional outcome was correlate with patient's age (P=0.01) and sexe (0.04). Finally demence was noted in 5%.

Conclusion: Our results are comparable to most of literature. Stroke in diabetic patients has a specific clinical pattern and a poor prognosis, which emphasizes the need for early diagnosis and treatment of every case of diabetes.

VALIDATION OF THE KOREAN ADDENBROOKE'S COGNITIVE EXAMINATION FOR DIAGNOSING ALZHEIMER'S DEMENTIA AND MILD COGNITIVE IMPAIRMENT IN THE KOREAN ELDERLY

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The Addenbrooke's Cognitive Examination (ACE) is a valid dementia-screening test that is a simple and effective instrument. We aimed to assess the diagnostic accuracy of the Korean version of the ACE (K-ACE) in a Korean population. A total of 115 subjects [50 with Alzheimer's dementia (AD), 26 with mild cognitive impairment (MCI), and 39 controls] who visited the Neurology Outpatient Clinic of Seoul Medical Center were included. The ACE was translated and modified to create the K-ACE. The sensitivity, specificity, area under the curve, reliability, and Verbal-Language/Orientation-Memory (VLOM) ratio were evaluated. The receiver operating characteristic (ROC) curve was used to determine the optimal cut-off score in screening for dementia. The ROC curves showed the superiority of the K-ACE over the Korean Mini-mental Status Examination (K-MMSE) in the diagnosis of AD and MCI. The optimal cut-off of the K-ACE for the identification of AD was 68/69, which had a sensitivity of 90% and a specificity of 84%. The K-ACE is a short, reliable, and valid neuropsychological test battery used to screen for dementia in the Korean elderly.

REDUCED BRAIN FUNCTIONAL CONNECTIVITY IN MIDDLE-AGED, APOE4 CARRIERS, CHILDREN OF ALZHEIMER PATIENTS (CAPS): A RESTING STATE F-MRI STUDY

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ApoE-ε4 gene has been proven to be a major risk for Alzheimer's disease (AD).The Object of the study is to determine the if the Resting state functional connectivity (rsfMRI) is impaired in cognitively intact middle age ApoE-ε4allele carriers with a family history of AD when compared to the non ApoE-ε4 carriers with a family history of AD.

Methods: Fourtysix neurologically normal 45- to 65-year-olds participated in this study. 18 subjects carried ApoE-ε4 and 16 subjects did not. All subjects received rfMRI scans at a GE 3T scanner. Imaging datasets included a 6-min long rfMRI using Echo Planner imaging method for functional connectivity (FC) analysis. Data Analysis: For each group (ApoE-ε4 positive and negative), the pattern of HFC map was generated by applying a voxelwise one-sample *t*-test . For between group comparison, a two-sample voxelwise *t*-test was performed with a cluster-corrected analysis (*AlphaSim,* cluster size > 4048 mm^3, $p< 0.05$).

Results: Functional connectivity between the hippocampus and PCC was significantly lower in the ApoE-ε4 carriers than non-ApoE-ε4carriers. Basal Ganglia connectivity was also impaired.The Enthorinal cortex and the PCC areas to have a positive correlation with the hippocampus while the frontal premotor areas showed a negative correlation. The ApoE-ε4 carrier group to had a significant decrease in bilateral caudate, lenticular nuclei and thalamus.

Conclusion: The reduced rfsMRI AD-related brain networks in the middle-age ApoE-ε4 carriers may provide a neural mechanism for the increased risk for AD. The rfMRI technology may be a useful and practical marker for pre-symptomatic AD.

HOW CAN SALVIGENIN, A NATURAL SUBSTANCE, AFFECT ON AUTOPHAGY AND APOPTOSIS PATHWAYS IN NEUROBLASTOMA SHSY5Y CELLS EXPOSED TO H2O2

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Introduction: Flavonoids are a group of common phenolic plant pigments. Recent studies have demonstrated that both antioxidative and anti-inflammatory properties of flavonoids. In this study, we wanted to test Salvigenin whether directly influence cell death induced by oxidative stress in SHSY5Y neuronal cells.

Methods: Neuroblastoma SH-SY5Y cells were incubated with different concentrations of Salvigenin for 2 hours prior to our experiments, then the cells were treated with 600µM of H2O2 for 4h. Cell viability was determined by the conventional MTT reduction assay. Using western blot method, the level of ER stress, apoptosis and autophagy factors were determined.

Results: Pretreatment of SH-SY5Y neuroblastoma cells with different concentrations of Salvigenin (10, 25, 50 and 100 µM) followed by exposure to 600 µM of H2O2 caused about (46, 35, 74 and 80%) higher cell viability compared to H2O2-treated cells. In the groups that received (25 and 50µM) concentration of Salvigenin, apoptosis factors such as caspase-3 and Bax, Bcl2 and . ER stress factors such as Calpain, Caspases-12 decreased in comparison to H2O2 treated cells, while autophagic factors like Atg-7, LC3B and Atg-12 were increased in Salvigenin treatment of 25 and 50 µM.

Conclusion: In conclusion, our data suggest that Salvigenin protects neurons against oxidative stress- induced cell death by decreasing apoptotic factors. Additionally, Salvigenin promotes autophagic pathway in order to prevent apoptosisv.

CARPHOLOGIC SYMPTOMS ARE AS A MOTOR EXPRESSION OF DELIRIUM PSYCHOTIC SYMPTOMS WHEN VERBALIZATION IS NOT PRESENT BECAUSE OF LOW MMSE

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Introduction: Delirium is most polymorphous, hardest, fastest phenomenologicaly changing psychoses. There are only a few studies whose results are controversial. Some studies reveal that delirium symptoms correlate with MMSE (mini mental state examination), for others - correlation is not observed. A different frequency of psychotic symptoms is indicated and carphologic symptoms in delirium structure are analyzed very rarely.

Purpose: To evaluate the frequency of carphologic and other delirium symptoms in delirium structure and their correlation with MMSE after delirium has been treated.

Methods: Clinical observation and archived data analysis were used. It was made in the Republican Vilnius Psychiatric Hospital - Alzheimer's disease and somatopsychiatry section from June 2006 to June 2009. It involved 231 patients between the ages of 47 to 96, and treatment of their delirium which developed in patients with vascular dementia and Alzheimer's disease. All patients with cognitive functions after delirium treatment were evaluated by MMSE. Student T criteria was selected.

Results: MMSE value is statistically significantly lower for patients with carphologic symptoms, negativism and psychomotor suppression. Daily routine theme, fantasy theme, delusion of relationship, loss and auditory hallucination is statistically significantly correlated with higher MMSE value after treatment. Other symptoms don't correlate.

Conclusion: The most frequent organic delirium structure consists of psychomotor activity, visual and auditory hallucinations, delusions of loss, daily routine theme, profession theme, carphologic symptoms. This study supports the hypothesis that carphologic symptoms are the motor expression of psychotic delirium symptoms when there's no verbal psychotic expression because of low MMSE values.

COGNITIVE IMPAIRMENT IN A SENEGALESE ELDERLY PATIENTS: PREVALENCE AND RISK FACTORS

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Introduction: With the ageing of the population, cognitive impairment is becoming frequent. The objective if this study was to estimate the prevalence and identify risk factors for cognitive impairment in a Senegalese elderly patients utilizing the Social and Health center of IPRES, Dakar-Senegal.

Methodology: A cross sectional study was conducted from 2004 to 2005 in 872 Senegalese elderly patients aged 55 years and over utilizing the Social and Health Center of IPRES, Dakar-Senegal for health care. Data on sociodemographic characteristics, lifestyles, social network and past medical and familial history were collected with a structured questionnaire completed with a clinical exam and neuropsychological testing. Cognitive impairment was defined as a score of 28/39 or less with the Test of Senegal.

Results: They had a mean age of 67.2 years (±7.5), were men (63%), married (79%), educated with high social network. Smoking and alcohol consumption were rare. Hypertension, arthritis, gastro-intestinal diseases, respiratory diseases and genito-urinary diseases were the main health conditions reported. Ninety four subjects (10.8%; 8.7%-12.9%) had cognitive impairment. Age, low social network, heart disease, stroke, epilepsy, head trauma and family history of dementia were associated with cognitive impairment while history of arthritis was protective.

Conclusion: Prevalence and risk factors associated with cognitive impairment in elderly patients of the Social and Health Center of IPRES, Dakar-Senegal are similar to what is reported in Western countries.

KLOTHO (KL) POLYMORPHISMS IN SPORADIC ALZHEIMER'S DISEASE

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Introduction: Klotho (KL) gene locus has been recently associated with several aging phenotypes and an highly KL gene expression has been detected in mouse brain, suggesting a role in brain aging and age-related neurodegenerative diseases.

Objective: To investigate the possible role of KL gene in sporadic Alzheimer's disease (AD).

Patients and methods: In the present study, we analyzed the three single-nucleotide polymorphisms (SNPs) rs1207568, rs9536314 and rs564481 spanning a 45 kb block at the KL locus in 793 consecutive older subjects, including 316 patients with a clinical diagnosis of AD according to the NINCDS-ADRDA criteria, and 477 age-controlled cognitively intact subjects. A community-dwelling sample of 548 healthy volunteers was also included in the study.

Results: When AD patients were compared with cognitively intact older controls or with the community-dwelling sample, no significant differences in the distribution of genotype and estimated allele frequencies were observed. We confirmed these results by repeating the analysis according to different genetic models. To extend these results to the KL locus as a whole, we also estimated the haplotype frequencies at the 45 kb block spanned by rs1207568, rs9536314 and rs564481 as well as in the linkage disequilibrium among these SNPs across the study groups. No differences were observed among the markers investigated.

Conclusions: In conclusion, although the possible involvement of Kl gene locus in AD needs further investigation on larger samples of highly selected patients, our findings suggest that KL gene does not play a critical role in the pathogenesis of sporadic AD.

STABILIZATION OF AB-LINKED LEARNING AND MEMORY DECLINE BY MACROPHAGE COLONY-STIMULATING FACTOR IN APP$_{SWE}$/PS1 MOUSE MODEL OF ALZHEIMER'S DISEASE

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Alzheimer's disease (AD) is the major cause of dementia in the elderly. This disorder leads to learning and memory decline mostly due to the appearance and accumulation of a small peptide known as b-amyloid (Ab) in both insoluble aggregates form and soluble toxic oligomers. We previously showed that injection of macrophage colony-stimulating factor (M-CSF) at a young age in APP$_{Swe}$/PS1 mice, a well characterized mouse model for Alzheimer's disease, prevented the cognitive and behavioral decline, associated with microglial clearance of Ab peptides. Here, we demonstrate that weekly M-CSF injections starting at older ages, when the Ab pathology is already well installed, powerfully promotes the stabilization of learning and memory decline. Mice injected with M-CSF exhibited a higher number of microglia in both the cortex and hippocampus when the treatment was started at 6 months of age. In mice injected from their 9th to their 12th month of age, reduced senile plaques number and area were observed compared to littermate controls that were treated with a vehicle solution. Moreover, we could observe a clear decrease in soluble Ab oligomers in the extracellular fractions of those treated animals suggesting the presence of an efficient Ab clearance mechanism instituted by the injection of M-CSF. Therefore, M-CSF seems to be a powerful beneficial potential treatment to prevent learning and memory decline by clearance of Ab by microglia in the APP$_{Swe}$/PS1 mouse model of AD.

NORMAL 0 21 COMPLIANCE TO TRANSDERMAL PATCH THERAPY IN ALZHEIMER'S DISEASE: RESULTS OF AN EXE SWITCH STUDY

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Background: A number of factors, including poor compliance, may contribute to 'non-responsiveness' to cholinesterase inhibitors (ChEIs) therapy in Alzheimer's disease (AD). A recent advance with respect to ChEIs, the development of a transdermal patch containing rivastigmine, has the potential to improve treatment compliance.

Objectives: This study was an open 16-week, multicenter, prospective, observational trial to assess and compare the tolerability, safety and compliance of the once-daily Exelon transdermal system with conventional twice-daily Exelon capsules.

Methods: The three-month trial was conducted of outpatients from memory clinics with mild and moderate AD (MMSE 11-25). Mean age in the study group was 74.1 (± 6.85) years. Exelon capsules were switched to Exelon patch according to the judgement of researchers and the most frequent reasons for switching were poor treatment compliance and gastrointestinal side effects.

Results: 3068 patients finished the study. 86% of them were under the care of family members: 47% of caregivers were children and 30.7% - patients' spouses. More than 90% of caregivers in this study preferred the patch to capsules as a method of drug delivery for reasons including helping them follow the systematical treatment schedule, simplifying administration with once-daily frequency aside from a meal, minimizing gastrointestinal side effects with smooth drug delivery, better overall cooperation with patients, according to a questionnaire in the study.

Conclusion: We conclude that the Exelon transdermal patch system may be an effective way to improve treatment compliance in AD and may help patients and their caregivers in reaching a better quality of life.

EFFECTS OF RHODEOLA ROSEA L. EXTRACT ON LEARNING AND MEMORY IN RATS WITH SCOPOLAMINE-INDUCED MODEL OF IMPAIRED MEMORY

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Golden root (Rhodeola rosea L.) is a plant used in traditional medicine with antidepressant and abolishing stress effects. The aim was to evaluate the effects of alcohol/water extract of golden root on active and passive avoidance tests on rats with scopolamine-impaired memory processes. The male Wistar rats were treated with saline or scopolamine or the combination of scopolamine and plant extract. Animals were trained 5 days for learning and later for memory retention in shuttle box for active avoidance and 2 days for learning and short and long memory retention in step-through and step-down for passive avoidance tests. They were observed: the numbers of avoidances, escapes and intertribal crossings or latency of reaction. In active avoidance tests saline rats learned the task during 5 days learning session and kept it on memory retention test. Scopolamine rats did not learned well nor remembered the task. Rats with both doses of golden root and scopolamine showed better performance on learning and memory tests which was dose-related. In both passive avoidance tests rats with scopolamine did not learned the task or had weak performance during short or long memory retention tests. Rats treated with golden root and scopolamine showed better performance during learning as well as short and long memory retention tests. The conclusion is that the extract from golden root expressed beneficial effects on learning and memory processes in rats with scopolamine-impaired memory in both active and passive avoidance tests. This promising data suggests its use in traditional medicine as adaptogenic drug.

DISSOCIATIVE SEMANTIC LOSS IN CATEGORY FLUENCY TEST IN ALZHEIMER'S DISEASE

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Language impairment is a recognized feature of Alzheimer's disease (AD), the impairment can manifest at the stage of as early as Mild Cognitive Impairment (MCI) or minimal AD. Till date, Western data suggests assessing different superordinate semantic category fluency test produced consistent result in a same AD patient. We hypothesize a dissociative semantic knowledge loss phenomenon will be demonstrated by applying different superordinate semantic category fluency that is relevant to Singapore population in view of different local background culture with Western population.

A total of 296 AD patients was analyzed and only fair to moderate agreement between food and animal category fluency test was found especially in the mild AD cases (Literate: kappa 0.40; Illiterate: kappa 0.42). Agreement level significantly increased when disease progressed especially in the literate group. AD subjects tend to perform worst on food category.

Our result suggests dissociative semantic loss in AD is common by performing different superordinate semantic category fluency test which is not demonstrated in previous category fluency test study. Our data also suggest a form of gradient effect of semantic breakdown according to representative level from a “top-bottom” down pattern in the different superordinate semantic categories during the AD process, and higher educated subjects tend to perform worst on verbal fluency task. In conclusion, selecting multiple and relevant superordinate semantic categories in accordance to local culture when conducting verbal fluency test will likely increase the diagnostic yield of AD especially in the early stage.

CORTICOBASAL SYNDROME WITH ALZHEIMER´S PATHOLOGY: CAN AUTOPSY DIAGNOSIS BE PREDICTED?

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Corticobasal syndrome (CBS) is a rare disorder of progressive asymmetric rigidity and apraxia, accompanied by cortical or extrapyramidal features. Tauopathy pathology usually underlies, most commonly corticobasal degeneration (CBD), but increasingly Alzheimer´s disease (AD) pathology is reported. Lesion topography, rather than subtype, is thought to explain the clinical findings. AD is of interest as it involves very different brain sites in CBS compared to its most common phenotype, dementia of the Alzheimer´s type (DAT). In addition, current biomarker and imaging research to predict AD pathology may enable future disease modifying therapies to be employed. Thus CBS with AD pathology presents an interesting disease in terms of pathogenesis and future treatment. Reviewing the literature for demographic, clinical and imaging factors that may predict AD pathology was undertaken. CBS with various combinations of early memory loss, generalized cortical signs, CSF low B-amyloid and high tau, widespread cortical atrophy and amyloid imaging techniques, appear potential markers of identifying antemortem AD pathology. Validation with larger case cohorts is required to confirm these findings.

STUDY OF PHONEMIC AND SEMANTIC VERBAL FLUENCIES IN PATIENTS WITH ALZHEIMER `S DESEASE

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Introduction: In the literature, the studies about patients with cortical and focal lesions conclude that the semantic verbal fluency is more specific for detect lesions in temporal lobe while the phonemic verbal fluency can detect better the frontal lesions.

Objectives: The objective of this study is evaluate the phonemic verbal fluency and the semantic verbal fluency for animals in patients with mild and moderate Alzheimer`s disease and compare it.

Methods: The study was conducted in the Clinic of Cognitive Neurology at Medicine School of Catanduva where patients were evaluated claiming loss of memory .These individuals underwent a full neuropsychological and complementary evaluation for the Alzheimer`s disease diagnostic. This evaluation included semantic and phonemic verbal fluencies tests.

Results: We found 72 patients with diagnostic of Alzheimer`s disease after our neurophysiological and complementary evaluate. In this group the phonemic verbal production was smaller than semantic verbal fluency with 4,3 for 7,1 in the mild intensity , and 3,1 for 4 in the moderate intensity.

Conclusions: The study shows that the phonemic verbal fluency is more affected than semantic verbal fluency in the mild disease phase in Alzheimer`s disease. This indicates more involvement of frontal lobe in these patients. With the disease`s progression the involvement of the temporal lobe increases and the two lobes are affected similarly.

EVALUATION OF THREE HAND POSITION TEST OF LURIA IN ALZHEIMER`S DISEASE AND YOUR RELATIONSHIP WITH AGE

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Introduction: The Luria`s test consists in one sequence of three movements in the correct order and in the imitation of the examiner.

This test can evaluate the praxis in patient with Alzheimer, more affected in the advanced stages. Our objective is evaluate the Luria`s test performance in patients with Alzheimer`s disease and your relationship with age.

Methods: The study was conducted in the Clinic of Cognitive Neurology at Medicine School of Catanduva, where patients were evaluated claiming loss of memory. These individuals underwent a full neuropsychological and complementary evaluation for the Alzheimer`s disease diagnostic.This evaluation included the Luria`s test.

Results: In the mild intensity,40% of the patients did not score any point. However in the moderated Alzheimer`s disease 84% of the patients did not perform the sequence after five attempts. When analyzing the scores of Luria in relation to age, we found that did not hit any of the five attempts in 30% of the patients with age < 65 years,36% among 65 to 74, 57% among 75 to 84 and 68% for more than 84 years old.

Conclusions: The Luria`s test is important to the praxis evaluate in dementia. The studies show increases on test with the progress of the Alzheimer`s disease, but in this study 40% of patients with mild and 84% with moderated intensities were not able to perform the test. Regarding age, we found that the test of Luria worsens with its increase.

FEATURES OF SYSTEM APPROACH TO THE ANALYSIS OF NEUROPSYCHIATRIC DISORDERS IN ALZHEIMER´S DISEASE OF UZBEK NATIONALITY INDIVIDUALS

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Most adequate methodological basis of studying the neuro-psychiatric disorders in Alzheimer´s disease is a system approach to this problem. In the formation of these disorders participate somatic conditions and traumatic impact of the disease on the individuality of patient.

Purpose: Study the features of systemic approach to the analysis of neuro-psychiatric disorders in Alzheimer´s disease.

Materials and methods: We investigated 132 patients : men - 44 (33,3%), women -88 (66,7%). In the study of neuropsychiatric disorders, we used a model of psychosomatic relations with the study of three levels of adaptation - physical, personal and psychological.

Results: At the stage of studying the features of systemic approach identified the following syndroms generating factors. At the level of somatic adaptation among 39 (29.5%) patients revealed somatogenic - organic factors, on a personal level in 43 cases (32,6%) - constitutionally-typological, but at the level of psychological adaptation in 50 (37,9%) cases, psycho - sociogenic factor. Somatic resource adaptation among 35 (26.5%) patients kept an optimal level of reactivity and nonspecific resistance, which allowed to adapt to disease. In 26 (19,6%) cases - internal resources of adaptation reflect the status of neuro-psychological reactivity. In 71 (53,9%) cases- external resources of adaptation enable the motivational sphere of the individual. All changes were clearly related to characterological radicals.

Conclusions: Features of the systems approach is a continuum of psychosomatic relationships, which allows you to trace the formation of the structure of neuro-psychiatric disorders and their dynamics. In practical application it helps to appoint pathogenetically substantiated therapy.

AMELIORATIVE EFFECTS OF GELATIN HYDROLYSATES AGAINST SCOPOLAMINE INDUCED LEARNING AND MEMORY IMPAIRMENTS

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Introduction: Using acetylcholinesterase inhibitors (AChE-i) is among the best accepted approach toward the treatment of Alzheimer's disease by increasing cholinergic neurotransmitters by inhibiting the degradation of acetylcholine. Synthetic AChE-i including tacrine and donepezil have been used in clinical treatments. However, the side effects of these synthetic compounds including hepatotoxicity and gastrointestinal disturbances leads to the development of new AChE-i from natural food resources.

Objectives: AChE-i activity and cognitive enhancement function of gelatin hydrolysates (GH) from pig skin were examined.

Materials and methods: GH (between 50kDa~3kDa) were obtained by from pig skin and AChE-i activity was determined. ICR mice were fed 1, 2, 4% GH for 16wk and AChE-i in the brain was measured. Passive avoidance test and Y-maze was conducted to study learning ability and memory after subcutaneous injection of scopolamine.

Results: GH inhibited AChE in the brain by 44.92% in vitro and supplementation of 1, 2, 4% GH for 16 wks significantly reduced the AChE upto 48.93, 47.79, and 52.08%, respectively compare to the control. Immediate spatial working memory was evaluated via Y-maze. Supplementation 2% GH significantly reduced the effect of scopolamine on alternation behavior by 13.5% as compared to the scopolamine-only group. In passive avoidance test, administration of GH increased latency time by 10.3 sec maximally compare to control, however, no significant difference was found.

Conclusion: Supplementation of GH significantly inhibited AChE and improved immediate spatial working memory. These result indicated that GH could be used as natural material to improve memory impairment.

EFFECTS OF A NOVEL CATIONIC AMPHIPHILIC 1,4-DIHYDROPYRIDINE DERIVATIVE ON ANXIETY-LIKE BEHAVIOR IN TRANSGENIC ALZHEIMER'S DISEASE MODEL-MICE

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Previously we have found that 1,4-dihydropyridine (DHP) derivatives are capable of producing neuroprotective activity in different neurodeficiency model-animals (Klusa, 1995), as well as anti-inflammatory (Klegeris et al., 2002; Pupure et al., 2002), mitochondria-regulating (Pupure et al., 2002) and anti-diabetic properties (Duburs et al., 2008). These properties can be regarded as essential for the treatment of depressive/ neurodegenerative disorders. The novel cationic amphiphilic DHP derivative ESF-M1 was synthesized suggesting its ability to penetrate easily the blood-brain barrier. In the present study we tested anxiety-like behavior of this compound in transgenic Alzheimer's disease APP DI model-mice.

Method: APP DI mice (Davis et al., 2004) of both sexes and aged 3 and 9 months were tested in zero-maze to evaluate the compound's anxiety/anxiolytic behavior. Test was carried out for 4 min, 3h after i.p. injection of ESF-M1 (1mg/kg) or saline (control). Time spent in open area and open area entries were measured.

Results: ESF-M1 increased the time spent in open area in both young female and male animals, whereas the number of open area entries was increased only in young male mice. In old male mice, injection of ESF-M1 caused an increase in time spent in open area.

Conclusion: The data show that the novel cationic amphiphilic DHP derivative ESF-M1 induces the anxiolytic effect in APP DI mice, both in males and females, thus indicating compound's anxiety regulatory potential in anxiety disorders.

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PROTECTIVE EFFECTS OF A SYNTHETIC TRIAZINE AGAINST OXIDATIVE STRESS IN NEURON-LIKE PC12 CELLS: APOPTOSIS VERSUS AUTOPHAGY

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Oxidative stress has been implicated in the etiology of neurodegenerative diseases and aging. The endoplasmic reticulum (ER) is exquisitely poised to sense and respond to cellular stresses including those that result from metabolic and/or protein folding imbalances.

Methods: PC12 cells were treated with 1, 5 and 10 µM of 3-thiomethyl-5,6-(dimethoxyphenyl)-1,2,4-triazine, followed by adding H_2O_2(150 µM). The extent of apoptosis was assessed by MTT test, acridine orange/ethidium bromide staining, and determination of Bax, Bcl-2, caspase-3 and PARP-1 levels. Intracellular calcium level was measured by using Fura-2 AM. Western blot analysis and was performed to determine the level of ER stress factors including caspase-12 and calpain, as well as factors involved in autophagy, such as Atg7, Atg12, LC3B and p62.

Results: The present study indicates that oxidative stress resulting from H_2O_2 can be inhibited in the presence of 3-thiomethyl-5,6-(dimethoxyphenyl)-1,2,4-triazine in a dose-dependent manner. This protection was associated with a marked reduction in apoptotic factors including Bax/Bcl-2 ratio and caspase-3 level, attenuation of PARP-1, along with increase of autophagic factors including Atg7, Atg12, LC3B and p62. In addition, treatment of PC12 cells with H_2O_2 decreased intracellular calcium level, as well as calpain and caspase-12 levels.

Conclusions: In response to prolonged/chronic levels of ER stress, cells commit to programmed cell death. Having antiapoptotic effects and inhibiting autophagy, as well as ER stress, implies the possibility of using 3-thiomethyl-5,6-(dimethoxyphenyl)-1,2,4-triazine as a candidate for treating neurodegenerative diseases like AD.

LEARNING DIFFERENCE WITH REPEATED KOREAN VERSION OF MINI-MENTAL STATUS EXAMINATION (K-MMSE) TESTING BETWEEN PATIENTS WITH AD AND MCI

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Background: We compared the learning differences with K-MMSE between patients with Alzheimer's disease (AD) and mild cognitive impairment (MCI).

Methods: We screened subjects aged 65 or more in a community with K-MMSE. Subjects who were screened below 1 standard deviation of K-MMSE score adjusted for education and age norm were tested for neuropsychological tests in detail including repeated K-MMSE one to thirty days after the first screening day during January 2009 to September 2009. Thus, we recruited 29 consecutive patients with AD and 13 with MCI.

Results: With repeated K-MMSE, patients with AD scored 0.66 (±4.4) point higher than the first screening with the same test. Also, patients with MCI scored 0.92 (±3.1) point higher than the first. There was no difference in learning with repeated K-MMSE between patients with AD and MCI. The screening K-MMSE score (13.2±6.3 and 20.7±2.7)), the repeated K-MMSE score (13.9±5.2 and 21.6±3.9), the delayed recall score of the Seoul Verbal learning test (0.3±0.8 and 3.9±2.5), and the delayed recall score of Rey complex figure test (0.6±1.5 and 5.0±4.8) were all significantly different between the patients with AD and MCI, respectively ($p < 0.01$, all mentioned tests).

Conclusion: Despite significant recall differences, there was no difference in the effect of learning with repeated K-MMSE testing between patients with AD and MCI.

INFLAMMATION IN NEURODEGENERATIVE DISEASES

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Objective: Inflammation is suggested to be involved in the pathogenesis of Alzheimer´s disease (AD) and Parkinson's disease (PD) which are the most commonly seen neurodegenerative disorders. Highly sensitive serum reactive protein C (hsCRP) and white blood cell count as markers of systemic inflammation were analyzed and compared with healthy controls.

Material and method: In this case-control study, subjects included 58 patients with AD (n:31) or PD (n:27), and 22 healthy controls. The groups were well-matched. We used a clinical interview and measured WBC counts and hsCRP. Each patient with AD was assessed by Mini-Mental State Examination (MMSE) and Clinical Dementia Rating (CDR) scale, while the patients with PD were assessed by the modified Hoehn and Yahr staging scale.

Results: The hsCRP levels and WBC counts were similar between groups. In patients with AD, there was a negative correlation between mini mental examination scores and hsCRP levels ($p< 0.01$). In patients with PD, Hoeyn and Yahr scores did not correlate with hsCRP or white blood cell count.

Conclusion: The association and clinical relevance of WBC counts and CRP levels in patients with neurodegenerative diseases are still unknown Some previous studies revealed that interleukins and hsCRP were not associated with dementia risk. Similarly, we have found that hsCRP and WBC counts were not associated with AD or PD presence. In AD patients, higher hsCRP levels signs to memory problems. This finding should be evaluated in future studies.

COENZYME Q10 INHIBITIS AMYLOID-BETA-INDUCED NEURONAL CELL DEATH THROUGH ACTIVATION OF THE PI3K PATHWAY

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Introduction: Coenzyme Q10 (CoQ10) is used for the treatment of Parkinson's disease. Recently, CoQ10 was reported to have neuroprotective effects against amyloid toxicity. However, the protective mechanisms of CoQ10 have not yet been clearly identified. We investigated the neuroprotective effects and mechanisms of CoQ10 against oligomers of amyloid-beta (1-42) (Aβ42)-induced neurotoxicity in rat cortical neurons.

Methods: To evaluate the neuroprotective effects of CoQ0, primary cultured cortical neurons were pre-treated with several concentrations of CoQ10 for 24 h and then treated with 20 μM oligomers of Aβ42 for 6 h.

Results: CoQ10 showed increased neuronal cell viability against oligomers of Aβ42 toxicity in a concentration-dependent manner. In addition, we demonstrated that CoQ10 has neuroprotective effects through enhancing the phosphatidylinositol 3 kinase (PI3K) pathway by confiriming that the neuroprotective effects of CoQ10 were blocked by LY294002 (10 μM), a PI3K inhibitor, and that CoQ10 enhanced phosphorylation of Akt and GSK-3β and reduced phosphorylation of tau and glycogen synthase.

Conclusion: These results suggest that CoQ10 prevents oligomers of Aβ42-induced neurotoxicity through the activation of the PI3K activation.

NEUROPATHOLOGICAL CHANGES OF CLIOQUINOL INTOXICATION; SUBACUTE MYELO-OPTICO-NEUROPATHY (SMON)

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Clioquinol and its deliverative PBT are considered as putative anti-Altzheimer drug. However, in Japan, clioquinol intoxication caused subacute myelo-optico-neuropathy (SMON), which manifested various symptoms of visual disturbance, paralysis and sensory disturbance in the lower half body, and autonomic disorders. Though clinical feature mimicking infection, extensive epidemiological study confirmed a causal relationship with clioquinol in 1970, which followed the dramatic disappear of new patients by ban of clioquinol. But, many patients still have difficulty in walking and paresthesia more than 35 years after disease onset, and these sequelae pose a serious problem. In this study, we investigated the neuro-pathological findings of four patients with SMON. The patients consisted of a man and three women, age at onset 51.3±13.2 (M±SD) years, age at death 78.0±16.8 years, and the duration of illness 26.8±11.6 years. Intake amounts of clioquinol were 1 - 1.2 g daily for 3 - 20 weeks. All cases showed spasticity, paralysis and sensory disturbance in lower limbs, and no dementia. The pathological findings were symmetrical demyelination of lateral and posterior funiculi of the spinal cord in all cases, and extremely severe demyelination of optic nerve in a case with blindness. As for Alzheimer disease pathology, all cases showed mild amount of senile plaque (Braak stage A - B) and also NFT (Braak stage 0 - 2). Although clioquinol may have anti-Alzheimer disease effect, it´s intoxication caused irreversible severe neurological sequels, which is cautious to use clioquinol clinicaly.

"SWITCHING OFF" METABOLIC MEMORY PHENOMENON: POTENTIAL THERAPEUTIC STRATEGY FOR PREVENTION OF DIABETES ASSOCIATED COGNITIVE DECLINE

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Diabetes mellitus produces numerous neurophysiological and structural changes in the central and peripheral nervous system and it further leads to development of neuropathic pain and moderate cognitive deficits in diabetics. The etiology of diabetes associated neuropathic pain and cognitive decline is multifactorial and involves an underlying phenomenon of metabolic memory. The concept of "metabolic memory," that is of diabetic vascular stresses persisting even after stringent glucose control, has been supported both in the laboratory and in the clinic in both type 1 and type 2 diabetes. Therefore, "switching off" the metabolic memory, could be an important strategy for the prevention of diabetic neurological complications.

With this background, the present study was designed to evaluate effect of insulin alone as well as in combination with tocotrienol, lycopene and sesamol on various components of metabolic memory phenomenon in experimental paradigms of diabetes associated neuropathic pain and memory deficit. Insulin alone reversed the hyperglycemia but partially reversed neuropathic pain and memory deficits in diabetic rats. However, insulin in combination with tocotrienol, lycopene and sesamol not only attenuated the diabetic condition but also reversed neuropathic pain and memory loss by switching off various components of metabolic memory phenomenon like modulation of oxidative-nitrosative stress, inflammatory cytokine release, NF-κβ and caspase-3 activity in the sciatic nerve and different brain parts (cerebral cortex & hippocampus) of diabetic rats. Thus, these interventions may find clinical application in therapeutic armamentarium of diabetics to prevent diabetic neuropathic pain and diabetes associated cognitive decline.

EFFECT OF CARVEDILOL AGAINST COLCHICINE INDUCED COGNITIVE IMPAIRMENT IN AN ANIMAL MODEL OF SPORADIC DEMETIA OF ALZHEIMER TYPE

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Alzheimer's disease is a progressive neurodegenerative disorder associated with cognitive impairment and weak intellectual capacity. Growing evidences indicate that oxidants and antioxidant defenses interact in a vicious cycle, which plays a central role in the pathogenesis of Alzheimer's disease. The present study was carried out to elucidate the neuroprotective effect of carvedilol against the colchicine-induced cognitive impairment and oxidative damage in rats. Colchicine (15µg/5µl), a microtubule disrupting agent when administered intracerebroventricularly in rats resulted in poor memory retention in both Morris water maze, elevated plus maze task paradigms and caused marked oxidative stress as indicated by significant increase in malondialdehyde, nitrite levels, depletion of SOD, catalase, glutathione-s-transferase activity and reduced glutathione levels. It also caused a significant decrease in the acetylcholinesterase activity. Chronic administration of carvedilol (2.5 and 5.0 mg/kg; p.o.) for a period of 25 days, starting 4 days prior to colchicine administration resulted in an improvement in memory retention, attenuation of oxidative damage and restoration of acetylcholinesterase activity. Present study demonstrates a neuroprotective effect of carvedilol against colchicine-induced cognitive impairment and associated oxidative damage.

LANGUAGE AND AMNESIC PRESENTATION OF ALZHEIMER'S DISEASE: TWO SIDES OF THE SAME COIN

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Background: There is growing awareness that some patients with Alzheimer´s disease (AD) may not present with episodic memory impairment but instead have focal cortical features. Patients with the aphasic variant of AD, logopenic progressive aphasia (LPA), display word-finding difficulties, impaired repetition, but preservation of comprehension and relatively spared episodic memory. We aimed to compare the neuropsychological profile and pattern of brain atrophy between typical amnesic AD and LPA to investigate cognition-structure relationships.

Methods: Consecutive LPA (n = 16) and typical amnestic AD (n = 18) cases underwent clinical evaluation, a neurophychological assessment, and MRI with analysis of cortical thickness using Freesurfer, an unbiased MRI technique. Underlying AD pathology was confirmed by PiB-PET imaging in 12 LPA cases.

Results: As was expected, LPA cases showed a remarkable impairment of repetition and naming tasks and had a worse performance in working memory tasks than typical AD cases. Measures of cortical thickness showed a pattern of predominant left-sided temporo-parietal atrophy in LPA, whereas typical AD cases showed a bilateral and symmetrical posterior cortical and medial temporal involvement.

Conclusion: Although both groups have the same pathology, the pattern of cortical thinning differs and determines the clinical picture. The left angular gyrus region appears for the genesis of LPA symptomatology. The reason of the differential neuronal involvement is not currently understood.

CORRELATION OF METABOLIC CHANGES AND APRAXIA IN PATIENTS WITH ALZHEIMER DISEASE

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Aim: To study changes in brain metabolites N-acetylaspartate (NAA), choline (Cho), myoinositol (mI) and glutamine/glutamate (Glx), measured by ^{1}H-MR spectroscopy (^{1}HMRS) in grey and white matter in correlation with severity of dementia and apraxia.

Method: 21 consecutive patients with neuropsychologically confirmed diagnosis of mild to moderate Alzheimer's disease (AD) were included (mean age 71.5; MMSE 21.6). Tasks of motor skills (manual speed, ideamotor praxis (IDM), ideational praxis (IDA) and constructional skills) were performed. Comparison was made between mild (MMSE>20) and moderate (MMSE>20) AD. ^{1}HMRS were carried out with a 3T scanner in the posterior cingulated cortex (PCC) and the left parietal white matter (PWM) (TE=35 ms) and metabolite ratios were evaluated.

Results: NAA/Cr and Cho/Cr in PCC were significantly lower compared to PWM ($p< 0.05$). In both regions NAA/Cr was significantly lower in moderate than in mild AD ($p< 0.05$). Cho/Cr was lower in PWM than in PCC. Disease severity correlated significantly with NAA/Cr and Cho/Cr in PWM ($r=0.536$; $p=0.015$ and $r=0.449$; $p=0.04$, respectively). Positive correlation was found between parietal lobe NAA/Cr and tests of IDA. The correlation was positive between NAA/mI in PCC and several tests of IDA and IDM.

Conclusions: Metabolic changes in AD patients are more pronounced in grey than in white matter and correlate with severity of cognitive impairment and with deficiency in specific tests of ideational and ideamotor praxis. Used tests proved to be appropriate to evaluate praxis in AD patients.

THE ROLE OF INFLAMMATION AND FREE RADICALS IN AD TYPE OF DEMENTIA

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Background: The pathogenic action of toxic free radicals is one of the hypotheses put forward to account for the onset of Alzheimer´s (AD) dementia.

Purpose: Study aimed at investigation of blood several free toxic radicals relation with cognitive decline in probable AD patients.

Methods: The total of 75 probable AD patients had been investigated. Diagnosis was established according to NINCDS-ADRDA criteria. Brain visualized by conventional MRI. Neurological and neuropsychological examination had been performed. Cognitive status was researched 2 times with 1 year period between examinations by MMSE. Control comprised 30 age matched healthy persons. Blood free radicals: Hydroxyl radical (OH-) and lipoperoxyradical (LOO-) were researched 2 times in accordance with cognitive examination by Electron Paramagnetic Resonance (EPR) method. The α-phenil-tert-butilitron (PBN) (SIGMA) was used as LOO- trap. EPR signal intensity was measured in millimeters on milliliter blood matter. Statistics performed by SPSS-11.0.

Results: During both examinations EPR signals of blood free radicals OH- and LOO- found to be significantly higher in AD patients as compared to control ($p< 0.001$), while the second examination of AD patients showed the increased EPR signals of LOO- against the first data($p< 0.05$) but the EPR specters of OH- were non-significantly increased ($p>0.05$). Positive correlation revealed between the blood LOO- and the cognitive decline in selected AD patients($r=+0.47$; $p< 0.05$).

Conclusion: Membrane lipid degradation product lipoperoxyradical (LOO-) seem to be involved in cognitive decline in Alzheimer's type of dementia.

VASCULAR DEMENTIA AND ALZHEIMER'S DISEASE: COMPARISON OF NEUROIMMUNOLOGICAL CHANGES

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Study aimed at investigation of the role of blood free radical expression in development of cognitive decline in different types of Dementia.

Subjects and methods: 45 demented patients aged 50 to 75, 25 patients with VAD (Vascular Dementia) and 20-with AD (Alzheimer's disease) have been investigated. Control comprised 15 age-matched healthy individuals.

The NINDS-AIREN criteria and diagnostic tool ICD-10 were used to establish diagnosis of VAD. The NINDS-ADRDA criteria used for diagnostics of AD. Neuroimaging studies performed by conventional MRI.

Blood free radicals (NO, LOO-) was detected by Electron paramagnetic Resonance (EPR) method. EPR signal intensity was measured in millimeters and accounted on milliliter blood matter.

Cognitive functions were evaluated by MMSE and Wechsler memory scale in VAD and AD and control. Statistical analysis was performed by SPSS-11.0. t-paired test and Pearson correlation was applied.

Results: Blood free radical (NO, LOO-) signal intensity was elevated in AD and VAD patients against control ($p< 0.05$). In AD patients the EPR signal intensity of LOO- was significantly increased compared to VAD patients($p< 0.01$), while the significant changes were not found regarding the NO EPR signals. High blood EPR LOO- signals positively correlated with memory decline in AD patients ($r= + 0.37$; $p< 0.05$).

Conclusion: Probably, oxidative stress plays the more prominent role in memory decline of AD patients inducing the neurodegenerative changes in brain.

THERAPEUTIC EFFECTS OF CARVACROL, A CONSTITUENT OF ZATARIA MULTIFLORA ESSENTIAL OIL, ON COGNITIVE DEFICITS IN AN ALZHEIMER'S DISEASE ANIMAL MODEL

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Many medicinal plants have been tested for their potential to reduce symptoms of Alzheimer´s disease (AD) or for affecting the disease mechanism in animal and cellular models of AD. Essential oil of Zataria multiflora Boiss. (ZM), a member of Lamiaceae family, has shown ability to ameliorate cognitive deficits in a rat model of AD. In this study, the effect of carvacrol as a major constituent of ZM essential oil on amyloid β (Aβ)-induced learning impairment was investigated. $A\beta_{25-35}$ was injected bilaterally into the CA1 region of rats hippocampus and the effect of carvacrol (0.5, 1, or 2 mg/kg) on cognitive function was assessed in the Morris water maze. Animals were subjected to 5 days of training; 4 days with the invisible platform to test spatial learning and the 5th day with the visible platform to test motivation and sensorimotor coordination. Acute toxicity of carvacrol was also studied. The results showed increases in escape latency, traveled distance, heading angle, and decreases in target quadrant entries in Aβ-received groups. This impairment was reversed by carvacrol. The results of acute toxicity testing revealed that the calculated LD_{50} (471.2 mg/kg) is much higher than the therapeutic dose (1 mg/kg). It seems that antioxidant, anti-inflammatory, and anticholinesterase activities of carvacrol might contribute to its beneficial effects in this model. Our findings suggest that carvacrol may be a potentially valuable source of natural therapeutic agents for the treatment of AD. However, further investigations are necessary to establish its efficacy and potential toxicity in clinical trials.

IDENTIFYING FREQUENCY OF DEMENTIA IN PARKINSON'S DISEASE

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Background: In PD typically non-motor symptoms, including cognitive impairment, are usually present. Approx. a quarter of PD patients without dementia have mild cognitive impairment. There is not enough data on dementia in Parkinson's patients in our population; we have designed this study with the aim to identify its frequency. It's a hospital based descriptive study.

Methods: 35 cases of PD were enrolled in a weekly base OPD in six months.

Results: A sample of 35 cases (23 males and 12 females) with PD was included. Age's b/w 40-85years (mean 57years). Out of 35 cases six (17.1%) had PD with dementia (PDD); while 29 (82.85%) out of 35 were non-demented. Out of six demented patient's five (83%) were males and one (17%) was female. We divided the sample into two groups on the basis of presence and absence of dementia features among the patients. Most having PDD started their Parkinson's symptoms of dementia after the 6th decade. Four (64%) out of six having dementia age range from 61-75 years and remaining two (36%) range on 75 years so advance age of PD had more memory impairment as compared to young age. Duration of Parkinson's disease was less than 10 years in all non-demented patients as compared to the Parkinson's disease patients having dementia.

Conclusion: Dementia in Parkinson's disease was at the Department of Neurology Jinnah Postgraduate Medical Center Karachi not quite high in our study as compared to the western studies but having a significant percentage with the male predominance.

HIGH SOCIAL NETWORK IS ASSOCIATED WITH LOW OCCURRENCE OF DEMENTIA IN A SENEGALESE ELDERLY POPULATION

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Background: With the modernization of the Senegalese society, loneliness is becoming frequent among elderly increasing risk of dementia. The objective of this study was to assess the role of social network level in the occurrence of dementia in a Senegalese elderly population of patients utilizing the Social and Health Center of IPRES, Dakar-Senegal.

Methods: A cross sectional study was conducted from 2004 to 2005 in 872 Senegalese elderly population aged 55 years and over utilizing the Social and Health Center of IPRES, Dakar-Senegal for health care. Data on sociodemographic characteristics, lifestyles, social network and past medical and familial history were collected with a structured questionnaire completed with a clinical exam and neuropsychological testing. The role of social network on dementia was assessed through a logistic regression analysis controlling for sociodemographic, lifestyle, and past medical history variables.

Results: They had a mean age of 67.2 years (±7.5), were men (63%), married (79%), educated with high social network. Smoking and alcohol consumption were rare. Hypertension, arthritis, gastro-intestinal diseases, respiratory diseases and genito-urinary diseases were the main health conditions reported. Fifty eight subjects (6.67%) had dementia. High social network was associated with dementia: 4 weekly contacts with relatives: OR= 0.21 (95% CI: 0.08-0.55), 5 weekly contacts and over: OR= 0.07 (95% CI: 0.01-0.39) after controlling for other variables.

Conclusion: These results confirm the protective role of high social network in the occurrence of dementia.

BORELIA BURGDORFERI: RISK FAKTOR IN ALZHEIMER´S DISEASE

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Introduction: Inflammatory factors are presumably involved in Alzheimer's disease (AD). We examined if AD is related with non-symptomatic borreliosis.

Method: 100 patients (mean age: 72.9 years) met NINCDS-ADRDA diagnostic criteria for probable AD after a thorough diagnostic evaluation which comprised a neuropsychological exam, blood tests and CT or MRI brain imaging. The age and gender matched control group (72.8 years) scored 28 or more points on the Mini Mental State and had no family history of dementia. All patients and controls were Caucasian. Lyme ELISA and Westernblot test were used to examine serum samples of patients and controls and cerebrospinal fluid of patients with positive blood test.

Results: 28 (28%) of the AD patients but only 8 (8%) of the controls had Lyme Borreliosis antibodies (IgG) in the serum sample, indicating that individuals with Borrelia IgG antibodies have an increased risk suffering Alzheimer´s disease by 3.5. None of them had intrathecal antibody production as examined in the CSF.

Discussion: We found a highly significantly higher rate of Borrelia IgG antibodies in individuals with Alzheimer´s disease. As several authors found similarities between the surface of Borrelia and neuronal tissue, cross-reactivity of B. burgdorferi antibodies with neuronal tissue or the triggering of a nonspecific inflammatory response are possible. Further research should include investigation of the following questions: 1. Is the frequency of Alzheimer´s disease in individuals with history of non-symptomatic borrelia IgG antibodies increased? 2. Is there any effect of early antibiotic treatment of Lyme disease?

THERAPEUTIC TRIALS FOR THOSE COMPLAIN OF MILD IMPAIRMENT OF COGNITION BY A NOVEL HERBAL SUPPLEMENT FORMULA UTILIZING A BLOOD BIOMARKER

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The number of mild cognitive impairment (MCI) subjects is 60 million worldwide, and in countries where proportion of the elderly is high or increasing, potential significance of early intervention toward those who complain of mild impairment of cognitive function, including those satisfy the Peterson's criteria for MCI, cannot be over-estimated. This study represents an early diagnosis and intervention trial.

In the process of searching and characterizing for interacting activities with human brain carboxypeptidase B (CPB), an enzyme capable of dijesting C-terminal epitope of β-amyloid (Aβ) 1-42 *in vitro,* several candidate proteins were found in cerebrospinal fluid (CSF) and in plasma. One candidate, CPB-BP, is alternatively processed in peripheral fluids, yielding different fragments in CSF (BP1) and in plasma (BP2), due to a difference in endo-proteolytic activity. BP2 is found to form a labile complex with Aβ and CPB fragment in plasma. Analyses of the complex derived from normal subjects and those from AD / MCI suggested that it is found in the latter group. We speculate that the complex formation is a physiological response adapted to decompensating Aβ burden in CNS which is increasing with age. Since pathogenesis of AD is based upon physiological brain aging, detection of the complex and quantification of BP2 may represent a blood biomarker for AD/ MCI. In this respect, we are innovating an early intervention trial with a novel supplement formula for high-risk subjects selected through the potential biomarker utilization. The initial trial result for 30 subjects suggests a benificial effect of the intervention.

INFLUENCE OF AGE IN CSF BIOMARKERS OF ALZHEIMER´S DISEASE FROM CONTROL SUBJECTS

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Objective: Cerebrospinal fluid (CSF) biomarkers of Alzheimer´s disease (AD) are currently being assessed in patients with cognitive impairment. In a few studies, it has been demonstrated the influence of age in the CSF concentration of these biomarkers. Our objective was to confirm that influence in our cohort of control subjects.

Material: We included 55 CSF samples from control subjects, without cognitive impairment and MMSE over 27, with ages between 50 and 87. This population were patients who were undergo spinal anaesthesia for orthopaedic or urological non-malignant conditions. Using xMAP technology and INNO-BIA Alzbio-3 reagents from Innogenetics, we quantified CSF $A\beta_{1-42}$, T-tau and P-tau_{181p} proteins. We analysed the results with the Spearman p correlation. Informed consent was obtained before the procedure.

Results: Our results showed a moderate correlation between age and T-tau (r=0,5) or P-tau_{181p} (r=0,4). Nevertheless, no correlation was found with $A\beta_{1-42}$ protein CSF concentrations. These results are very similar to those published in the last year.

Conclusion: In our experience, as some other published recently, age has a moderate influence in T-tau and P-tau_{181p} CSF protein levels, but it is hardly detectable in $A\beta_{1-42}$ protein CSF concentrations.

A NATURAL FLAVONES, CLYCOPTERIN, PROTECTS PC12 NEURONS CELLS FROM ER STRESS INDUCED APOPTOSIS VIA ENHANCEMENT OF MITOCHONDRIAL BIOGENESIS

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Neuronal cell death due to apoptosis is a common characteristic of neurodegenerative diseases. Among antioxidants that prevent oxidative stress, we study on a natural flavones, calycopterin extracted from Dracocephalum kotschyi

Methods: PC12 cells were treated with 25, 50, 100 and 150 µM of calycopterin for 3h, followed by adding H_2O_2 (150 µM) for 24 h. The extent of apoptosis was assessed by MTT test, acridine orange/ethidium bromide and Hoescht staining. MAPKs phosphorylation, inflammation, ER stress and mitochondrial biogenesis were measured by western blot method. We also checked peroxidase and mitochondrial enzyme.

Results: We found calycopterin protects differentiated PC12 cells by inhibiting caspase-dependent pathway of apoptosis. Calycopterin could decrease ER stress by decreasing calpain and caspase-12 levels. These inhibitions were along with stabilization of Nrf2, phosphorylation of CREB and MAPKs and decrease of NF-KB levels. The level of inflammatory factors such as NF-KB, TNFα and COX-2 was decreased by calycopterin as well.

Interestingly, calycopterin promotes mitochondrial biogenesis through increase of PGC1α, NRF1 and TFAM. We also investigated the effect of calycopterin on the parameters of neuronal differentiation. We found that neurite outgrowth and neuronal complexity were diminished by H_2O_2, whereas in calycopterin-treated cells these parameters were improved significantly.

Conclusions: We provided documentation of neuroprotective effect of a natural flavone, calycopterin, against H_2O_2-induced oxidative stress in differentiated PC12 cells by modulating the level of transcription factors, increasing the level of antioxidant factors and promoting biogenesis of mitochondria. Neuroprotective effect of this compound could represent a promising approach for treatment of neurodegenerative diseases.

LANGUAGE DISTURBANCES OF GREEK ALZHEIMER'S POPULATION

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Background: Purpose of the current study was to ascertain the clinical utility of language examination by neurologists and speech language pathologists (SLPs) in evaluating Alzheimer's disease (AD) patients.

Methods: The language profile of Alzheimer patients (N=20) is documented and their performance on 7 scales compared to a group of no neurologically impaired control subjects (N=30) matched for age, sex, and educational level: Arizona Battery of Communication Disorders of Dementia (ABCD), Mini Mental Status Examination (MMSE), Abbreviated Mental Test Score (AMTS), Instrumental Activities of Daily Living (IADL), Geriatric Depression Scale (GDS), Neuropsychiatric Inventory (NPI), and Clock Test. The aspects of mental status, episodic memory, linguistic expression and comprehension, as well visuospatial construction were assessed. Also extra analysis in all variables of language was done.

Results: Statistical analysis of data revealed significant differences in all aspects that were examined. All variables of language that were assessed statistically significant differences were observed.

Conclusions: The performance was influenced by demographic factors like education. With easy administration, all scales are a useful and quick clinical protocol for AD in Greek AD patients. The Alzheimer patients scored significantly lower than the controls in the areas of verbal expression, auditory comprehension, repetition, and reading. Articulation abilities were the same in each group. A language deficit was evident in all Alzheimer patients. The language disorder exhibited resembled a transcortical sensory aphasia. Syntax and phonology remained relatively intact but semantic abilities were impaired. The results support the inclusion of a language deficit as a diagnostic criterion of Alzheimer´s disease.

SPATIAL NAVIGATION IMPAIRMENT IS PROPORTIONAL TO THE RIGHT HIPPOCAMPAL VOLUME IN OLDER ADULTS WITH AND WITHOUT COGNITIVE IMPAIRMENT

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Objectives: Cognitive problems in older adults are often attributed to Alzheimer's disease (AD) featured by hippocampal impairment. Among these persons, the spatial navigation deficit, indicated by poor hippocampus dependent allocentric strategy, may occur well before the onset of dementia.

Aim: To determine that allocentric navigation impairment reflects reduction of right hippocampal volume irrespective of the general brain atrophy. We also contrasted the respective scores of the real-space human Morris water maze (hMWM) with its virtual 2D PC version.

Methods: The study included cognitively impaired patients with amnestic mild cognitive impairment (aMCI; n=23), probable AD (n=19) and cognitively intact older controls (n=14). All underwent 1.5T MRI brain scanning with subsequent automatic measurement of the total brain, right and left hippocampal volumes. Spatial navigation was examined using PC and real-space hMWM versions, where allocentric vs egocentric types of navigation are tested separately. The association between right hippocampal volume and accuracy in allocentric navigation was assessed.

Results: AD and aMCI subjects were impaired in the real version of the hMWM ($p < .001$). We obtained similar results from PC version ($p < .001$). Right hippocampal volume correlated with performance in the real-space hMWM, controlling for age, years of education and total brain volume (beta=-.62, $p < .001$).The results were more pronounced in cognitively impaired subjects.

Conclusion: The results underline the importance of the right hippocampus for allocentric navigation. The relevance of the right hippocampus for real-space navigation was particularly prominent in aMCI and AD patients.Our hMWM tests can serve as a reliable early diagnostic tool.

DEMENTIA IN THE DEVELOPING WORLD

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Dementia is arguably the most devastating condition affecting the older persons and its worldwide impact is projected to increase with population aging. Data from longitudinal, cross-cultural and transnational epidemiological studies have provided useful comparative information on the burden of and risk factors for dementia. Application of advances in imaging and use of biomarkers for in-vivo diagnosis have had limited impact in developing countries.

Methods: Utilization of 2-stage study design involving initial screening followed by more detailed evaluation for the pattern and severity of cognitive deficit as well as functional impairment consistent with expected cultural practices. Diagnosis and sub-typing made according to defined. Comparison of socio-demographic and biochemical variables between demented cases and controls.

Results: The prevalence and incidence rates of dementia are significantly lower in developing countries with evident urban-rural differential. Age is a universal risk factor for dementia while female gender appears to be at increased risk. Apolipoprotein E ε4 allele (APOE) did not increase the risk of dementia unlike the finding in western countries. An interaction between APOE and cholesterol was reported. Hypertension (BP > 140/90 mm Hg.) was associated with increased risk of incident dementia and weight loss in the elderly could predict dementia risk.

Conclusion: Dementia research is still in its infancy in developing countries. Due to limitation of resources for taking care of those affected, emphasis in these countries should be on preventive strategies on identified modifiable risk factors. This includes screening and treating hypertension as well as promoting healthy life styles.

REGIONAL CEREBRAL BLOOD FLOW DIFFERENCES IN PATIENTS WITH MILD COGNITIVE IMPAIRMENT BETWEEN CONVERTED AND NON-CONVERTED TO ALZHEIMER'S DISEASE

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Background and aims: Mild cognitive impairment (MCI) is a heterogeneous condition associated with increased risk of Alzheimer's disease (AD) and other dementias. This study aimed to identify areas of initial hypoperfusion in MCI conversion to AD using Tc-99m HMPAO SPECT to compare baseline cerebral hypoperfusion in converted MCI and non-converted MCI patients and normal controls.

Methods: Forty-nine MCI patients were recruited for brain MRI, detailed neuropsychological testing, Tc-99m HMPAO SPECT, and 1- to 2-year periodic follow-up to monitor progression to dementia status. We processed SPECT images with SPM8 software and performed voxel-based statistical parametric mapping analysis.

Results: Thirty-nine of 49 MCI patients were included in our analysis. Nine patients were diagnosed with conversion to AD, on average 19.0 ± 6.6 months after initial assessment. Compared with normal controls, converted MCI patients demonstrated perfusion deficits in both parahippocampal gyri and right precuneus, and non-converted MCI patients demonstrated hypoperfusion in the left parahippocampal gyrus. Compared with non-converted MCI patients, converted MCI patients demonstrated significanthypoperfusion in both cingulate gyri and right precuneus.

Conclusion: Our study suggests that using brain SPECT to identify initial hypoperfusion in patients with MCI may be helpful for predicting MCI patients likely to develop AD.

STUDY RESEARCH ON PTSD, MAJOR DEPRESSION AND DEMENTIA

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During the last three decades, the study of Post-traumatic Stress Disorder (PTSD), dementia and Alzheimer, has been a major issue after heart diseases and cancer. In this research (result of our experiences in the Mental Health Centers and Housing), we will discuss on the psychopathological effects of PTSD, and dementia. Meanwhile, our theoretical study and lectures in the hospital Universities (Lariboisière), (Sainte-Anne etc.) have developed our knowledge to complete this paper.

From the neurological point of view, as our clinical studies have indicated, any pathological process, including vascular dementia, brain damage (when is destroyed a given amount of cerebral substance) etc. can produce neurodegenerative disorders (DNF), dementia of Alzheimer type (D.A.T.), behavior disorders, and in some extreme cases we observed, suicide. But, on the other hand, some factors : major depression, and stress resulting from catastrophic life events (natural and human) (Rabbani H. 2008), economic crisis, sociopolitical changes, loss of spouse or children: in case of mourning, can breed dementia. Many researchers and our experiences showed a relationship between such events and dementia. Those factors can, in some cases, (i.e. inability to cope with stress) hasten the onset of disorders and intensify ageing process and dementia.

The close relation existing between stress, trauma and cerebro-vascular disease, in the one side, and dementia in the other, is well established. Many researchers have indicated that extreme cases, such as facing stressful situation, economic crisis, major depression, “Allostatic load” (Mac Ewen 1999 et al.) can also produce dementia and cognitive impairment.

AWARENESS WITHIN THE TUNISIAN POPULATION CONCERNING DEMENTIA, SYMPTOMS, RISK FACTORS AND MANAGEMENT

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Background: Primary prevention of dementia requires a good awareness of physicians and the general population (GP) for this pathology.

Objective: To assess current public knowledge of dementia and compared to those of nurses (N) and general practitioners.

Methods: In this prospective study, were included a representative sample of GP living in Sousse (n=862), general practitioner and interns (P: n=225) and N (n=181). The exclusion criteria were any reason preventing understanding of the questionnaire. Trained medical students were performed an open-ended, standardized, and pretested questionnaire regarding symptoms of dementia, risk factors, management and source of information.

Results: A total of 1268 subjects were interviewed (57.3% women; mean age, 35.3 years; age range, 18 to 80 years). Most of the respondents were able to name more than ten risk factors (53, 5% in P; 49,7% in GP and 44,2% in N). More than five symptoms were recognized in 46% of P; 39,8% in GP and 29,2% of N. Only 33,8% in GP, 50% in P and 27,5% in N say that an effective treatment exist with statically difference.

Predictors of adequate knowledge in GP were age (20-40 years), higher education, sources of information (internet or family members who have suffered from dementia).

Conclusion: This study emphasizes that knowledge of dementia risk factors and symptoms' was moderate spatially in P and GP. Improvements can only result from using simple and understandable school education or public media and continued medical formation concerning dementia for both nurses and general practitioners.

ANTI-OXIDANT, ANTIGLYCATING AND NEUROPROTECTIVE EFFECTS OF *SALVIA CHOLOROLEUCA,* AN ENDEMIC SPECIES TO IRAN

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Salvia is the largest genus of the family of "*Laminaceae*". A multitude of biological activities have been described for *salvia spp*. In the present study, we examined the antioxidant, antiglycating and neuroprotective effects of *Salvia choloroleuca* against H_2O_2-induced cytotoxicity in neuron-like PC12 cells.

Methods: Cells were pretreated with different concentrations of *S. choloroleuca* for 24 h and then incubated with H2O2 (150 µM) for an additional 24 h. The antioxidant activity of plant determined by biochemical assays such as DPPH, FRAP, β-carotene bleaching and TEAC assay. For determination of total AGEs, production of fluorescent products was measured. Changes in protein levels were measured by Western blot analysis.

Results: Our data revealed that *S. choloroleuca* exhibited significant activity towards scavenging free radicals and inhibitory effect on glycation process in a dose-dependent manner. Also, fibrillar structure formation is significantly inhibited by *S. choloroleuca*. This plant exerts its antioxidant effect by upregulation of antioxidant enzymes such as Catalase and Superoxide dismutase. Following these processes, *S. choloroleuca* suppresses apoptotic cascade triggered by oxidative stress via upregulation of anti-apoptotic such as Bcl-2 and/or downregulation of pre-apoptotic factors such as Bax, caspase-3 and PARP. It also decreased the mitochondrial membrane potential. Consequently, cytochrome *c* releasing from mitochondria is suppressed.

Conclusion: Oxidative stress is a critical event in the pathogenesis of neurodegenerative diseases that leads to programmed cell death, apoptosis. Based on our finding, *S. choloroleuca* suppresses cell death induced by oxidative stress. So, it seems that having antioxidant and antiglycating properties.

ALCOHOL AS A RISK FACTOR FOR ALZHEIMER TYPE OF DEMENTIA: LOCATING MECHANISMS

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Alzheimer´s disease (AD) is the most common neurodegenerative disease in developed countries. AD is a progressive, multifactorial, etiologically heterogeneous form of brain failure. AD has common clinical and pathological features including inexorable deterioration of memory and intellect followed by aphasia, agnosia, apraxia and behavioral changes as well as lowered life expectancy. Alcoholism is associated with extensive cognitive problems including alcoholic dementia and beside several risk factors alcohol consumption is one possible risk factor for AD. Alcohol´s effects on cognition, brain disorders, and brain chemistry share some features with AD thus it is plausible that alcohol use might also increase the risk of developing AD. Alcohol consumption accelerates shrinkage, or atrophy, of the brain, which in turn is a critical determinant of neurodegenerative changes and cognitive decline in aging. Beside this direct neuronal loss with chronic alcohol use has also reported in several of studies. Apart from atrophy, alcohol leads to loss of neurons (i.e., cholinergic neurons) that contain or are stimulated by a certain chemical messenger in the brain (i.e., the neurotransmitter acetylcholine). Current therapy for AD revolves around cholinergic functioning (acetylcholinesterase inhibitors) because cholinergic neurons are specifically affected in AD. Alcohol and AD substantially affect the cholinergic system, and thus it is plausible that alcohol use could be linked to AD through their common effects on this system.Chronic alcohol use causes degeneration of cholinergic neurons and improvement of cognitive function in alcoholics after abstention from alcohol suggests that the cognitive deficits may reflect neurochemical alterations rather than neuronal loss.

DIFFERENCE OF CORTICAL EXCITABILITY BETWEEN CONTROL AND PATIENTS WITH ABNORMAL COGNITIVE FUNCTION: TRANSCRANIAL MAGNETIC STIMULATION STUDY

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Introduction: Transcranial magnetic stimulation (TMS) result of cortical excitability in patients with Alzheimer's disease (AD) is known to showing a relatively consistent changing pattern as disease progress. Studies of other parameters such as intracotical inhibition (ICI), intracortical facilitation (ICF), and cortical silent period (CSP) have also showed a stage dependent correlation with AD.

Methods: Patients with cognitive complaints were recruited. Dementia and Mild Cognitive Impairment (MCI) were diagnosed according to DSM-IV-TR criteria and Mayo Clinic criteria, respectively. Resting motor threshold (rMT), ICI and ICF by a paired-pulse TMS,CSP was measured in control and MCI, AD group.

Result: 12 normal, 15 patient with amenstic mild cognitive impairment (MCI), and 13 early stage AD patients were enrolled for this study. rMT, CSP, ICI, and ICF results did not showed significant differences between groups. rMT and Attention domain have a negative correlation (R: -.455, p= 0.017)and ICI and visuospatial function have a positive correlation in AD and MCI group (R: .445, p=0.020). rMT and visuospatial function have a positive correlation (R: .529, p=0.042), ICI and Controntation naming have a positive correlation (R: .559, p= 0.030) and CSP and general mental status and visuospatial function have positive correlations [(R: .662, p=0.007) and (R: .517, p=0.048)].

Conclusions: Visuospatial function domain showed compartively consistent correlation with TMS parameters, especially ICI and ICF. Because of Visuospatial function and memory domains in AD are relatively early involved cognitive domain, these results has possibility to apply to early diagnostic tool for AD.

SERUM BRAIN-DERIVED NEUROTROPHIC FACTOR LEVEL AS A PREDICTOR OF DEMENTIA IN MILD COGNITIVE IMPAIRMENT

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Introduction: In the last years an extensive research for biomarkers of Alzheimer disease (AD) has been performed. The identification of reliable peripheral markers is nowadays in a great interest of researchers in the dementia field.

Aim: The utility of brain derived neurotrophic factor (BDNF) serum concentration as a biomarker of dementia has been widely studied. Available data has brought conflicting results regarding BDNF level in AD patients as well as its influence on conversion from MCI to AD and dementia severity.

The primary purpose was to investigate the differences in the BDNF serum level between MCI patients and cognitively unimpaired controls, the second goal was to assess the prognostic value of this biomarker on conversion from MCI to dementia.

Material and methods: 42 MCI patients and 35 controls matched for age, gender and education were enrolled in the study. Petersen criteria were used to diagnose MCI and DSM IV, NINDS-ADRDA criteria were applied to diagnose dementia. Both groups were assessed neuropsychologically at baseline and after 12 months. Serum BDNF levels were analyzed using the enzyme-linked immunosorbent assay (ELISA) method.

Results: The serum BDNF levels were significantly higher in MCI group compared to healthy controls (p=0,0004). Twelve subjects with MCI progressed to AD after one year. In stable MCI group the BDNF level was higher than in converters, but the difference was not statistically significant (p=0,179).

Conclusions: BDNF can be involved in Alzheimer's pathology, but its serum level does not seem to have prognostic value on conversion from MCI to AD.

DRESSING APRAXIA WITH VISUO-SPATIAL DISORIENTATION AS F*ORME FRUSTE* OF ALZHEIMER´S DISEASE

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Introduction: In its early stages, Alzheimer´s disease may present with highly focal cognit*ve* deficits, such as aphasia or visual agnosia.

Case report: A 59 year old right handed school principal, previously healthy, presented with a 2 year history of difficulty with a variety of visuospatial tasks such as placing shirts on hangers, determining which shoe to place on his foot and controlling the locking mechanism of a beach chair. On initial examination he scored only one error on the Blessed Mental Status Examination. He was unable to don his shirt when one sleeve was placed inside out. He had finger agnosia and left-right confusion. Clock drawing showed uneven placement of numerals. There was no apraxia in miming use of tools or describing the sequencing of motor tasks. His knowledge of current events, reading, writing and language skills were preserved. He scored 15 errors on the 36 item Motor Free Visual Perception Test with poor visual memory, spatial rotations and figure to ground processing. A battery of neuropsychological tests revealed preserved memory and language skills and severe impairment of mathematical calculations and visuospatial skills. MRI of the brain showed mild cerebral atrophy. FDF PET scan showed decreased uptake in the right parietal and superior temporal lobes and bilateral occipital lobes. Over the next 3 years he developed progressive decline in memory and other cognitive skills (Blessed = 14) and deterioration in social functions.

Conclusion: Although case studies are exceedingly rare, visuospatial disorientation may be a *forme fruste* of Alzheimer´s disease.

ALZHEIMER DIAGNOSTIC CHALLENGES IN ROMANIA

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Background: Based on an estimated increase of the overall number of people diagnosed with Alzheimer Disease (AD) from 35mn to 116mn within the next 30 years, it becomes obvious that improving early detection of AD should become a priority. We tried to identify the main limitations of making an early AD diagnostic.

Method: We performed a literature analysis based on Romanian medical publications, correlated with worldwide reported results.

Results: Healthcare system limitations to general practitioners (GPs) may further impede access to specialized care for initial stages of AD and various forms of mild cognitive impairment (MCI). In Romania, for instance, the social health insurance system does not cover brain imaging studies recommended by GPs. The market value for CT and MRI brain scans as well as AD medication costs are prohibitive, especially for patients from disadvantaged (mainly rural) regions in accessing this medication, since the counter value of medication reaches about half of the average old-age pension.

Conclusions: Given the reluctance of decision makers in quick-solving these aspects and the scarcity of time and financial resources, Romanian GPs can at best just screen for possible cognitive impairment, in an attempt to refer patients to in-hospital settings specialized in diagnostic workup and treatment as early as possible. Such practices are, however, more costly system-wide and can only aggravate the ongoing financial crisis of the Romanian healthcare system.

THE INFLUENCE OF DEPRESSION ON THE RECOGNITION OF EMOTIONS

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Neuropsychiatric disorders are frequent in mild cognitive impairment (MCI) especially the presence of depression in MCI patients increases the risk of conversion to Alzheimer disease. Two systems were recognized to be responsible for neuropsychiatric disorders: the limbic system and fronto-subcortical connections. The structures of these two systems are also responsible for the emotional processing.

The aim of the study was to assess the relationship between the depression and the ability to recognize emotions from the facial expression in MCI patients.

The study included 34 amnesticMCI patients and 23 age matched controls. The subjects underwent routine neuropsychological testing (focused on memory, attention and processing speed, executive, visuospatial and language functions). All patients were further tested by Facial Emotion Recognition Test examining emotional agnosia and by Geriatric Depression Scale (GDS).

MCI group performed worse on recognition of facial emotions than controls ($p< 0,05$), and this group was also significantly more depressive than controls ($p< 0,05$). There wasn´t a significant correlation of emotion recognition and GDS ($p=0,28$, $r=0,15$).

The ability to recognize emotions from facial expression is impaired in MCI patients but the degree of depression does not contribute to the disability of MCI to recognize emotions.

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PSYCHOLOGICAL STRESS ROLE IN MANIFESTATION OF DEMENTIA DISORDERS IN OLDER ADULTS

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Epidemiological research suggests a clear and consistent link of high brain reserve with reduced dementia risk. If brain's plasticity is positively affected by higher brain reserve, then what are the chances for the negative and energy draining activities to create the precursors for dementia disorders? Given the precipitous forecasts for dementia over the coming decades, effective preventive strategies are of utmost importance.

In many instances, Chronic stress, by initiating changes in the hypothalamic-pituitary-adrenal axis and the immune system, acts as a trigger for anxiety and depression. Neurodegenerative changes in the hippocampus, prefrontal cortex and amygdala are the frequent outcomes of the changes HPA axis and the immune system. Such changes may provide evidence for the link between chronic depression and dementia in later life.

Methods: The study 30 patients'' files were selected randomly from an inventory of 400 patients' files that were seen and diagnosed with some type of dementia. The objective of this selection was associated with the life time negative experiences that had occurred normatively or non-normatively in association with their age of onset.

Approximately 85% of the participants regardless of their differential Dementia diagnosis had experienced at least one non normative stress factors. 100% of the patients have suffered from a from of non normative events.

Discussion and recommendations:

1- while conducting psychiatric interview we need to explore the normative and non normative events as risk factors for dementia.

2- primary care physicians should take into considerations close monitoring of the above risk factors.

GALANTAMINE IN LONG-TERM TREATMENT FOR MILD COGNITIVE IMPAIRMENT

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Objective: To evaluate the efficacy of galantamine in patients with Mild Cognitive Impairment. So there is a possible benefit in the deficit in executive and cognitive cerebral function (cholinergic system) with treatment with Galantamine.

Methods: A multicenter, open label , prospective, observational study enrolled 1028 patients, more 55 years old with Mild Neurocognitive Disorder (DSM IV criteria), during 36 months of treatment with galantamine 16 mg./day. (Extended release capsules: 16 mg.)Assessments included the MMSE, CDR, ADAS-GOG, Trail making test, Raven Test, GO-NO-GO test, FAQ, Global Deterioration Scale, GCI and UKU scale of adverse effects.

Results: A total 1028 outpatients were treated with 16 mg. /day galantamine during 36 months, the therapeutic response evaluated with CDR, MMSE and the tests and scales of function cognitive measuring, GCI and UKU scale of adverse effects, comparing the baseline to final scores.

Conclusion: Mild Cognitive Disorder is being examined, so there isn't enought treatment for this. A long-term treatment (36 months) galantamine improves cognition and global function, behavioural symptoms and the general state well being of patients with Mild cognitive Disorder. With incidence of adverse effects not significant and a very good profile of safety, the final results of the study suggest that galantamine may be particularly appropiate in the Mild Cognitive Disorder.

Discussion: We can recognize the Mild Cognitive Disorder as a clue which reveal a first therapeutic instance probably in efficacy in this cruel evolution towards dementia.

THE EFFICACY OF TREATMENT OF ADDITION IN ALZHEIMER'S DISEASE: RATIONALE FOR COMBINATION THERAPY WITH GALANTAMINE AND MEMANTINE

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Objective: Considering the moderate clinical state the Alzheimer´s Disease, without therapeutic response or poor therapeutic response with an anti dementia agent, we try improvement the therapeutic response with 2 drugs association. The efficacy, safety, and tolerability of cholinergic agent: GALANTAMINE and NMDA- receptor antagonist: MEMANTINE, were assessed taking into account the profile of patients with neurocognitive disorder: Alzheimer's disease, from the clinical aspects and the different classifications.

Methods: The experience included 428 patients who were enrolled in a prospective, observational, multicenter, and open-label study to receive 16 mg/day of galantamine and 30 mg/day of memantine for 12 months of treatment of addition.

Results: The therapeutic response was measured using the Mini Mental State Examination (MMSE), Clinical Dementia Rating (CDR), Alzheimer's Disease Assessment Scale (ADAS-GOG), Functional Activities Questionnaire (FAQ) the Clinical Global Impression Scale (CGI) and the UKU scale of adverse effects.Taking into account the efficacy, safety and adverse events of the treatment,

the final results of the study showed that galantamine with addition memantine improve cognition, behavioural symptoms, and the general well-being of patients with cognitive impairment: Alzheimer's disease. The incidence of adverse events was not significant and a very good profile of tolerability and safety was observed.

Conclusion: Demonstrate with use the association memantine - galatamine in neurocognitive disorder: Alzheimer's disease, improve cognition, behavioural symptoms, and the general state recognized as neurocognitive disorder. Suggest that before Alzheimer´s Disease continues evolution to a severe state, the pharmacological use this association to slowing or stopping the dementia process.

DECREASE IN THE PRODUCTION OF AB BY BERBERINE INHIBITION OF THE EXPRESSION OF B-SECRETASE IN HEK293 CELLS

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Berberine (BER), the major alkaloidal component of *Rhizoma coptidis*, has multiple pharmacological effects including inhibition of acetylcholinesterase, reduction of cholesterol and glucose levels, and anti-inflammatory, neuroprotective, and neurotrophic effects. It has also been demonstrated that BER can reduce the production of $A\beta_{40/42}$, which plays a critical and primary role in the pathogenesis of Alzheimer's disease. However, the mechanism by which it accomplishes this remains unclear. Here, we report that BER could not only significantly decrease the production of $A\beta_{40/42}$ and the expression of β-secretase (BACE), but was also able to activate the extracellular signal-regulated kinase1/2 (ERK1/2) pathway in a dose- and time-dependent manner in HEK293 cells stably transfected with APP695 containing the Swedish mutation. We also find that U0126, an antagonist of the ERK1/2 pathway, could abolish (1) the activation activity of BER on the ERK1/2 pathway and (2) the inhibition activity of BER on the production of $A\beta_{40/\ 42}$ and the expression of BACE. Therefore, from our data, we hypothesize that BER decreases the production of $A\beta_{40/\ 42}$ by inhibiting the expression of BACE via activation of the ERK1/2 pathway.

BITHALAMIC INFARCTS COMPLICATING TUBERCULOSIS MENINGOENCEPHALITIS

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Introduction: Stroke is a devastating complication of tuberculosis meningoencephalitis (TME) and is an important determinant of its outcome. In 30% of TME, stroke occurs mostly in basal ganglia region, exceptionally in the thalamus. We report an unusual complication of TME, namely bilateral thalamic infarction with complex movement disorders.

Case report: A 15-year-old male without medical history, presented with meningeal febrile syndrome without consciousness disorders. Three days later, he lapses into a coma. The Computed Tomography (CT) scan showed no pathological findings and cerebrospinal fluid analysis was suggestive of tuberculous meningitis. He was treated by antituberculous drugs (quadruple antituberculosis therapy). 15 days later; he presented with left hemiparesis, mutism, dystonia in the left upper limb and trunk rolling movements. MRI revealed diencephalic ischemic lesions (bilateral thalamic infarcts). Chest radiography and pulmonary C-scan showed tuberculous hilar lymphadenopathy. The diagnosis of TME complicated with bilateral thalamic stroke was established. Anti tuberculous drug and oral corticosteroids was administered. The patient shows good improvement of hemiparesis, mutism and trunk rolling movements with persistence of dystonia.

Conclusion: Cerebral infarction as a complication of TME is not uncommon. Most of the strokes in TME are multiple, bilateral, located in the basal ganglia especially the ´´tubercular zone´´. Thalamic infarct is rare.

The occurrence of ischemic stroke in TME is unpredictable despite antituberculous drug treatment; its poor prognosis especially in multiple infarcts suggests the interest of primary prevention particularly in tuberculosis endemic areas.

GENERAL PARESIS: DATA FROM MARRAKESH UNIVERSITY HOSPITAL

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Background and aims: General paresis (GP), the encephalitic form of neurosyphilis, typically presents as progressive dementia beginning 15-20 years after original infection. The clinical features of GP may include cognitive impairment, delusional or apathetic states, dysarthria, myoclonus, intention tremors, seizures, hyperreflexia, and Argyll Robertson pupils. Data of GP cases from Morocco and Arab world are very limited. We aimed to describe characteristics of GP in patients of Marrakesh region.

Patients and methods: We retrospectively reviewed cases of GP from Neurology and Psychiatry departments of university hospital of Marrakesh within 10 years.

Diagnosis of neurosyphilis was based on clinical presentation, CSF study, serological evidence either in blood and CSF (positive nontreponemal and positive treponemal test results) and neuroradiological exploration.

Results: Among 100 neurosyphilis cases, 49 were diagnosed as GP with a male predominance (87.3%) and mean age of 43,5 years. 25 patients reported unprotected sexual exposure. Neurological examination found: pyramidal syndrome in 40.8 % of cases, dementia (32.7%), extra pyramidal syndrome (28.6%), Persecution delirium (26.4%) and maniac symptoms (12.2%). All patients underwent cerebral CT scan showing cortical and sub cortical atrophy (87.7%). Under high-doses of intravenous penicillin G associated symptomatic medication, psychiatric symptoms improved in 51% of cases while dementia persisted in 45%.

Conclusion: We still have cases of GP from Marrakesh region. This form should be considered in the differential diagnosis of psychiatric symptoms (especially in young adults) and early treated, because even some cases are reversible under antibiotics, there is no reliable marker to predict the outcome.

VERTEBRAL CRYPTOCOCCOSIS IN AN IMMUNOCOMPETENT PATIENT

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Cryptococcus neoformans is an opportunistic fungal infection that affects immunodepressed patients. There have been only occasional case reports of thoracic vertebral cryptococcosis presenting as cord compression in an immunocompetent patient. We report a case of an unusual presentation of cryptococcal infection in an immunocompetent patient.

Case report: A 70 years old woman without any medical history was admitted for paraplegia. Neurological examination showed spastic paraparesis, deep tendon reflexes of the lower extremities ware lively. Babinski reflex was bilaterally positive. Laboratory findings were: erythrocyte sedimentation rate 100mm/h, white blood cell count 4800/mm³, lymphocytes 1600/mm³ and HIV serology was negative; complement levels and measurement of CD4/CD8 T-lymphocyte ratio were within the normal range.A lumbar magnetic resonance imaging was performed showing a lesion process extending from Th8 toTh10, with spinal cord compression. The lesion was hypointense en T1-weighted images and hyperintense en T2-weighted images (Figure1). Posterior laminectomy was performed, revealing an abnormal tissue lesion. Biopsy showed on histological examination, numerous fungal organisms with thick capsules and a granulomatosis inflammatory process without necrosis. There were no malignant cells. The diagnosis of spinal cryptococcosis in an immunocompetent patient was established and the patient was treated by intravenous amphotericin B with relay by fluconazol.On follow-up, the patient remains well with no neurological or other sequelae.

Discussion: *Cryptococcus neoformans* is encapsuled yeast, found in pigeon and other bird dropping. It can rarely be seen in immunocompetent patients. The combination of medical treatment is necessary including, antifungal agents such as amphotericin B, l flucytosine and fluconazole.

USEFULNESS OF C-REACTIVE PROTEIN IN DISTINGUISHING FORMS OF ADULT MENINGITIS

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Background: C-reactive protein (CRP), an acute phase serum globulin, is produced by hepatocytes in response to various nonspecific stimuli such as microbial infection, tissue necrosis, or neoplasm. The aim of this study was to clarify to what extent bacterial meningitis could be distinguished from aseptic or other subacute meningitis through CRP levels in adults.

Methods: From January 1999 to March 2009, a total of 113 adult cases (aged 15 -98 years), including patients with bacterial meningitis (*n* = 14), aseptic meningitis (*n* = 84), and tuberculous (Tb) meningitis (*n* = 15), were retrospectively analyzed based on data from the initial examination.

Results: 9-14 patients with bacterial meningitis showed blood CRP levels≥10mg/dl, whereas CRP levels < 10 mg/dl were observed in all patients with aseptic or Tb meningitis. Using a CRP level of ≥10 mg/dl as a positive discriminatory factor for bacterial meningitis resulted in sensitivity and specificity values of 0.91 and 1.0, respectively. To better discriminate bacterial from nonbacterial meningitis, we analyzed changes in CRP and cerebrospinal fluid (CSF) levels using one-way analysis of variance (ANOVA) and concluded that blood CRP effectively differentiates bacterial meningitis from other meningitis or encephalitis at admission.

Conclusion: This study suggests that serum CRP analysis, which is both simple and inexpensive, is helpful to differentiate bacterial meningitis from other aseptic or subacute meningitis.

SOMATOGENOUS DELIRIUM IN NEUROSYPHYLIS AND TICK-BORNE MENINGOENCEPHALITIS

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Purpose: We present a successful clinical case which illustrates the diagnostic and treatment when severe somatogenous delirium had developed for a 48-year old man for the first time in his life.

Method: clinical case.

Clinic: Disease course - bifase fewer until 39°C, while neurologic symptoms (pathological Babinsky reflex, livelier tendon reflexes, more prominent on the right side; shallower right naso-labial wrinkle) appeared on second wave. Tension, negativism - refusing to do any tasks he was asked, struggles while being examined; mutism - not answering any questions he was asked; psychomotoric disturbance, carphologic symptoms was observed. Epidemiologicaly - few tick bites in the last 2 months. Migrating erythema wasn't observed.

Cerebrospinal fluid: meningoencephalitis signs. High IgM titers were found both to Borelia burgdorferi and to tick-borne encephalitis generators by immunofermentic ELISA method. Syphilis diagnosis confirmed laboratoricaly. Immunoblot test answer was negative so neuroboreliosis was excluded. Only tick-born encephalitis and syphilis was treated by: manitol 250 ml/d., dexametazoni up to 24 mg/d., tiapridali 300 mg/d., ceftrexoni 2 g/d.

Results: A man was hospitalized because of severe delirium with catatonic symptoms. Delirium intensively and dramatically continued for 4 days, gradually disappeared. The patient didn't remember this episode. The patient was discharged from hospital after 11 days of intensive care and treatment in full consciousness, MMSE - 30 points.

Conclusion: When catatonic symptoms arise and dominates it requires the exclusion of somatic - neurologic causes. The possibility for a good outcome is the effective main disease treatment with appropriate anti-psychotic treatment and intensive care.

MILIARY TUBERCULOMAS OF THE BRAIN AND SPINAL CORD: CASE REPORT

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Despite the resurgence of tuberculosis, central nervous system involvement remains rare, accounting for only 2 to 5% of all tuberculosis forms. Miliary brain tuberculosis is a rare pathological entity. We describe the case of a 19-year-old immunocompetent male with miliary brain and spine cord tuberculomas. He presented with a history of progressive unsteady gait and sensory disturbances, with fever. Neurological examination found a cerebellar syndrome, a vestibular syndrome, a posterior cord syndrome and a radicular syndrome. Magnetic resonance imaging (MRI) revealed multiple bilateral enhancing lesions in the brain, most lesions measured approximately 5 mm in diameter, in both the supratentorial and infratentorial compartments and in the spine cord, associated to a posterior pachymeningitis. Study of cerebrospinal fluid showed a lymphocytic meningitis with hypoglycorrhachia. Culture found *Mycobacterium tuberculosis*.His investigation failed to reveal any evidence of tuberculosis outside the central nervous system. The HIV serology was negative. He improved clinically and radiologically after starting anti-tuberculous pharmacotherapy. In conclusion miliary brain tuberculomas are rare and unique clinical and radiological entity. It may affect immunocompetent individuals with no other signs of other systemic involvement. Diagnostic biopsy in miliary braintuberculomas does not need to be directed to a visible lesion on CT or MRI. Although patients with military brain tuberculomas may appear gravely ill with this disease, aggressive therapy allowed our patient to return to normal functional life.

NEUROBRUCELLOSIS: SEVERITY OF LATE DIAGNOSIS

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Human brucellosis is a zoonotic disease, common in Mediterranean bassin, due to infection by Brucella melitensis. In Tunisia, despite the eradication of this infection, it still be an endemic state especially in frontier zones and causes high morbidity and mortality if misdiagnosed. We report a case of 31 years-old man with neurobrucellosis. He presented with a history of mental confusion. One year after, he develops , progressively, in two years spinal limping, urinary disturbances and hearing loss with suduro-algic fever. MRI showed a pachymeningitis with spinal arachnoiditis. Tests for a diagnostic purpose were performed: the serodiagnosis of Wright test yielded positive results both in blood and cerebrospinal fluid. Antimicrobial tritherapy was started. One month later he He died of a profound hyponatremia. Clinical manifestations are various in neurobrucellosis. Neurological manifestations of brucellosis are polymorphic, which may mislead the diagnosis and delay the therapeutic management. Its symptoms can be acute (57%), subacute (17%) or chronic (26%). The nervous system (more than 6.6% of cases) may be revealing of the disease, affecting both the central and peripheral nervous system. Complications can be severe and life-threatening, as the case of our patient. The treatment must be early, but preventive measures remain most effective.

DIAGNOSIS AND MANAGEMENT OF CNS TUBERCULOSIS- OUR EXPERIENCE FROM KOTA BHARU, NORTH-EASTERN MALAYSIA

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Background: In 10% of tuberculosis patients the central nervous system gets affected leading to a variety of clinical presentations. Unless diagnosed early CNS TB can result in serious morbidity and mortality.

Objective: This retrospective study analyses the clinical and laboratory data that aided us in the diagnosis, management and the outcome in our patients with CNS TB.

Method: Records of 60 patients treated as CNS TB between 2003 and 2008 were perused. The typical as well as the atypical clinical features, imaging appearances and laboratory data were documented. The outcome of the treatment with special reference to mortality and morbidity were studied.

Results and conclusion: 60% of our cases presented with the classical features of TB meningitis.The rest were ambulant and had various atypical headaches while some others presented with cranial nerve palsies, seizures, hemiplegia, myelitis, ataxia or rarely psychotic features. In these patients the diagnosis of underlying TB could be made only on the basis of a relevant past history, a high degree of suspicion and selected laboratory investigations. Standard treatment was commenced in all the cases.

While 27 patients recovered well, 13 had some sequelae and 20 died. Our study showed that

(1) underlying illnesses (HIV, diabetes or pulmonary TB),

(2) hydrocephalus, brain tuberculomatas,

(3) hyponatremia and

(4) deep coma had the worst prognosis.

Our study serves to show that CNS TB can present in many forms; and treatment based on clinical suspicion is beneficial (particularly as getting consent for lumbar puncture, is difficult in our place.)

NEUROSARCOIDOSIS PRESENTING WITH HEERFORDT SYNDROME

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Objective: Neuro-sarcoidosis usually presents as multisystem disorder involving a cascade of neurological events due to inflammatory granuloma afflicting the neuero-sensory radicals. Heerfordt syndrome is a clinical complex consisting of fever,bilateral parotid swelling, facial nerve paralysis associated with or without uveitis. We herein present the clinical condition with demonstrable motor-sensory lesion complex, co-existing with sarcoidosis and associated with Heerfordt syndrome.

Methods: We report the clinical study of a case from 45 years old female, presented with fever, bilateral cheek swelling, dryness of mouth,odonophagia,mild dyspnoea, loss of appetite, loss of weight, tingling and numbness of all four limbs, difficulty in standing, walking, and band like sensation above umbilical region. She developed insidious and progressive weakness of all four limbs, difficulty in standing, walking, trying footwear, and burning sensation over upper back.

Results: Clinical / Investigations Test performed Inference

I. Motor system:

1. Bilateral facial nerve dysfunction Present

2. Weakness of limb muscles (UL/LL) Present

3. Power of limb muscles (UL/LL) 3/5

II. Sensory system:

1. Pain/Temp/fine touch (D8-10) Decreased

2. Vibration/Joint/Position sense Decreased

3. Abdominal reflexes Absent

4. Beevor's reflex Present

5. Plantar reflex Right-Extensor Left-Mute

6. Deep tendon reflex Absent

III. Investigations:

A.Serological: ACE level Normal HbsAg Positive

B.CSF: ACE Level Increased Protein level Increased

C.MRI: Bilateral Hilar & Mediastinal Lymphadenopathy

D.Histopathology: Parotid gland Non-caseating Confirmed:Sarcoidosis granuloma

Conclusions: Neurosarcoidosis is an uncommon, sensory-neural deficit, sometimes presenting as severe, life-threatening condition due to systemic sarcoidosis. In-lieu of its rare presentation in Asian community and furthermore its predilection to spinal cord with motor and sensory nerve involvement, we present this as a rare clinical appearance.

SIMULTANEOUS HTLV-I ACUTE ENCEPHALOPATHY AND TRANSVERSE MYELOPATHY

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Neurological damage by Human T Lymphotropic Virus type I (HTLV-) is usually expressed by the HAM/TSP chronic axonopathy of pyramidal tract. Acute myelitis is an infrequent manifestation of the virus. There are no precedents of acute HTLV-I encephalopathy, or a simultaneous association with acute encephalopathy and myelopathy. The aim is to define the histopathology and the pathogenesis of these acute forms. Female, 60 years old, with refractory anemia, multiple transfusions, and positive HTLV-I, developed acute cognitive impairment and paraplegia. Brain MRI defined white matter lesions in both cerebral hemispheres and in higher dorsal segments of the spinal cord. Sudden death by heart infarct. Necropsy revealed a lymphopoietic neoplasm and secondary hepatic haemosiderosis. Neuropathological study, performed in the acute stage, showed contemporary lesions and similar histological features in brain and spinal cord. Spongiosis and demyelization was observed in symmetrical areas of the oval center and spinal cord; necrosis and granular bodies in the central part of this injury had an ischaemic appearance without local inflammation. The immunohistochemical study with anti-Tax showed that blood vessels were stained only in the injured areas, suggesting a viral infection of the vascular wall. There was no evidence of neuronal damage. This necrotizing leucopathy is linked to HTLV-I infection of the microvascular endothelium, where infected cells inhibit the synthesis of intercellular cement and facilitate vascular permeability with blood-brain barrier breakdown, local edema and necrosis. Acute HTLV-I encephalopathy and myelitis have similar pathogenesis, different to HAM/TSP that is based on a chronic damage of the axonal transport.

THE DIAGNOSIS OF TUBERCULOUS MENINGITIS: A CURRENT REVIEW OF THE CLINICAL AND LABORATORY METHODS

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This review traces our understanding of the clinical manifestations and the laboratory methods commonly considered in the diagnosis of tuberculous meningitis (TBM). In compiling this review, we searched electronic data bases in PubMed, Science Direct, Biomedical Central and Google Scholar. Firstly, we evaluate the more traditional diagnostic methods which have been commonly applied in the diagnostics of tuberculosis (TB). The role of direct cerebrospinal fluid (CSF) examination for acid-alcohol fast bacilli, CSF culture for Mycobacterium tuberculosis, and detection of mycobacterial nucleic acid in the CSF is evaluated. We also consider the role of brain imaging and chest X-ray. Secondly, the review evaluates the current evidence on the role of some newly prospective diagnostic techniques and the coverage is given to the role of CSF adenosine deaminase activity, Gen Probe amplified Mycobacterium tuberculosis direct test, microscopic observation drug susceptibility (MODS) culture technique, ex vivo Mycobacterium tuberculosis-specific enzyme-linked immunospot assay (ELISpot assay) and enzyme-linked immunosorbent assay (ELISA) in the diagnosis of TBM.

ATYPICAL PRESENTATION OF ADULT-ONSET SUBACUTE SCLEROSING PANENCEPHALITIS: CLINICAL, MAGNETIC RESONANCE IMAGING AND NEUROPATHOLOGY CORRELATIONS

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Introduction: Subacute sclerosing panencephalitis (SSPE) is rare with an annual incidence of 0.01 per million people in developed countries. It is considered to be a disorder of childhood and adolescence. Atypical presentations have been documented with visual disturbance as an initial symptom in a small number of previous case reports.

Case report: This case report describes a young woman who initially presented aged 24 years with an insidious onset of blurred vision and optic ataxia, six weeks post-partum. MRI findings at this time showed white matter lesions in bilateral occipital lobes. Fundoscopy revealed chorioretinitis. There was no prior history of measles infection. Over the course of six years, she had progressive deterioration in vision and intermittent episodes of ataxia and dysarthria. Investigations at onset, including brain biopsy did not provide a definitive diagnosis and the clinical working diagnosis was Behçet´s disease, for which she was treated with immunosuppressants. Unfortunately, she rapidly deteriorated over the last four months, with general confusion, memory impairment and myoclonic jerks. Post-mortem examination of the fixed brain revealed widespread SSPE in the cerebral hemispheres with numerous nuclear viral inclusion bodies and some cytoplasmic inclusions in neurons and glial cells.

Conclusion: SSPE is a rare, progressive neurological condition for which no curative treatment is available. In a small number of published reports, visual symptoms have been seen to predate the motor symptoms. However, ophthalmological findings are currently not included in the standard diagnostic criteria. We have presented this case to emphasise the atypical presentation of adult-onset SSPE.

AN ATYPICAL NEUROLOGICAL PRESENTATION OF HIV INFECTION: A CASE REPORT

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Background: Neurological disorders caused by human immunodeficiency virus (HIV) infection involve the central (CNS) or peripheral nervous system (PNS) in over 50% of infected subjects at some point during the course of infection.

Case report: In June 2010, a 36-year-old man came to our Department. His clinical history started in 2005 with lower limbs paresthesia regressed after steroid therapy. In January 2010, new onset of lower limbs paresthesia and weakness. In April 2010 diagnosis of primary demyelinating disease. On admission to our Department neurological examination showed ataxic gait and weak lower limbs tendon reflexes. We performed haematology and biochemistry, CSF examination, routine viral IgM assay, MRI, and electroneurography. He received the diagnosis of "Guillain Barrè syndrome (GBS) in patient with demyelinating disease" and was treated with I.V. IgG with no response. In July 2010 new progression of symptoms and subsequently pulse therapy with metilprednisolone without clinical improvement. Due to the treatment unresponsiveness and the unusual association of GBS and CNS demyelination we then performed the HIV Ab serum assay that was positive. Finally we made the diagnosis of HIV related encephalo-myelo-neuropathy.

Discussion: The clinical onset of neurological signs of HIV infection can start before the immunosuppression phase mimicking a demyelinating disease. In our patient the simultaneous involvement of CNS and PNS and mostly the unresponsiveness to treatment, have prompted to consider the HIV infective hypothesis, despite normal hematology.

Conclusions: In presence of clinical and instrumental signs of CNS and PNS involvement the diagnostic hypothesis of HIV infection should be strongly considered.

OPSOCLONUS-MYOCLONUS SYNDROME ASSOCIATED WITH LEPTOSPIROSIS

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Leptospirosis can be associated with several types of neurological complications, but it has never been reported as a potential cause of opsoclonus-myoclonus syndrome (OMS).

We report a patient of 40 years, sewage worker who presented, with the waning of a febrile episode, a OMS. The investigation resulted in the selection etiological diagnosis of leptospirosis.

Evolution after antibiotic therapy was favourable as clinical symptoms disappeared.

Our case illustrates, firstly, the polymorphism of clinical manifestations of leptospirosis and, secondly, the possibility of the occurrence of OMS.

INTRADURAL EXTRAMEDULLARY TUBERCOLOMA OF THE SPINAL CORD FOLLOWING TUBERCULOUS MENINGITIDIS: COMPLICATION OF THE DISEASE OR COMPLICATION OF THE TREATMENT?

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Introduction: Intradural extramedullary tuberculomas (IEMT) are an exceptional form of Central nervous system tuberculosis.

Case report: A 40 years old woman admitted in the intensive Care unit for tuberculous encephalitis. The first examination did not notice any deficit. The Chest X ray suggested miliary tuberculosis. CT scan noticed basilar brain miliary related to CNS tuberculosis. She underwent a therapeutic protocol for severe form of tuberculosis (antituberculous drugs) with a progressive clinical improvement. Four months later, she developed weakness and loss of sensation in the lower limbs. Based on a spine-MRI study, a diagnosis of spinal arachnoiditis was established and the patient were treated with corticoids concomitant with antituberculous drugs. The evolution was characterized first by a good progressive neurological improvement, however, she developed an acute onset of paraplegia with sensory loss to the umbilicus. Spine MRI done showed IEMT from T5 to T9 associated with spinal arachnoiditis and medullary compression. She had an evacuation of caseous materials. The patient had a progressive improvement at 6 months follow up.

Discussion: IEMT are rare complications which can be defined as an intradural extramedullary collection of caseous materials with medullary compression. Spine MRI offers the possibility of diagnosis. The treatment is first medical, but could become surgical emergency. The association of antituberculous drugs with corticosteroids is highly recommended to prevent an unknown and possible reaction of paradox when using antituberculous drugs alone.

Conclusion: Surgery is recommended for focal medullary compression due to intradural extramedullary tuberculomas in association with antituberculous drugs and corticosteroids.

ABSCESSES SIMULATING A BRAIN STEM TUMOR IN A CHILD: A REPORT OF A CASE

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Objective: To describe the clinical radiological therapeutic and prognostic of the abscess of the brain stem through observation and illustrative review of the literature.

Comment: Girl, 4 years treated for purulent otitis three months ago, presented in a rapidly progressive syndrome in 1 month alternates complex, aspiration pneumonia in the context of apyrexia. MRI in a large emergency objectified process cystic bulbo-blowing protubérentiel lateralized to the left brain stem that appears limited to a thin coat device. The patient was operated on urgently by a first of the left cerebellopontine angle. The puncture of the cyst between the input fields of the trigeminal nerve and facial puncture allowed six milliliters of pus franc. The patient evolved in three probabilistic antibiotic therapy. The patient was asymptomatic after six months of development with the MRI image control cystic sequelae.

Discussion: The location of the abscess in the brain stem is rare but should be considered in any cystic brain stem. The first surgery by direct or by stereotactic puncture allows the diagnosis to relieve the brain stem and search for the causative agent. Antibiotic treatment must be tailored to the offending organism for a period sufficient to prevent recurrence. The evolution is usually favorable. Surveillance based on clinical and biological criteria. The radiological picture is the last to normalize.

SOLAR SYNDROM AS FIRST MANIFESTATION OF NEUROSYPHILIS

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Introduction: Manifestations of neurosyphilis are polymorphic. We report the exceptional case of neurosyphilis revealeted by Solar syndrome.

Observation: HF (File No. 4396/2010), a 32 years old male, without medical history, who presented since 2008 lightning abdominal pain , mainly epigastric one, evolving by paroxysmal, associated with pernicious vomiting suggesting that our patient has a solar syndrom. In July 2010, the patient presented convergent strabismus. Neurological examination found an impairment of the right 6th cranial pair in association with sign of Argyll-Robertson, a tendon areflexia in lower limbs without ataxia or sensory disturbances. The cognition functions were preserved.

Laboratory tests showed a positive Syphilis serology (VDRL, TPHA) and a cerebrospinal fluid with lymphocytic meningitis at 45 elements/mm³. No lesions were detected in the brain MRI exam. The gastroscopy was normal. The HIV serology was negative and the diagnosis of neurosyphilis was made. The evolution was favorable with penicillin and pregabalin treatments.

Discussion: Our patient presented solar syndrome as first manifestation of neurosyphilis. Tabes complicate 10 % of untreated or poorly treated syphilis. It is usually characterized by a posterior cord-radicular syndrome. Visceral crisis, confusingly an acute abdomen, are rarely reported in the literature and their frequency is less than 1 %. Our patient is unique since we were able to report a case of solar syndrom without a tabetic impairement.

Conclusion: This observation illustrates the case of neurosyphilis, in an atypical form, making it an interesting and rare complication that went unnoticed for more than two years.

YOUNG ADULTS SPORADIC CREUTZFELDT-JAKOB DISEASE

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Early onset of Sporadic form of Creutzfeldt-Jakob disease (sCJD) are rare. We report two cases of young adults sCJD. Haut du formulaire.

Case 1: A 37 year-old female, presented cerebellar symptoms, psychiatric troubles leading to a mutism akinetic. Brain MRI showed bilateral hypersignal of cortex and striatum. Electroencephalogram (EEG) noted slowed periodic paroxysmal activity. Protein 14.3.3 was present in CSF. Genetic research for CJD was not carried out. Patient died 5 months later. Post-mortem autopsy was not done.

Case 2: A 20 years-old female with epileptic seizures, myoclonus memory and cognitive disorders , leading to mutism akinetic. Brain MRI showed bilateral abnormalities of cortex and striatum. EEG noted slowed background activity.. Protein 14.3.3 was absent. She is still in a mutism akinetic state 4 months after onset.

Very few reports described young adult sCJD (*Boesenberg et al, 2005).* In contrast to old sCJD, in young patients, severe dementia occurs at much earlier stage, EEG is less sensitive, basal ganglia abnormalities are less common and neuropathological changes are more severe. The high frequency of psychiatric symptoms in both sCJD and new variant of CJD (vCJD) might cause difficulties in their differential diagnosis. However, in young sCJD, neurological signs appear earlier, the 14-3-3 test is mostly positive, and diffusion sequences cerebral MRI, show typical cortical and basal ganglia hyperintensity in contrast with the pulvinar sign found in vCJD. For these reasons and according to diagnostic criteria of sCJD, we have considered our patients as having a probable sCJD.

HEPATITIS C VIRUS'S UNUSUAL NEUROLOGICAL COMPLICATIONS: PERIPHERAL NEUROPATHY WITHOUT CRYOGLOBULINAEMIA AND CENTRAL NERVOUS SYSTEM VASCULITIS

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Neurological damages in hepatitis virus are dominated by peripheral neuropathies, generally correlated to the presence of mixed cryoglobulinaemia. Central nervous system involvement and peripheral neuropathy without cryoglobulinaemia are rare.

Case reports: We report two observations of central nervous system involvement in patients infected with HCV with mixed cryoglobulinaemia vasculitis. Clinical signs were headache, gait disturbance, bladder dysfunction and cranial nerves involvement. Lumbar punctures were normal. Brain MRI revealed ischemia, hemorrhage, demyelinating lesions and cerebral venous thrombosis.

We observed also a case of 12 years evolution peripheral neuropathy revealing HCV infection in a patient who had no mixed cryoglobulinemia or any indirect signs suggestive of cryoglobulinaemia, such as purpuric skin lesion, rheumatoid factor, and an abnormal C4 level. HCV infection was confirmed in all patients by polymerase chain detection of HCV RNA.

Discussion: In HCV infected patients, small vessel vasculitis associated with mixed cryoglobulinaemia is by far the most common cause of polyneuropathy. The high prevalence of PN in HCV patients without other symptoms related to mixed cryoglobulinaemia suggests the role for HCV itself in the pathogenesis of damage.

Central nervous system's manifestations are rarely described. They may be ischemic or hemorrhagic lesions associated with mixed cryoglobulinemia, within the context of a severe multiorgan disease type systemic vasculitis. The mechanism by which brain lesions are produced remains unclear.

Conclusion: The Treatment of neurological damage due to HCV does not respond to codified protocols. In severe cases, corticosteroids, plasmapheresis or immunosuppressive are proposed.

COMPLEX PARTIAL STATUS EPILEPTICUS ASSOCIATED WITH ADULT H1N1 INFECTION

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In the wake of the worldwide H1N1 pandemic, there has been some interest in the neurological presentation and complications associated with the H1N1 influenza virus.

This is a novel report of a patient with no past history of epilepsy who presented with complex partial status epilepticus. This was confirmed on EEG with corresponding MRI brain changes that resolved on follow-up imaging

This is the first report describing status epilepticus in an adult patient with H1N1 virus infection. Though uncommon, H1N1 infections may result in central nervous system complications in adults. Early treatment may reduce complications and it is crucial to treat such cases with urgency.

ACUTE DISSEMINATED ENCEPHALOMYELITIS

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Acute disseminated encephalomyelitis (ADEM) is a severe dismyelinating disorder of the central nervous system that causes a monophasic inflammatory lesions in the brain and spinal cord, particularly in white matter.We report an unusual case of 21 years old woman who presented an ADEM.

Case report: A 22 years old woman,without any medical history was admitted to emergency for acute impairment of consciousness and fever.The patient presented 7 days before admission, a morbiliforme eruption involving the whole body.At her admission, the clinical examination showed: a GCS at 11, fever at 39°, and exanthamtous lesions of all over the body:

The computed tomography of brain was normal, the analysis of cerebrospinal fluid CSF objective:180 white blood cells (100% neutrophils) with negative direct examination.The C-reactive protein was 45mg / dl,white blood cell count 12900/ml neutrophils 10800/ml.The diagnosis of bacterial meningoencephalitis was strongly suspected and the patient received antibiotherapy with ampicillin.After 48 hours,she has deteriorate his GCS to 7 with persistent fever which necessities her sedation and intubation, the severity of the clinical presentation was that the spectrum of antibiotic therapy was enlarged to ceftriaxone,aciclovir added to antibiotics against tuberculosis.Cerebral MRI showed asymmetrical bilateral hyperintense lesions in midbrain, on temporal and occipital right side suggestive of ADEM.

Conclusion: The diagnosis of ADEM is still based on clinical and neuroimaging presenting features.Concerning our case, the clinical presentation, the symptomatology that appears shortly after the exanthematous episod and the cerebral MRI were suggestive of ADEM, even if a measles encephalitis can not be excluded.

THE ROLE OF STEREOTACTIC BIOPSY IN THE DIAGNOSIS AND MANAGEMENT OF INTRACRANIAL TUBERCULOMAS: EXPERIENCE OF IBN SINA HOSPITAL (RABAT)

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Introduction: Intracranial tuberculomas (ICTs) are severe localizations of tuberculosis. They account for 0.2% to 11% of the total of intracranial space occupying lesions. Histopathological examination remains the gold standard in the diagnosis. The treatment relies on antibacillar chemotherapy.

Since the beginning of the use of stereotactic biopsy in 1993, the total number of histologically proven ICTs increased while the disease associated morbidity and mortality decreased.

Material and methods: The medical records from 143 cases of ICT seen in our service between 1986 and 2010 were retrospectively reviewed. The patients were categorized into 2 groups based on the use or not of stereotactic biopsy. The outcomes were analyzed for both groups.

Results: 59 patients were treated for ICT before 1993 and 84 after this date. The mean age for the total of patients was 31 years. 45% had an increased intracranial pressure and 21% presented with seizures. Associated extra-cerebral localizations were observed in 20% of the patients. Before 1993, 70% of the cases underwent surgery. This was associated with an important mortality and morbidity (5% and 10% respectively). The use of stereotactic biopsy decreased the use of surgery to 34% and reduced the rate of treated patients without histologic evidence of the disease to 12%. A significant decrease was observed in the mortality and morbidity.

Conclusion: Stereotactic biopsy is an excellent method for the diagnosis of ICTs since it is associated with a low rate of morbidity and mortality. Surgical approach is only justified when a threatening intracranial hypertension is present.

MENINIGOVASCULAR SYPHILIS: STUDY OF NINE CASES

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Introduction: Clinical manifestations of syphilis are highly variable, and currently on the rise. We report nine cases of ischemic stroke related to neurosyphilis.

Aim and method: Nine patients with ischemic stroke had been retrospectively admitted to our study between January 2000 and December 2010. In all of them, aetiology was related to meningovascular syphilis.

Results: There were nine men whose average age was 51 years. A notion of a genital chancre was noted in five. The clinical presentation was typical of ischemic stroke in six patients. Three presented intellectual deterioration. Imaging revealed zones of ischemia in all patients. Examination of the cerebrospinal fluid revealed lymphocytic meningitis in six cases and all nine patients exhibited positive syphilis serology. Brain angiography demonstrated signs of arteritis in eight cases and carotid dissection in one. The use of penicillin G improved the clinical condition six patients.

Conclusion: When the cause is doubtful, the routine work-up for ischemic stroke in young subjects should include syphilis serology.

DURATION OF TREATMENT OF CENTRAL NERVOUS SYSTEM TUBERCULOSIS INFECTION IN HIV/AIDS PATIENTS

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Background: An upsurge of Tuberculosis-(TB) infection is noted in era of HIV/AIDS. There are no clear guidelines on duration of therapy of CNS-Tuberculous infections.

Methods: Cohort follow-up-study-(from January-2006-to-June-2010) of patients with HIV/AIDS and Central-Nervous-System Tuberculous infection, at Aga-Khan-University-Teaching-Hospital, Nairobi-Kenya. Diagnoses confirmed by various combinations of factors-(clinical/radiological response to therapy, MRI-scan characteristics of the lesions, PCR-for M-tuberculosis-complex, histopathological- studies). Tuberculosis treatment-regimen used was RIFAFOUR-(Rifampicin-Isoniazid- Pyrazinamide-Ethambutol)-for the initial 2-months; followed-by RIFINAH-(Rifampicin-Isoniazid). RIFINAH treatment was extended till complete resolution of CNS-lesion/s. *All* patients had MRI scan evaluation at diagnosis and-at-3 monthly follow-up intervals till radiological-clearance of lesion/s occurred.

Results: Total of nineteen-patients were recruited; Male: Female Ratio 1.1:1. Age; Mean 38-years, range 31-to-55-years. The various-diagnoses were: Tuberculoma: 13-cases; and two-each with TB-meningitis, TB-radiculomyelitis, TB-cerebral abscess.

This cohort of 19-patients was a subset-of 92-HIV/AIDS patients who had lesion/s in the brain-and/or-spinal cord. Other diagnoses included cerebral-toxoplasmosis, Acute-Disseminated-Encephalomyelitis, cerebral-vasculitis, Ischemic-stroke, Progressive-Multifocal-Leucoencephalopathy, Primary-CNS-Lymphoma, Viral-encephalitis, Cryptococcal-meningitis/Cryptococcoma, Primary-Intra-ventricular-hemorrhage, Bacterial-meningitis, Central-Pontine-Myelinolysis.

Range of duration of treatment-(in-months) for the 19-patients was as-follows: Tuberculoma-(9 to 21), TB-cerebral-abscess-(9-&-15), TB-meningitis-(9-&- 12); TB-radiculomyelitis-(18-&-21). Three patients were excluded from analysis-(2-died during-study-period, one was lost to follow-up).

Conclusion: The standard duration of treatment for *pulmonary*-Tuberculosis with the regimen used in our study is six-months. Our patients required mean duration of therapy of 13.5 months with a range of 9-21 months. Clinicians should cautiously review clinical and radiological response before stopping Tuberculosis therapy in patients with Central-nervous-system infections in HIV/AIDS. Larger multicenter-studies are needed; this would provide guidelines where such frequent Imaging may not be possible.

CLINICAL AND NEUROIMAGING FINDINGS IN NEUROBRUCELLOSIS

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Introduction: Nervous system involvement in brucellosis is rare but when occurs takes the form of myeloradiculopathy and cranial neuropathy. We report clinical and neuroimaging findings in a patient with chronic neurobrucellosis affecting both central and peripheral nervous systems.

Case report: A 47 Year old male presented with progressive lower limb weakness, urinary incontinence, deterioration of vision and hearing bilaterally, and worsening balance since a year. There was history of raw camel milk ingestion. His neurologic examination showed optic disc atrophy and sensorineural hearing loss, decreased lower extremity power (3/5) with brisk knee and absent ankle reflexes, and up going toes bilaterally. Impaired position and vibration was present in both lower limbs. CSF showed high protein (9.83gm/dl), normal glucose (3.4mmol), 36 white cells (94 % lymphocytes). Serum Brucella titer which was initially negative *(prozone effect)* but was later found strongly positive in serum *(microtitration Tech:1/640 and mercaptoethanol:1/1280)*. In CSF, the titer was 1/160. MRI spine showed atrophy of spinal cord with fibrous tethering at T8 and enhancement of spinal nerve roots and meninges. MRI brain showed bilateral periventricular and deep white matter T2 hyperintensities with enhancement of vestibulocochlear nerves. Patient was treated with doxycycline, rifampicin, trimethoprim-sulfamethoxazole and showed marked improvement with regaining abilities to stand and bladder control.

Conclusion: Neurobrucellosis occur in 5-10% cases of brucellosis with varied clinical and imaging findings.

CENTRAL NERVOUS SYSTEM TUBERCULOSIS

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Introduction: Central nervous system involvement is the less common but the most devastating clinical manifestation of tuberculosis. The objective of this study is to present clinical, biological and radiological characteristics of central nervous tuberculosis.

Patients and methods: Retrospective analysis was performed over 15 years (1995-2010). Twenty-four patients with central nervous tuberculosis was included.

Results: Median age of patients was 46.3 years and 14(58.3%) was males. A previous tuberculosis contact was noted in 3 patients (12.5%). Average durations of symptoms were 45.8 days. The cerebrospinal fluid finding showed lymphocyte meningitis in 54%.only 3 patients had decreased glucose. Hyponatremia was observed in 4 patients. On admission, each headache, fever, motor deficit, was present in 29%. Seizures were present in 20.8%.there were any HIV co-infection. Extra-nervous tuberculosis had been noted in 1/3 of cases. Definitive diagnosis was confirmed in only 3 patients and was presumptive in the others. This analysis concluded to 7 (29%) single tuberculoma, 6(25%) multiple tuberculoma, 4(16.6%) tuberculosis encephalopathy, 3 (12.5%) spinal meningitis and 2 (8.3%) pott's spine and pott's paraplegia. Steroids had been associated to anti-tuberculotic in 8 cases.

Conclusion: Tuberculomas were the most frequent manifestations within this analysis. Symptoms, biological and radiological findings are so varied that the definitive diagnosis becomes difficult and delayed.This diagnosis with unspecific signs must be diagnosed as soon as possible even without biological confirmation to have the best results.

THE DIAGNOSTIC VALUE OF ADENOSINE DEAMINASE(ADA) ACTIVITY IN PATIENTS WITH TUBERCULOUS MENINGITIS: CEREBROSPINAL FLUID(CSF) AND SERUM

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Background and aims: The definitive diagnosis of tuberculous meningitis depends on detection of Mycobacterium tuberculosis in the cerebrospinal fluid(CSF) by direct stainig or culture. However, the acid fast bacilli are rarely shown in smears of CSF and cultured in only some patients. Adenosine deaminase(ADA) is an enzyme considered as an indicator of cell-mediated immunity found in T lymphocytes. We aimed to evaluate the diagnostic value of ADA activity of tuberculous meningitis.

Patients and methods: The study was conducted at Chonnam National University Hospital in 551 in-patients of meningitis of varied etiology. We assessed the ADA activity in the CSF and serum of all patients. The diagnosis of tuberculous meningitis was made according to standard criteria. ADA was assayed by ELISA.

Results: The 551 patients comprised meningitis : 83, aseptic meningitis : 262, bacterial meningitis : 148 tuberculous meningitis. 58 patients´ diagnosis was unclear, so they are excluded on analysis. The mean ADA activities were higher in tuberculous meningitis (30.28 ± 17.3 IU/L, 11.8 ± 7.0 IU/L) than in other meningits (24.9 ± 19.2 IU/L, 8.52 ± 13.6 IU/L ; bacterial meningitis, 21.0 ± 11.9 IU/L, 8.26 ± 33.3 IU/L : aseptic meningits) in serum and CSF, respectively. At a CSF cut-off value of 10 IU/L, the sensitivity of the test for diagnosing tuberculous meningitis was 0.74 and specificity, 0.92. The sensitivity was 0.84 and specificity was 0.82 at a serum ADA activity cut-off of ≥ 15 IU/L.

Conclusion: The ADA activity is very useful in the diagnosis of tuberculous meningitis.

PROGRESSIVE MULTIFOCAL LEUKOENCEPHALOPATHY WITH CEREBRAL VASCULITIS IN AN IMMUNOSUPPRESSED RHEUMATOID ARTHRITIS PATIENT

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Progressive Multifocal Leukoencephalopathy (PML), a rare demyelinating disease of the central nervous system is caused by reactivation of JC polyomavirus infection. PML is almost always seen among immunocompromised individuals and is rare in non-HIV patient cohorts. Immune modulating treatments play a major role in development of PML. PML has been reported mimicking cerebral vasculitis, but no case of PML with cerebral vasculitis as a dual diagnosis has been reported. We present a 66 year old male with concomitant PML and cerebral vasculitis.

Our patient's past history included Rheumatoid arthritis treated with Methotrexate and Leflunomide. He presented with a subacute history of right sided weakness. MRI demonstrated a white matter T2 hyperintensity in the left parietal region not altogether consistent with radiological appearances of stroke. He represented one year later with social withdrawal and personality change. Repeat MRI demonstrated bilateral confluent white matter T2 hyperintensities in keeping with PML.

CSF JC virus PCR was negative. The patient underwent brain biopsy confirming JC virus via immunohistochemistry and histology consistent with PML. However, in addition, a vasculitis affecting small cerebral arteries was present. This provided a highly problematic dual diagnosis with regards to treatment. The patient's immunosuppressive therapies were discontinued and a course of plasma exchange undertaken. MRI brain at three months demonstrated partial improvement in T2 hyperintensity lesions.

This highlights the need to counsel patients in the occurrence of PML with leflunomide treatment and consider PML in those who develop neurological symptoms. Mirtazapine is a promising therapeutic agent with further research needed.

MEASURING ANTIRETROVIRAL ADHERENCE IN HIV INFECTED INDIVIDUALS WITH AND WITHOUT COGNITIVE IMPAIRMENT IN WESTERN KENYA

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Background: Neurocognitive deficits are associated with decreased anti-retroviral therapy (ART) adherence. We investigated the associations between measures of ART adherence and cognitive impairment (CI).

Methods: A two stage cluster random sample of 240 HIV-infected outpatients in Nyanza province was enrolled: 149 were on ART. Measures of ART adherence included five self-reported and one objective measure. Subjects underwent neurological exam, neuropsychological testing, and were classified as having CI if the Memorial Sloan Kettering (MSK) Score≥0.5. Pearson's pairwise correlation coefficients were used to compare correlations between measures. T-tests and chi-squared tests were used to assess for associations between CI and adherence.

Results: The mean age of participants was 38.6 years, 61% were male, 59% had WHO stage 3/4 disease, mean CD4 count was 293 cells/µl and 30% (44/149) had CI. Nearly 15% of individuals reported running out of ART in the past one year, 7% reported ever being unable to take ART for >one week, and 15% (23/149) reported missing at least one ART dose in the past one week. Mean adherence using a visual analog scale was 97%. The objective measure demonstrated that on average, individuals were ≥2 days late for 10% of follow-up appointments in the prior year. There were no significant differences between those with and without CI using any adherence measure.

Conclusions: Adherence was high using both self-reported and objective measures for HIV-infected patients with and without CI receiving routine outpatient care. Further investigation is needed to better understand the effect of other predictors of adherence in multivariate models.

SSPE IN PREGNANCY, A CASE REPORT FROM KUWAIT

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Aim: Less than 25 cases of SSPE (Subacute sclerosing panencephalitis) in pregnancy are reported in the English literature focusing on fulminant progression. Documented incidence of SSPE from Kuwait is lowest (0.6/million) among Middle Eastern countries. We present a rare case of SSPE in pregnancy that was confirmed by brain biopsy. We aim to draw attention to this rare condition that still occurs in the present post measles vaccination era.

Case: A thirty six year previously healthy Kuwaiti teacher presented at 28 weeks of gestation of her 4th pregnancy. Complaints started around 20 weeks of pregnancy with behavioral changes, depressed mood, reduced communication, and urinary incontinence. Choreiform movements, myoclonic jerks and partial seizures evolved later. She, her three siblings and children were fully vaccinated in childhood. She had no viral exanthematous illness. At 33 weeks she delivered a healthy baby at home without any awareness.

She rapidly deteriorated after her delivery and over one month was heading towards chronic vegetative state. She did not tolerate isoprinosine. She is still alive, 3.6 years after diagnosis. Her child is healthy. Details of initial management, cerebrospinal fluid analysis, EEG, MRI and brain biopsy will be highlighted in the presentation.

Conclusions: Clinical diagnosis of SSPE was based on presenting symptoms and EEG. Brain biopsy was definitive of SSPE. Our case confirms the fulminant course and underscores the role of brain biopsy for diagnosis of rare rapidly dementing illnesses. We believe this the first case of SSPE during pregnancy documented in Kuwait.

USEFULNESS OF HERPES CONSENSUS PCR METHODOLOGY IN THE DIAGNOSIS OF COMMON HERPESVIRUS INFECTIONS OF THE CENTRAL NERVOUS SYSTEM (CNS)

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Introduction: Herpetic infections of the CNS are a difficult diagnostic problem for both clinicians and microbiologists. Because these infections manifest with various symptoms and signs, and because specific therapy is immediately recommended, accurate diagnosis is essential.

Aim: To assess the usefulness of simultaneously detection in cerebrospinal fluid (CSF) of the six main human herpes viruses implicated in CNS infections by using a multiplex PCR assay.

Material and methods: A total of 813 CSF obtained from 775 patients, with acute encephalitis, meningitis or other disease of CNS were analyzed by using a Herpes Consensus polymerase chain reaction which uses gene amplification to search for the six human herpes viruses. In eight Herpes Simplex Virus 1 DNA positive patients follow-up samples in the course of disease were obtained and investigated.

Results: Thirty two out of 775 patients (4.1%) tested positive for at least one of the six target viruses: ten for Herpes Simplex Virus 1 (HSV-1), two for Herpes Simplex Virus 2 (HSV-2), five for Varicella-Zoster Virus (VZV), eight for Cytomegalovirus (CMV), three for Epstein-Barr virus (EBV) and two for Human Herpesvirus 6 (HHV-6). Co-infection of HSV-1 and HHV-6 was disclosed in two cases of immunocompetent patients with encephalitis. Analysis of CSF samples obtained after completion of the antiviral treatment gave negative results.

Conclusion: According to our experience Consensus PCR assay can be useful to facilitate the routine diagnosis of herpetic CNS infections, within a single assay, single clinical sample, thereby allowing earlier application of specific antiviral treatment and better clinical management.

A BRAINSTEM INFARCTION REVEALING NEUROSYPHILIS-NEUROHIV CO-INFECTION

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Introduction: Meningovascular syphilis is observed in 10% to 35% of all neurosyphilis cases. Strokes are less frequent in HIV positive patients especially due to arteritis caused by HIV itself or opportunistic infections. HIV and syphilis co-infection may make syphilis more rapid with severe course, the diagnosis may be difficult because of higher incidence of false -negative serological tests.

Case report: A 38-years-old unmarried patient with no history of genital ulcer was admitted for acute tetra paresis with altered level of consciousness and apathy. Brain MRI showed a brainstem infarction while VDRL and TPHA were positive in blood, CSF study showed pleiocytosis with positive syphilitic serologies. wetern Blot study was positive for HIV both in blood and CSF. HIV PCR in CSF wasn't available. consciousness impairment improved after penicillin and antiretroviral therapy but patient kept residual motor deficit. Screening for opportunistic infections was negative. ECG, cardiac echography and doppler were normal. We have concluded to meningovascular syphilis associated with neuroHIV infection.

Conclusion: Patients co-infected with syphilis and HIV present a diagnostic and therapeutic challenge since both syphilis and HIV can have very variable neurological involvement. Meninogovascular syphilis presents 4-7 years after infection and symptoms occur because of vascular ischaemia in the territory of basilar arteries like in our case. Neurospyhilis with HIV co-infection is more difficult to diagnose because HIV infection is frequently associated

with a CSF pleocytosis. Due to the reemergence of syphilis, search for Treponema pallidum infection should be systematic in young stroke victims.

NEUROPATHIC PAIN DURING TUBERCULOSIS TREATMENT IN HIV NEGATIVE PATIENT IN PNEUMO-PHTISIOLOGY WARD OF POINT G HOSPITAL, BAMAKO, MALI (WEST AFRICA)

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Background: The incidence of tuberculosis is high in Africa. Its treatment uses molecules that trigger neuropathic pains which may impact patients' quality of life and compliance to treatment. The aim of this study is to investigate neuropathic pain due to anti-tuberculosis drugs in patients with no HIV.

Methods: This is a prospective study performed in the Department of Pneumo-Phtisiology at the Teaching Hospital of Point G, Mali. Patients on anti-tuberculosis drugs, with negative HIV test and without another potential cause of neuropathic pain were included in this study. Diagnosis was confirmed based on the DN4 and the evaluation was performed with the EVA and the Lattinen test.

Results: During the study, 423 subjects were admitted in our department with 103 (24.4 %) cases of tuberculosis. Eighty patients fullfilled inclusion criteria. The sex ratio (male to female) was 2.5. Mean age was 39-year ranging from 13 to 80-year. Thirteen patients (16.25 %) presented neuropathic pain. Burning sensations in the plantar region, associated or not with paresthesia, were the presenting symptoms in 10 out of 13 patients. A treatment based on Amitriptyline, vitamine B6, and physical therapy was given to all patients, leading to an improvement of the pain within 2 months.

Conclusion: Neuropathic pain occurs independently of age, sex or the anti-tuberculosis treatment if it includes Isoniazid. Stopping or modifying the protocols of treatment is not necessary. In our context, considering the difficulties in identifying slow acetylators, a systematic treatment with vitamin B6 should be discussed.

NEUROLOGIC MANIFESTATIONS OF LEPTOSPIROSIS: SERIES STUDY

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Leptospirosis is an ubiquitous zoonosis caused by spirochets of the Leptospira genus. It is characterized by a broad spectrum of clinical manifestations. The neurological involvement is rare.

The aim of this study is to analyze the neurological aspects of leptospirosis and their prognosis.

A retrospective study of nine cases of leptospirosis causing neurological affection, collected at the Neurology department (4 cases), Medical Intensive Care and Infectious Diseases (5 cases) UHC of Ibn Rochd of Casablanca, between January 2008 and April 2011. The diagnosis was maintained based on the serology positivity of Martin and Petit.

All patients were male. The average age was 32 years old. There was a purulent and lymphocytic meningitis in two cases, respectively; myositis in 2 cases, and ultimately meningoencephalitis, a meningo-myelo-radiculitis, and facial palsy in 1 case respectively. The evolution under penicillin A, was characterized by clinical and laboratory improvement in 8 cases. In performance, only one case evolved negatively because of diagnosis delay . During the same period, the same departments have collected a number of 31 cases of leptospirosis whose evolution was generally favorable except for one who died of acute renal failure.

The neuroleptospirosis is noticed in 10-15% of the cases. We found a higher prevalence of around 29%. The Neurological affection mainly involves the functional prognosis.

INFECTIONS AND INFLAMMATION ASSOCIATED WITH NEURO-BEHÇET SYNDROME

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Behçet Disease (BD) may initially present with neuropsychiatric (NP) manifestations and the differential diagnosis is challenging. NeuroBehçet syndrome (NBS) is defined as the presence of neurological symptoms associated with signs and/or with imaging and/or abnormal cerebro-spinal fluid in a patient that fulfils the International Diagnostic Criteria for BD, after exclusion of other possible causes. It is unclear what the precipitants for CNS disease are. Viral infections are good candidates as environmental triggers to manifestations. Certain inflammatory markers may be associated with crossing the blood-brain barrier.

Aim: Identify a common infectious precipitant or variation in response to a common viral agent or a serum cytokine that that would be associated with BD with or without neurological involvement.

Methods: Clinical evaluation of 14 patients with NBD followed in the Neuroimmunology Clinics and the cross-sectional measurement of serum IgG antibodies to EBV, VZV, CMV, measles and HSV-1 with commercial enzyme linked immunoassays, cytokines with a flow cytometry multiplex platform. The control groups consisted of 16 patients with BD and 18 healthy controls.

Results: Levels of IgG antibodies to EBV-VCA and VZV were increased in patients with NBS compared with patients with BD, and both were increased when compared with healthy controls. The levels of IL-8 had a tendency to be higher in all BD patients than in NBS.

Conclusions: Results indicate that the immune responses to the lytic phase of EBV infection and to VZV infection are associated with NBD. A longitudinal study with samples during acute NP disease needs to be done.

CASE REPORT: HIV WITH PROTEIN S DEFICIENCY PRESENTING WITH CEREBRAL VENOUS THROMBOSIS

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Introduction: HIV Infection has been associated in some studies with an increased risk of both arterial and venous thrombosis. Potential mechanisms for this are, however, not fully understood. The authors report a case of cerebral venous thrombosis associated with protein S deficiency in patient with the acquired immunodeficiency syndrome.

Case report: A 39-year-old man was admitted with acute onset generalized tonic-clonic seizure. He had a history of severe and persistent headache for 3 days prior to admission. Two hours after the seizure, he had low-grade pyrexia, and his mental status, vital signs, physical and neurological examinations were unremarkable. Computed tomography showed no evidence of ischaemic lesions or intra-cranial bleed; the cerebral MRI was normal and the MR angiography revealed partial obstruction of the superior sagittal sinus and complete obstruction of the right lateral sinus without any evidence of thrombus, compatible with cerebral venous thrombosis. Test for antinuclear, anti-DNA, anti-ENA, and antiphospoholides antibodies were all negative. Levels of protein C, antithrombin III, and factor V Leiden were normal. Protein S concentrations were 43% (normal 60% to 100%). Serological tests for HIV were reactive. The patient was treated with heparin therapy, antivitamin-K (AVK) and standard antiretroviral therapy with a good recovery.

Conclusion: The increased risk of venous thromboembolism among HIV-infected patients deserves further clinical and pathophysiological investigation. Due to the poor prognosis of advanced cases physicians should be aware of this risk in order to promote the early identification and appropriate treatment or prophylaxis.

ANALYSIS OF FOURTEEN NEW CASES OF MENINGOVASCULAR SYPHILIS: RENEWED INTEREST IN AN OLD PROBLEM

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Introduction: Neurosyphilis (NS) is an infection of the central nervous system caused by the spirochaete Treponema pallidum. Its management has proved controversial and continues to be debated.

The aim of the study was to identify and report the clinical, radiologic and laboratory studies of fourteen cases of meningovascular syphilis in HIV-negative patients.

Subjects and methods: We retrospectively reviewed the medical records of fourteen patients classified as meningovascular syphilis and diagnosed over a period of 6 years (January 2004-December 2009) at Ibn Tofail Hospital, University Hospital Mohammed VI (Marrakesh, Morocco). Diagnosis of NS was established by the presence of positive treponemal tests in blood (Reactive Treponema Pallidum Particle Agglutination (TPPA) test and Venereal Disease Research Laboratory (VDRL) test), and VDRL positive test in the cerebrospinal fluid in the absence of gross blood contamination. Data regarding epidemiological and clinical features, HIV status, CSF characteristics, serum and CSF immunological tests, neuroimaging, cardiovascular exploration, electroencephalographic study, ophthalmologic findings, treatment and outcome were reviewed. All patients received high-dose intravenous penicillin: crystalline penicillin G (30 million U IV daily) for 10 days, each three months during one tear. The average follow up of all patients was 21 months.

Conclusion: Meningovascular syphilis although uncommon, is an eminently treatable condition, particularly the earlier presentations. Clinical polymorphism seems to remain the hallmark of this disease. Information about the current clinical spectrum of meningovascular syphilis is fundamental to maintain a high rate of suspicion worldwide and to promote the early diagnosis and treatment of a potentially devastating disease.

CNS HERPES SIMPLEX VIRUS (HSV) OUTCOMES BY TIME TO TREATMENT - A CLINICAL AUDIT

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Background: Herpes simplex encephalitis remains a significant cause of morbidity and mortality in our community. HSV was the most commonly identified infective cause of encephalitis in a recent English study.[1] Recurrent viral meningitis (Mollaret's meningitis) can also cause significant lost productivity although between attacks the patient is well. Outcomes from encephalitis have been improved by treatment with acyclovir although the influence of time to treatment has not previously been published.[2]

Methods: Cases were ascertained by reviewing the records of all cases that tested positive on HSV polymerase chain reaction testing of cerebral spinal fluid at a tertiary referral hospital from January 2007 to May 2011. The medical record was reviewed with respect to patient demographics, duration and nature of symptoms at presentation, estimated time from symptom onset to antiviral treatment, duration of fever, functional state at hospital discharge and, where available, function at over 6 months post discharge where available.

Results: 22 patients had 23 positive test results (1 patient presented twice in study period another had two symptomatic presentations with one positive test). 10 had encephalitic features clinically. 6 of these required extra assistance or care over their previous level of function and one died during admission. There was no significant difference in average time from first symptoms to dose of acyclovir between the two groups.

Conclusion: Alternative previously identified factors appear to have a stronger influence on outcome than time to first dose.

ACUTE CHICKENPOX CAUSING MULTIPLE CRANIAL NEUROPATHIES

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Introduction: Cranial neuropathies following primary varicella zoster virus (VZV) infection is a rare complication of the disease. To date, mononeuropathies but not multiple cranial neuropathies have been described.

Objectives: To describe the clinical, radiological and microbiological features of 2 patients with multiple cranial neuropathies following primary varicella infection, review the published literature and discuss the possible pathophysiologic mechanisms for the phenomenon.

Setting: Inpatient ward at the Department of Neurology, National Neuroscience Institute, Singapore.

Results: The first patient is a 31-year-old male who developed left abducens and left facial lower motor neuropathy 3 weeks following primary VZV infection. Brain magnetic resonance imaging (MRI) was normal. Cerebrospinal fluid (CSF) studies showed lymphocytic pleocytosis and elevated protein but was negative for VZV DNA by polymerase chain reaction (PCR). He recovered fully at 1 month with intravenous acyclovir treatment. The second patient is a 70-year-old male who had both left trochlear and left abducens neuropathy 2 weeks following primary VZV infection. Brain MRI was normal. CSF studies detected VZV DNA by PCR, though cell count and protein level were normal. The abducens neuropathy did not resolve on follow up at 6 weeks despite intravenous acyclovir treatment. These 2 cases suggest an immune mediated mechanism and/or direct viral invasion resulting in cranial neuropathies.

Conclusion: Multiple cranial neuropathies may occur during the course of acute varicella infection and may represent a para- or post-infectious phenomenon. It should be recognized by physicians as a neurological complication of the infection. Prognosis for recovery is variable but generally good.

THE ROLE OF CEREBROSPINAL FLUID S100B PROTEIN FOR PREDICTING PARENCHYMA IMPAIRMENT IN PATIENTS WITH CNS INFECTIONS

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Backgrounds and aims: S100B protein is widely used as a parameter of glial activation or damage in several conditions. CNS infections can cause neurological sequelae because of parenchyma invasion more than meninges in a specific conditions. It is limited to predict further neuronal damage in acute phase of CNS infection. This study evaluate the role of CSF S100B protein as indicator of the parenchyma impairment in CNS infection.

Methods: We determined the concentration of CSF S100B protein by ELISA assay in 62 patients with CNS infection. All patients were divided into two groups, those with parenchyma impairment (CNS-NP) and those witht (CNS-NP) : mental change, focal neurologic sign, presence of seizure, abnormal EEG, acute structural lesions on brain MRI.

Results: The final diagnosis for causative agent were as follows : viral (N=44), bacterial (N=6), tuberculous (N=12). Twenty one patients were classified into CNS-P and 41 were CNS-NP. The mean age of CNS-P was higher than those with CNS-NP (45.9 vs 33.9 yrs, $p < 0.05$). In the CSF analysis, the level of protein was significantly elevated in CNS-P (153.9±100.1 mg/dl) compared to CNS-NP (86.0±54.7 mg/dl, $p < 0.001$). The CSF S100B protein in CNS-P was significantly higher than CNS-NP (1310.4±1858.2 pg/ml vs 100.7.±57.6 pg/ml, $p < 0.001$). In the multiple regression analysis, the CSF S100B protein was independent factor for predicting parenchyma nvolvement ($p=0.01$).

Conclusions: This study suggested that S100B protein in CSF might be a useful tool in predicting further neurological impairment in CNS infections.

RABIES IN COLOMBIA

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Introduction: Rabies in humans has been scientifically documented in Colombia since 1960 as being transmitted by dog bites in urban areas and occasionally by bat bites in the jungle. There have been no cases of rabies in humans transmitted by dogs in recent years, but there are new cases of rabies transmitted by cats and bats.

Objectives: To present the status of human rabies in Colombia.

Patients and methods: Five patients hospitalized in third-level institutions in whom a diagnosis of rabies was unsuspected. Necropsy, direct brain tissue immunofluorescence, and biological testing with inoculation of IRA strain mice were performed on all of the patients, with additional serological testing done on some of them.

Results: Three men and two women, with ages ranging between 12 and 76 (mean 31), from urban communities. Three bitten by bats and two by cats. The incubation periods varied from to two to four months with a mean time of 3 months. The initial diagnoses, performed by neurologists, were of encephalitis in three of the cases, and of Guillain-Barré Syndrome in the other two. In one of the bat transmitted cases serological testing showed the antigenic variant 3, whose main reservoir is the hematophagous vampire bat *Desmodus rotundu*s. In one of the cat transmitted cases, the antigenic variant 4 was found which has insectivorous bats as its reservoir.

Conclusion: In Colombia there has been a change in the epidemiological characteristics of human rabies produced by bat and cat bites, with diagnostically challenging clinical presentations.

DETECTION AND EVALUATION OF HAEMOPHILUS INFLUENZA IN CSF

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Background: Haemophilus influenza type b has been demonstrated to be the most frequent bacterial pathogen causing meningitis in infants and young children. H.influenzae may be under detected because of inadequate techniques for isolation or overuse of antibiotics before with recovery of causative agents in bacterial meningitis.

Methods: To determine whether a diagnostic test based on a polymerase chain reaction could be used as an alternative to conventional CSF culture for diagnosis of Haemophilus influenza type b (Hib) meningitis in infants and young children investigated. DNA was extracted from CSF and probed for the presence of Hib DNA with PCR assay with primer derived from the sequences encoding a capsulation-associated protein; a protein most probably involved in the intracellular transportation of the capsular polysaccharide, and would be expected to react only with capsulate H.influenzae strains.

Results: Two hundred three cerebrospinal fluid (CSF) samples collected consecutively from children(less than 5 years) suffering from meningitis were investigated by PCR. There were all the cases of clinical meningitis admitted to three children hospitals in 18 months duration period. Five samples were culture positive for Haemophilus influenza and seven samples were also clearly positive by PCR test. Sensivity and specificity of PCR were 100% and99% respectively. Two children had positive Hib PCR but negative by culture method.

Conclusion: We conclude, the PCR assay is more sensitive for detection of Hib against culture in cerebrospinal fluid and this method is available for identification of Hib if the results of culture methods are negative.

ACCURACY OF THWAITES' DIAGNOSTIC CRITERIA TO DISTINGUISH TUBERCULAR MENINGITIS FROM OTHER TYPES OF MENINGITIS

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Aim: To evaluate the accuracy of Thwaites' diagnostic scoring system to differentiate tubercular meningitis from other acute and chronic meningitis.

Methods: We retrospectively reviewed all cases with the diagnosis of meningitis from June 1999 to December 2008. We sub classified them into tubercular, pyogenic, fungal, and neoplastic meningitis based on microbiological, cytological and clinic-radiological data. The diagnostic value of the scoring system was assessed by calculating the area under receiver operating characteristic (ROC) curves.

Results: A total 126 cases satisfied the inclusion criteria (TBM=70, pyogenic meningitis =17, fungal meningitis =12 and neoplastic meningitis =25). The mean age at diagnosis was 37±15.6years. The specificity and sensitivity of the Thwaites' diagnostic scoring system in differentiating TBM from all nontubercular meningitis together was 71% and 27% respectively. The area under the ROC curve for differentiating TBM from pyogenic meningitis was high (0.99), where as it was low for fungal meningitis (0.57) and neoplastic meningitis (0.50).

Conclusions: Thwaites' diagnostic scoring system is useful in differentiating TBM from pyogenic meningitis, but not from fungal and neoplastic meningitis.

CRYPTOCOCCOSIS IN AN IMMUNOCOMPETENT PREGNANT WOMAN

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Introduction: Cryptococcosis is a severe infection with great affinity for the immunosuppressed host, and whose primary tropism is the central nervous system and the lungs. More easily evoked in HIV positive patients, it may also be associated with diseases or treatments which cause suppression of cell-mediated immunity. Possibly 10-40% of HIV-negative patients with cryptococcosis have no known immune disorder. We report a case of cryptococcosis meningoencephalitis in an immunocompetent pregnant woman.

Observation: Our patient was seven months pregnant and presented signs of subacute meningoencephalitis. Cerebral spinal fluid culture identified Cryptococcus neoformans but no cause of immunodepression was found as she tested negative for HIV and for investigations of immunocompromising diseases. Evolution was initially good after treatment with amphoterecin B then oral fluconazole, but she relapsed after medication was discontinued. She presented severe elevated intracranial pressure that required a ventriculoperitoneal shunt with subsequent clinical stabilisation.

Discussion: Neuromeningitis stays the most frequent demonstration of the cryptococcosis, with a rather pejorative prognosis. This infection is rarely evoked at the immunocompetent hosts. Consequence is a diagnosis and treatment delay which can burden the prognosis. In addition, there's no data available to ascertain the optimal duration of antifungal therapy treatment of cryptococcosis during pregnancy. Our patient received initially 6 weeks of amphotericin B then 6 weeks of oral fluconazole with a good initial outcome and then relapsed. Our case states pregnancy as a predisposing condition to cryptococcosis. Treatment guidelines are necessary to improve the management especially in terms of the duration of maintenance therapy.

NATALIZUMAB-ASSOCIATED PROGRESSIVE MULTIFOCAL LEUKOENCEPHALOPATHY: SURVIVAL AND FUNCTIONAL STATUS OF POSTMARKETING CASES

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Objectives: To identify predictors of survival and describe functional status in patients with natalizumab-associated progressive multifocal leukoencephalopathy (PML).

Methods: PML cases were categorized by survival outcome (fatal/nonfatal) and functional status (mild/moderate/severe disability). Treating physicians provided information on motor and cognitive function, performance of daily activities, and Karnofsky Performance Scale score. Data were supplemented by the natalizumab global safety database.

Results: As of May 4, 2011, 101 of 124 (81%) confirmed natalizumab-treated PML patients were alive. Among the first 79 confirmed cases analyzed, survival was 80% (63/79); survivors were younger (median: 43.0 vs 52.5 years) and had less time to PML diagnosis (mean: 34 vs 54 days) compared with fatal cases. On MRI, PML was widespread in 63% of fatal cases. Gender, natalizumab exposure, and prior immunosuppressant use were similar between fatal and nonfatal cases. Natalizumab was withheld in all PML cases and was rapidly removed by plasma exchange or immunoadsorption in most cases. Immune reconstitution inflammatory syndrome developed in most PML cases and was treated with corticosteroids. Sixty percent (38/63) of survivors had ≥6 months of follow-up after PML diagnosis; disability was mild, moderate, and severe in 13%, 50%, and 37% of these patients, respectively, based on Karnofsky scores. Available updated data will be presented.

Conclusions: With natalizumab-associated PML, survival was associated with younger age, more localized PML on MRI, and more rapid PML diagnosis. Functional status ranged from mildly to severely disabled. These data suggest enhanced clinical vigilance leading to earlier diagnosis and optimal PML management may improve outcomes.

NEUROLOGIC ILLNESS ASSOCIATED WITH TYPHOID FEVER. MALAWI, MOZAMBIQUE 2009

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Background: The bacterium Salmonella Typhi causes typhoid fever, typically associated with fever and abdominal pain. An outbreak of typhoid fever in Malawi-Mozambique in 2009 was notable for a high proportion of neurologic features.

Methods: Ill persons meeting a case definition were identified through surveillance, with laboratory confirmation by IgM antibody testing or blood / stool culture. We gathered demographic/clinical information, examined patients, and re-evaluated a subset 11 months after onset. A sample of persons with and without neurologic signs was tested for vitamin B6 and B12 levels and urinary thiocyanate.

Results: Between March - November 2009, 303 cases of typhoid fever were identified. Forty persons (13%) had focal neurologic findings, including 14 confirmed by culture / serology; 27 (68%) were hospitalized, 5 (13%) died. Seventeen (43%) had a constellation of upper motor neuron findings, including limb hyperreflexia, spasticity, and sustained ankle clonus. Other neurologic features included ataxia (22, 55%), parkinsonism (8, 20%), and tremors (4, 10%). Brain magnetic resonance imaging on 3 (ages 5, 7, and 18) demonstrated cerebral atrophy but no other abnormalities. Eleven months after illness, evaluation of 13 patients demonstrated complete recovery in 11, and persistent hyperreflexia and ataxia in 2. Vitamin B6 levels were markedly low in typhoid patients with and without neurologic signs.

Conclusions: A diagnosis of typhoid fever should be considered in persons with acute febrile neurologic illness in endemic areas. The mechanism underlying typhoid-associated neurologic illness remains unexplained, but may be para-infectious, an unrecognized bacterial toxin, or an interaction of host factors and infection.

TUBERCULOUS MENINGITIS IN THE IMMUNOCOMPÉTENTS: ABOUT 25 CASES

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Introduction: Tuberculosis is a worldwide public health problem. The meningeal diseases due to Mycobacterium tuberculosis remain at the forefront of extra-pulmonary tuberculosis by their potential severity rather than their frequency.

Material and methods: Retrospective chart review of 27 patients hospitalized in our department for tuberculous meningitis. All patients benefited from a careful questioning, a complete neurological and somatic examination, a cytochemical and bacteriological study of cerebrospinal fluid, a brain imaging (CT and/or MRI), a physiological and biological checkup. All the patients were put on anti bacillary + / - corticosteroids.

Result:

* The average age of our patients was 35 years. Males were predominant. A history of contact with tuberculosis was noted in two patients. Clinical examination found a febrile syndrome associated with a stiff neck in all cases, delirium syndrome in 14 cases and cerebellar syndrome in 2 cases. The clinical presentations were made: meningitis isolated in 8 cases, meningo-encephalitis in 15 cases and in two cases meningo-neuritis.

* On the therapeutic level, our patients benefited from the association: rifampicin + isoniazid + pyrazinamide + ethambutol for 2 months followed by dual therapy. Corticosteroid at a dose of 0.5 to 1mg/kg/day was administered for 4 to 8 weeks in 11 patients. The total duration of treatment was 9 months in 19 cases and 12 months in 6 cases.

Conclusion: The clinical polymorphism of tuberculosis meningitis and the difficulty to identify the BK does not delay the initiation of treatment instituted on signs of strong presumption.

TUBERCULOUS MENINGOVASCULARITY: ABOUT 7 CASES

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Introduction: Tubercular meningitis is a serious affection. It represents 2-5% of extrapulmonary tuberculosis. Its clinical expression is polymorphous, with aspects of meningitis, encephalitis, cerebral infarction and tuberculoma.

Material and methods: The purpose of this study was to report 7 cases of tuberculosis meningovascular, collected in the medical neurology department of the military hospital Med V Rabat, and to analyze different epidemiological, clinical, paraclinical, therapeutic and evolutionary aspects.

Result: The cerebral infarctions can occur immediately or during treatment. They may be asymptomatic or otherwise massive and fatal. In our patients, the onset of a focal motor deficit was strongly evocative. Imaging, including brain scan can reveal the characteristics hypodensities of ischemic stroke, associated to elements of meningeal affection such an increasing contrast of the skull base. MRI is superior to CT for detecting small areas of ischemia secondary to vasculitis.

The research of BK often negative; the origin of tuberculous meningovascular is retained

on the clinical arguments (low-grade fever, contact with tuberculosis, extra-neurological localization), biological (lymphocytic meningitis with hypoglycorrhachia and hyperproteinorachia, hyponatremia,...), and radiological.

The treatment is based mainly on antibacillary associated with platelet antiaggregatory, started early to prevent important morbidity and mortality. The deadline was 48 hours in our patients, allowing them the most favorable evolution.

Conclusion: In the absence of bacteriological proof, the origin of tuberculous meningovascular must be retained on the elements of strong presumption. Treatment should not delay.

A PROSPECTIVE DATABASE OF MENINGO-ENCEPHALITIS IN A TERTIARY SINGAPORE HOSPITAL-A PRELIMINARY REVIEW

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Background: Meningo-encephalitis is often associated with neurological sequelae and not infrequently death. The majority are caused by viruses. The etiology of many remain unknown despite extensive investigations.

Objective: To review the clinical profile and etiology of meningo-encephalitis enrolled in a prospective database at a tertiary Singapore hospital. The database was set up to prospectively collect data on meningo-encephalitis cases and archive serum and spinal fluid.

Methods: All patients with meningo-encephalitis seen at our institution are enrolled in this database.The clinical, laboratory data and outcome of the patients recruited from January to May 2011are reviewed.

Results: From January 2011 to May 2011 a total of 16 males and

12 females were enrolled. 14 were more than 50 years old. Confirmed or probable etiologic agent was identified in 9 (32%). 4 patients had Mycobacterium tuberculosis (TB), 2 Streptococcus pneumoniae, 1herpes simplex type 2(HSV), 1cytomegalovirus (CMV) and 1Cryptococcus neoformans. A noninfectious etiology, antiGQ1b antibody positive Bickerstaff encephalitis was identified in 1. No etiology was found in 18(64%) cases. 11(39%) patients had good outcome and were discharged with no neurological deficits. Of these, 4 had known etiology; Streptococcus pneumoniae, TB, HSV, CMV. 2 patients died, and both had autoimmune disorders that required long-term immunosuppression.

Conclusion: Using current diagnostic methods a high proportion (64%) of encephalitis are of unknown etiology. Less than half the patients had good outcome. Immunocompromised individuals did worse. There is a continued need to monitor trends in menigo-encephalitis and to improve identification of etiologic agents to improve the dismal outcome.

CEREBELLAR AND EXTRAPYRAMIDAL MANIFESTATIONS OF LYME ENCEPHALITIS: A CASE REPORT

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Introduction: Encephalitis caused by *Borrelia burgdorferi* infection, isolated meningitis, myelitis and cerebral vasculitis are rare manifestations of neuroborreliosis.

Case report: A 32-year-old white man had an acute onset of dizziness and nausea two weeks before presenting to our neurology clinic. On admission, horizontal nystagmus was registered as well as ataxia and head tremor. The history showed labial herpes one month before the current manifestations and exposure to a tick bite several years previously. During the first week of hospitalization his neurological symptoms progressed. The patient developed saccadic eye movement, gaze-evoked nystagmus, dysarthria, intentional tremor of the right upper extremity, truncal and head ataxia, and was unable to stand and walk. Later on, extrapyramidal rigidity of the upper extremities and neck as well as dystonia were registered. Routine laboratory tests showed leukocytosis. Serum analysis for viruses and *B. burgdorferi* showed increased levels of *B. burgdorferi* IgG and HSV IgG. CSF was clear and showed a slightly increased number of cells, predominantly lymphocytes, and no trace of viral infection (HSV, CMV, HSV 1+2). MRI and EEG findings were normal. During the third week of hospitalization neurological status reached a plateau. Soon after receiving antibiotics (ceftriaxone), the patient entered remission. On discharge, there were still signs of extrapyramidal rigidity, tremor, and mild ataxia.

Conclusion: Our patient had encephalitis, predominantly rhombencephalitis, caused by *B. Burgdorferi,* which presented with severe cerebellar and extrapyramidal symptomatology. Neurological status progressed slowly until reaching a plateau, and after receiving antibiotic therapy, the patient entered remission.

NEUROSYPHILIS IN YOUNG PEOPLE: ABOUT 4 CASES

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Neurosyphilis is a serious illness wich represents 10% of the tertiary form of syphilis. The neurological manifestations are polymorphic and currently on rise in young people.

Objectives: To evaluate the clinical presentation of neurosyphilis in young people.

Materials and methods: We report the cases of four young patients with neurosyphilis collected at the Neurology Department, CHU Hassan II, Fez-Morocco

Results: All patients were male, age at onset was less than 32 years. The clinical presentations registered are chronic meningo-encephalitis in two patients, lymphocytic aseptic meningitis in one patient and optic atrophy in another. The diagnosis was based on positive serological reactions (VDRL-TPHA) in blood and cerebrospinal fluid. The treatment was based on high doses of penicillin G in three patients and cyclins in one patient.

Discussion: Neurosyphilis is the most severe neurological complication of active syphilis. The particularity of our observations is the early age of onset of neurosyphilis probably due to early sexual activity and sexual liberation in our society and under-medication of patients. Neurological disorders develop for many years after infection, after a lag phase clinically silent. The average time between initial infection and the diagnosis of neurosyphilis in our patients is estimated to 10 years in one patient and unknown in the other three. In some cases, neurological involvement may even be contemporary to the canker which may explain the young age of our patients.

Conclusion: Only primary prevention, early treatment of primary or secondary syphilis, and awareness campaigns can prevent the onset of severe neurological complications.

NEUROLOGICAL COMPLICATIONS OF DENGUE FEVER: AN INDIAN STUDY

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Introduction: Dengue fever is emerging as disease of significant public health problem, particularly in developing nations. The virological characteristics of dengue viruses have been constantly changing, causing various neurological complications.

Object of the study: This is a retrospective study of 26 patients, manifested with neurological complications in patients suffering from established dengue infection.

Patient and methods: Patients manifesting with neurological complications with positive serology for dengue infection were consecutively recruited from department of neurology/ medicine in the span of 2 years from tertiary centre of North India. These patients were subjected for detailed clinical evaluation, investigative work up including hematological parameters, biochemical assays, serology for dengue fever (IgM antibody in serum 2 times at interval of a week) and exclusion of other disorders by battery of relevant investigations.Results 26 patients with neurological manifestations associated with confirmed dengue fever were observed for previous 2 years. 18 patients were male. Neurological manifestations were Brachial neuritis (10 patients), Encephalopathy (4 patients), Guillan Barre syndrome (3 patients), Hypokalemic paralysis (3 patients), acute viral myositis (2 patients), Opsoclonus myoclonus syndrome (2 patients), acute myelitis (1) and acute disseminated encephalo-myelitis (1 patient).

Conclusion: In our study, various neurological complications associated with dengue fever were highlighted. Brachial neuritis and opsoclonus myoclonus were first time reported in this study.

ENCEPHALOPATHY AND ENCEPHALITIS ASSOCIATED WITH DENGUE

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Background: Dengue encephalopathy (DE) is frequently not differentiated from dengue encephalitis (DES) due to difficulty in demonstrating direct involvement of central nervous system (CNS) by the virus. We reviewed dengue patients with disturbed sensorium to delineate the spectrum DE and DES.

Methods: Dengue fever was diagnosed from clinical features, positive dengue IgM, polymerase chain reaction (PCR) and non structural glycoprotein. DE was defined by presence of altered mental state, seizures or acute focal neurological deficits. DES requires laboratory or radiological evidence of CNS involvement.

Results: Nine cases, five females, four males, median age 62 years and range 28 to 87 years, were identified. Three patients had prior CNS disease: resected pineal tumour, dementia and normopressure hydrocephalus. Two of seven patients who underwent spinal tap showed pleocytosis. Dengue PCR in spinal fluid was positive in one of the three cases tested. Brain imaging revealed acute stroke in two patients. One patient had T2 and diffusion weighted image hyperintensity in genu of corpus callosum, bilateral subcortical white matter. Five patients had other factors that could have affected sensorium e.g. sepsis and hyponatraemia. We determined six patients had possible DES and three DE.Two patients died, one from dengue shock syndrome. The other, with advanced dementia, had urosepsis, status epilepticus and stroke. One patient had mild residual hemiparesis. The rest recovered without sequelae.

Conclusion: Altered mental state in dengue could be due to concurrent illness, systemic complications of dengue or direct CNS involvement. Prospective data is needed to better understand DE and DES.

NEUROSYPHILIS IN SOUTHERN MOROCCO ABOUT 108 CASES

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Background: In Morocco syphilis in general and particularly of nervous system still constitutes a medical health problem. The aim of study is to analyze epidemiological, clinical, paraclinical, therapeutic and evolutionary profile of neurosyphilis in South Morocco.

Methods: Authors analyzed retrospectively 108 observations of neurosyphilis, collected in neurology department of Marrakech during 14 years (1994 to 2007).

Results: These 108 patients constitute 5 % of all neurology departments' hospitalization. Mean age was 41 years, 88% were male, 51,85 % were rural. The delay of consultation varied from 2 months to 7 years. We found the most common presentation to be meningio encephalitis (chronic in 47 cases and acute in 6), tabes dorsalis (15), chronic encephalitis (13), meningio arteritis (5), optic atrophy (9), myelitis (6), striatitis (3), late congenital syphilis, amyotrophic lateral sclerosis and neurosyphilis associated with neurobehcet disease, asymptomatic neurosyphilis, one case each. TPHA were positive either in blood and CSF in all cases. The CT scan realized in 50 patients, they showed in the majority a cortical atrophy.

Conclusions: Authors analyze and try to better understand the profile of neurosyphilis in South Morocco, and some hypothesis are given in having neurosyphilis after untreated chancre in some patients and not in others.

PROGRESSIVE ENHANCEMENT OF ALPHA ACTIVITY AND VISUAL FUNCTION IN PATIENTS WITH OPTIC NEUROPATHY: A TWO-WEEK NON-INVASIVE ALTERNATING CURRENT STIMULATION STUDY

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Non-invasive alternating current stimulation (tACS) of the human cortex can entrain rhythmic brain activity in healthy subjects and improve visual field size in patients with optic nerve damage. The hypothesis was that we would find entrainment in the alpha and beta-bandwidths in EEG as well as an association with clinical recovery.

Patients with visual field impairments resulting from pre-chiasmatic partial optic nerve damage received tACS (n=18) on 10 consecutive days. tACS (< 400 µA, range 9 to 33 Hz) was given for 20-40 min/daily for 10-days (2x5 weekdays). Visual fields were collected at baseline (day 1) and day 10. EEG was collected on all 10 days prior to and after stimulation. Changes in delta through high beta-power over consecutive days and the correlation with changes in the visual fields (day 10 versus baseline) were investigated.

Progressive enhancement of alpha-power over the occipital electrodes was found during 10 days of stimulation. Visual field deficits were improved at day 10 as compared to day 1. No correlation was found between alpha changes (day 10 versus baseline) and visual field changes (day 10 versus baseline).

We conclude that tACS entrains alpha-oscillatory brain activity and promotes restoration after a circumscirbed chronic pre-chiasmatic optic nerve lesion as assessed both by objective EEG changes and improvements of visual deficits in perimetry. The effects of entrainment outlast the duration of stimulation and are enhanced by daily repetition. This suggests adaptive plastic processes.

SENSORYMOTOR RECOVERY AND ASSESSMENT IN PARAPLEGICS AND TETRAPLEGICS UNDERGOING NEUROMUSCULAR ELECTRICAL STIMULATION

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Paraplegia and tetraplegia present stable motor levels one year after injury, with 90% of ASIA A patients showing no functional recovery.Neuromuscular Electrical Stimulation-NMES applied to such patients yields artificial gait as well as improvement in bone density and cardiovascular function. Furthermore it allows for human central pattern generators to be triggered.The objective of this study was to provide gait patterns to paraplegics and tetraplegics and assess clinical changes as well as electromyography, evoked potential - SSEP and magnetic resonance imaging - MRI, along the application of rehabilitation protocols based on NMES yielded gait to paraplegics with walkers and to tetraplegics in a treadmill .A clinical case is presented here.A 45 year old male patient, T8 level ASIA A secondary to a sequela of neurocysticercosis was submitted to NMES (flexion / extension of hip, knee and ankle) gait training for 3 years. MRIs (2005-2009) show a difuse arachnoidytis leading to complete destruction of cord tissue from T3 to T10, with a central cystic cavity (syringomyelia) and a thin layer of surrounding neural tissue. 5 years after lesion, sensation below level of injury was referred by the patient (ASIA B) and a few months later voluntary ankledorsiflexion movements - such as artificially generated ones - appeared. Voluntary gait is possible now and the patient has being reclassified as T12 ASIA D, revealed (SSEP) by contralateral cortical activity in the inferior limb area. Rehabilitation techniques and technology can improve lives, minimize clinical complications and restore movement through long dorment primitive gait patterns.

PLACE OF BLADDER SCANNER IN THE TREATMENT OF DISORDERS OF BLADDER EMPTYING IN NEUROLOGICAL PATIENTS

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The bladder scanner is a simple tool to use, well tolerated, non-invasive. It facilitates detection and monitoring of the neurological patient´s retentional disorders as well as their therapeutic approach.It must allow the removal of the catheter quickly , limiting the number of surveys spillways (removing their evaluation function) and thus help reduce complications associated with these actions.

This tool should be included in any protocol for monitoring these patients, and is now an indispensable tool for any neuro urological care.

SAFETY OF APPLYING 2 RTMS COURSES, 10 SESSIONS EACH IN 3 STROKE PATIENTS WITH HEMIPARESIS. CASE SERIES

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Background: Few studies addressed the issue of safety of rTMS in stroke patients. We present a series of 3 partial anterior circulation stroke cases who received 20rTMS sessions over 2 courses of rTMS over both cerebral hemispheres.

Methods: Patients had at least 10 degrees of wrist extension with some finger movements either in flexion or extension. 10 sessions of ipsilesional 5 Hz rTMS and another 10 sessions of 1 Hz rTMS over the unaffected hemisphere were given in either order. The first treatment course was given at least one month after stroke onset and the second course 3 month after the first course. Patients were followed up using the MMSE and direct questioning for rTMS side effects at baseline and after each rTMS course. Motor function was assessed by thumb-Index finger-Tapping task, the Activity Index scale (ADLs).

Case 1: 38 years old overweight female with DM, hypertension, and hyperlipidemia. MMSE scores were 29 at the 3 time points. FT (zero, 23, 29), AI (75, 81, 87).

Case 2: 56 years old male smoker with DM and hypertension. MMSE(28, 29, 28). FT(18, 35, 46), AI(77, 81, 84).

Case 3: 59 years old male smoker. MMSE(28, 27, 29). FT(34, 48, 57), AI(76, 82, 88).

No seizures or other side effects were reported.

Conclusion: This data suggests that applying repeated rTMS courses 5Hz ipsilesonal or 1 Hz contralesional is safe regarding the occurrence of seizures and the cognitive profile of patients. A degree of functional recovery was observed with stimulation.

EFFECT OF EXERCISE ON BALANCE, GAIT-SPEED AND QUALITY OF LIFE OF SUBSTANCE ABUSE PATIENTS

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Background: There is lack of evidence on the effectiveness of exercises in ameliorating neuromuscular problems in individuals with substance abuse disorder.

Purpose: To investigate effect of a-twelve week exercise on gait-speed, balance and Quality of Life (QoL) of substance abuse patients.

Participants: Forty-five in-patients diagnosed of substance abuse disorder.

Methods: Participated engaged in a twelve week free active exercise for 10 minutes, aerobic for 10 minutes; ergometer for 15 minutes and tread-mill for 15 minutes. Their Body Mass Index (BMI) was calculated from weight/height^2. Balance was assessed using one-Leg Standing Test in both eyes opened and closed. Gait-speed was assessed with Cooper's test while QoL was assessed using WHOBREF. Tests were conducted before exercises and after six and twelve weeks of exercise programme.

Analysis: Data was analysed using Analysis of Variance and McNemars test.

Results: The mean age of the participants was 31.04±6.30. The mean age of initiation into substance was 13.02±4.56. Age had negative influence on gait, balance and QoL. Gait-speed, balance and QoL of participants were low at baseline and improved gradually with exercise. Educational and occupational status significantly influenced ($p< 0.05$) balance in the eyes-closed. The younger and singles performed significantly better in gait-speed and balance than the married. There was significant difference in each balance, gait, and QoL between the baseline and each of 6 weeks and 12 weeks; and between 6 weeks and 12 weeks.

Conclusion: Gait-speed, balance and QoL of individual who abuse substance is below average and exercise can improve their QOL.

QUININE AND SPASMS: HOW EFFECTIVE?

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Introduction: The spasms are common in neurological patients (multiple sclerosis, spinal cord injury ...), our case study aims to report the effectiveness of quinine taken at very low doses based on a chance observation of improvement after ingestion of soda with traces of quinine.

Patients and methods: After removing cons indication of taking quinine, we did take 8 patients with neurological spasms on important spasticity on a daily 330 ml soft drink with quinine at low doses. Response was evaluated after 10 days, with the Penn spasm scale.

Results: All eight patients had a score of 3 on the scale of Penn at the beginning, with 5 multiple sclerosis, and 3 spinal cord injuries . This gave an improvement in 6 cases (75%) of the order of at least one score, and score improvement from 3 to 1 on the scale of Penn in two cases (25%).

Discussion and conclusion: The treatment of spasm by low-dose quinine has been controversial in the literature,however, in our series we found a satisfactory improvement. A prospective randomized, double-blind, employs more desirable.

SAFETY OF TRANSCRANIAL DIRECT CURRENT STIMULATION IN THE CONTEXT OF COMBINED POST-ACUTE NEUROREHABILITATION IN PATIENTS WITH SPASTIC PARESIS AFTER STROKE

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Introduction: Preliminary reports suggest that central stimulation may enhance the effect of conventional physical and occupational therapies in post-acute neurorehabilitation after stroke. The safety of transcranial direct current stimulation (tDCS) additionally to conventional therapies plus BoNT A and redression in post-acute neurorehabilitation of patients with spastic paresis after stroke is not described.

Methods: In this pilot study 20 adults were included and received standard post-acute neuro-rehabilitation plus tDCS (size of electrodes 35 cm^2, intensity 2,0 mA, duration of each stimulation 20 min.), redression and injections of BoNT A. During stimulation, an individual exercise program with active functional movements of the affected upper limb was performed. Furthermore, twenty clinical evaluation instruments were applied at four time points before, while and following treatment (T0, T1, T2 and T3), Approval by the local Ethics Commission.

Results: 20 caucasian, 18 patients with spastic hemiparesis, 2 patients with spastic tetraparesis, 1 drop out, 17 patients with tDCS, 1 mild AE, mean age 70.1, mean body height 173.5 cm, mean weight 82.8 kg.

Conclusion: Patients showed no major side effects. Results of the senso-motor tests applied were shown and discussed.

METHODOLOGY OF POSTOPERATIVE REHABILITATION IN SPONDYLOGENIC THORACIC MYELOPATHY

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Introduction: Discogenic thoracic myelopathy requires immediate surgical attention to prevent permanent neurologic compromise. Based on our data, 80% of patients had alleviation of pain with surgery, 85% had improvement in hyperreflexia, and 82% had improvement in urinary symptoms. However, clinical outcomes after thoracic disc surgery are not as good as after cervical or lumbar disc surgery, and 8-12% of patients undergoing surgical procedures for thoracic disc problems experienced no relief of symptoms.

Purpose: Introduce the methodology of postoperative rehabilitation in patients with discogenic thoracic myelopathy.

Material and methods: The primary focus of rehabilitation in patients in patients with discogenic thoracic myelopathy was to restore function in activities of daily living and to teach patients how to manage their symptoms.

Rehabilitation process started with assessment of the degree of involvement of the CNS, including signs of upper motor neuron involvement, sensory/motor changes, signs of bowel and bladder dysfunction.

While managing pain, patients exercised the trunk and other involved extremities. Exercises may be initiated when indicated and progressed as tolerated. Postural training was followed by strengthening, balance, and stabilization exercises. In lower extremity impairment, gait training, stretching, and strengthening exercises were indicated. Besides supervised rehabilitation, the patients were instructed in an independent home exercise program, after the completion of rehabilitation.

Results: Proposed methodology of postoperative rehabilitation showed to be effective in all cases.

Conclusion: Postoperative rehabilitation in patients with discogenic thoracic myelopathy should be initiated immediately after surgery in a structured, goal-oriented manner.

THE ROLE OF STABILITY EXERCISE PROGRAM ON POSTURAL CONTROL OF PATIENT WITH CHRONIC STROKE

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Exercise is one of the most important components in management of stroke disorders.

The purpose of this study was to investigate the effects of 4 months of intervention and physical activity on subjects with chronic stroke, by using berg balance scale and wolf motor function test.

37 patients with chronic stroke and postural imbalance were randomized to a physical therapy - control - group (age = 65 ±2/1 ; mass = 71 ± 2/7) and a physical therapy plus exercise training- experimental - group (age = 66 ± 1/7; mass =72 ± 2/1). The patients in the latter group were given a training session about the endurance exercises for the upper and the lower extremities and did the exercises under supervision 3 times a week for 4 months.

At the end of the rehabilitation program in a comparison between the two groups by independent sample t - test analysis significant changes were found in physical functioning, role limitation - physical , general health and total scores of SF-36 scale (P < 0/001) but social functioning, role limitatio 0/05).

THINKING ABOUT THE PLASTICITY OF THE BRAIN - CLINICS AND BEYOND

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This is an investigation of the phenomenon “plasticity“ that is increasingly relevant for neurology and society at large. There is much excitement about the brain's capacity to adapt to experiences with changes in neuronal activity, structure, and function by producing new cells, connections, or modulating established connections. Studies shed light on questions ranging from effects of development, learning, pathological states to effects of drugs and cortical stimulation. The implications of these findings for our image of man and for the healthcare system demand scrutiny: Research on plasticity has tremendous clinical potential, in particular in neurorehabilitation. Doubtlessly, this potential needs to be deployed as far as possible to improve patients' recovery and quality of life.

But there is more to the application: Knowledge about alterability requires rethinking of what we are responsible for. This holds for patients, physicians, and for healthy individuals. If alterability is a central phenomenon, everyone might be obligated to exert oneself in improvement of brain behaviour. It might be required to ensure one's own health and well-being by benefitting from science's discoveries. However, being encouraged to understand oneself as biomedical subject that is continuously open to directed change puts a great burden on individuals. While respecting autonomy as highly valuable, one needs to recognize that the *right* to decide autonomously is not the same as the *competence* to do so. Effective social appraisal of the discussion around plasticity in clinical and non-clinical contexts alike requires a humble and sensitive approach to serve individual´s and society's best.

COLD (0^{O}C) STIMULATION OF PARETIC/PARALYTIC LIMBS PRECEDING MOTOR EXERCISES ENHANCES CLINICAL OUTCOME OF STROKE REHABILITATION - PRELIMINARY DATA

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Aim: The aim was to evaluate the effect of stimulation with the cold (additionally) of paretic/paralytic limbs on motor outcome in early phase of stroke, in comparison to standard rehabilitation alone.

Patients and methods: Twelve patients in study group (SG) and 6 controls (C) in acute phase (first 3 days) of stroke with severe paresis/paralysis of the limbs underwent motor rehabilitation for 3-4 weeks with or without ice-pack of 0^{o}C temperature directly preceding exercises. Procedure was performed 4 times a day (without weekends) for 20 min. each. The effect was assessed with several functional tests (below) by 1/same person in all cases.

Results: The mean results of rehabilitation at the beginning/at the end (X/Y) were as follows: Rivermead Motor Assessment - SG (1,25/9,41), C (0,67/4,3), [$p < 0.036$], Brunnstrom Test - SG (3,67/8,8), C (3/5,67), [$p < 0.025$], meta-carpo-phalengeal extension - SG (0^{o}/3,83^{o}), C (0^{o}/0^{o}), [$p < 0.071$], wrist extension - SG (0^{o}/10,67^{o}), C (0^{o}/0^{o}), [$p < 0.006$], grasping - SG (0^{o}/2,17^{o}), C (0^{o}/0,17^{o}), [$p < 0.225$], forearm supination - SG (0^{o}/23,08^{o}), C (0^{o}/2,5^{o}), [$p < 0.041$], hip flexion - SG (0,83^{o}/60,83^{o}), C (0^{o}/20^{o}), [$p < 0.002$], hip lateral/external rotation - SG (0^{o}/16,83^{o}), C (0^{o}/1,67^{o}), [$p < 0.003$], meta-tarso-phalangeal dorsoflexion/extension - SG (0^{o}/3,17^{o}), C (0^{o}/0^{o}), [$p < 0.087$], ankle dorsoflexion/extension - SG (0^{o}/4,83^{o}), C (0^{o}/1,67^{o}), [$p < 0.141$].

Conclusion: Preliminary results show that cold stimulation of paretic/paralytic limbs in early phase of stroke enhances strength and functional clinical outcome of rehabilitation, especially in the upper limb and the hip.

EVALUATING THE NEUROFEEDBACK EFFECTS ON QEEG PATTERNS OF THE BRAIN IN EXPERT RIFLE SHOOTERS

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Introduction: Improving performance is one of the investigating issues not only in rehabilitation and behavioural therapy but also in professional sports as well as sport medicine. This study was established on evaluating the alterations of EEG patterns of the two groups of expert rifle shooters: one who trained under neurofeedback method and the other who did not.

Materials and methods: Two groups of 12 national and provincial expert rifle shooters non-randomly selected with cooperation of Iranian National Shooting Federation. Pretests and post tests were achieved to measure rifle shooters QEEGs in both groups. The electric-waves were alpha, beta, beta1, beta2, beta3, High beta, theta and delta. They were recorded based on 5 different regions of the brain (frontal, parietal, central, occipitals and temporal).We used neurofeedback equipments in 15 successive sessions (60 minutes each) in 5 weeks (3 sessions per week) during training courses. Multivariate analysis of covariance was used to test the difference between groups with adjustment on the baseline measurements and also considering the correlation between the responses.

Results: The mean value of each wave-region records of the group members was calculated for the both groups in pre-test and post-test scenes. Discrepancies of post-test mean values from pre-test mean values were compared in the two groups. Following wave-regions were improved statistically: Theta - Frontal (p value=0.007), High beta - Frontal (p value=0.009), Beta1 - Center (p value=0.036) and Alpha - Occipital (p value=0.001)

Conclusion: Neurofeedback can be suggested as a method to improve rifle shooters´ EEG patterns.

ORAL FEEDING IN DISORDERS OF CONSCIOUSNESS PATIENTS

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There is no consensus regarding whether or not oral feeding can occur in disorders of consciousness patients. We here assessed feeding (oral versus artificial) in patients with chronic disorders of consciousness occurring after coma. We studied feeding in 164 vegetative/unresponsive patients (age range 19-88 years). Diagnosis was based on standardized Coma Recovery Scale-Revised (CRS-R) assessments. Etiology was traumatic in 53 and non-traumatic in 111 patients (i.e., anoxic encephalopathy (n=48), ischemic or hemorrhagic stroke (n=36), metabolic encephalopathy (n=19), intoxication (n=2), mixed etiology (n=6)). Mean interval since insult was 4 months (SD=11 months). 162 patients had artificial hydration and nutrition via gastrostomy, 2 patients were orally fed: a 34-year-old man with anoxic encephalopathy assessed 20 years after cardiac arrest and a 35-year-old man with anoxic encephalopathy assessed 19 years after cardiac arrest. In both patients repeated CRS-R examinations concluded the diagnosis of vegetative/unresponsive state and brain MRI revealed major diffuse cortical atrophy and ex-vaquo hydrocephalus. Positron Emission Tomography showed global decreased cerebral hypometabolism with preserved activity in brainstem and cerebellum and significant widespread frontoparietal cortical dysfunction. Both patients showed preserved chewing and swallowing of manually inserted mashed food in the mouth. Without any form of artificial tube feeding or hydration both showed correct nutritional status over the past 36 months. The vast majority of vegetative/unresponsive patients (99% in the present cohort) need artificial enteral tube feeding for hydration and nutrition. The presented case reports, however, show that exceptionally some “vegetative” patients without higher-order cortical brain function can satisfactorily feed by mouth.

SCA3 GENE MODIFIES THE AGE AT ONSET IN SPINOCEREBELLAR ATAXIA TYPE 2 CUBAN PATIENTS

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Spinocerebellar ataxia type 2 is a neurodegenerative disorder with a markedly variable age at onset. It is caused by a CAG repeat expansion located in the first exon of the SCA2 gene, the size of which is responsible for approximately seventy percent of the variability of the age at onset. It has been suggested that other genetic factors contribute to modulate the age at onset. We examined age at onset (AO) in 530 individuals belonging to 130 kindred from the SCA2 founder population in Cuba. The mutant CAG repeat allele explained 74.8% of AO variance, and a 9.5% of the remaining variance was due to a combination of the CAG repeat number of the normal allele and the ratio of the length of the normal to the mutant CAG repeat length. To estimate heritability of the residual variance after correction for SCA2 repeat length, we applied variance component analysis and determined the coefficient of intraclass correlation. We found that 47.9% of the residual AO variance was familial. To test candidate modifier alleles in this population, we selected 50 unrelated individuals from a set of 530 individuals who were highly discordant for AO after correction for SCA2 CAG repeat length ($p< 0.001$). We found that SCA3 long normal alleles significantly modifies AO in SCA2 individuals ($p=0.042$). SCA3 variation explained 7.9% of the residual variation in AO. The SCA3 gene represents an excellent candidate as a modifier of disease in SCA2. Future studies are needed to validate these findings.

SPINAL MUSCULAR ATROPHY TYPE IV: PREVALENCE OF DELETION SMN GENE IN A MOROCCAN STUDY

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Introduction: Spinal muscular atrophy (SMA) is an autosomal recessive motor neuropathy characterized by selective degeneration of anterior horn cells of the spinal cord caused by mutations in the SMN1 gene.

In this study, we report the prevalence of mutation SMN gene in SMA type IV.

Material and methods: We conducted deletion analysis of SMN and a neighboring gene, NAIP (neuronal apoptosis inhibiting protein), with the PCR and enzyme-digestion method, in a series of 119 SMA patients (types I-IV), all of Moroccan origin, collected in our department.

Results: Among 119 SMA patients, the homozygous absence of SMN1 exons 7 and 8was detected in 62% of our type IV SMA patients. Two of these patients had a deletion of the NAIP gene (15%).

In childhood SMA patients, exon 7 of the SMN1 gene was homozygously deleted in 59% of type I, 81% of type II, 60% of type III, whiledeletion of SMN1 exon 8 was detected in 33% of type I and II, 26% of type III. In addition to the absence of the SMN1 gene, deletion of the NAIP gene was found more frequently in SMA type II and I patients.

Conclusion: Our results show a high incidence of SMN1 gene deletion in adult-onset SMA patients (62%) indicating that SMN1 is the autosomal recessive adult SMA-causing gene. While NAIP is commonly deleted in SMA. This is unlikely to affect disease severity; it was deleted in two adult SMA patients with mild phenotypes.

MITOCHONDRIAL NEURO-GASTRO-INTESTINAL ENCEPHALOPATHY (MNGIE) DISEASE: ABOUT TWO CASES IN THE SAME FAMILY

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Introduction: Mitochondrial neurogastrointestinal encephalomyopathy(MNGIE) is an autosomal recessive disease caused by mutations in the gene encoding thymidine phosphorylase(TP), clinically characterized by progressive external ophthalmoplegia, severe gastrointestinal dysmotility, cachexia, peripheral neuropathy, diffuse leukoencephalopathy on brain MRI.

Cases report: Patient 1 is a 23-years-old man who noticed weakness and cramping of his legs at age 21. He developed increasing abdominal borborygmi, pain, nausea, vomiting, and diarrhea, with weight loss

Patient 2 (the brother) is a 30-year-old man who had a progressive muscle weakness and borborygmi, diarrhea, throughout childhood.

On examination, the both patients were cachectic. They had an external ophthalmoplegia (EOP) with bilateral ptosis, proximal and distal limb muscle weakness and bilateral pes cavus. Conduction nerves studies showed a demyelinating peripheral neuropathy. Lumbar puncture showed a raised protein concentration and increased CSF lactates**.** MRI showed diffuse leukoencephalopathy.Thymidine phosphorylase activity was absent.

DNA sequencing showed a homozygotic deletion in exon 7 of the thymidine phosphorylase gene, thus confirming the diagnosis of MNGIE syndrome.

Discussion: Peripheral neuropathy in mitochondrial disease may occur in up to 50% of affected patients but is often subclinical. For our patients peripheral neuropathy is the dominant feature associated with EOP and cachectia.

Conclusion: In young patients with CMT-like peripheral neuropathies who develop atypical clinical features, such as ptosis, external ophthalmoplegia or prominent gastrointestinal symptoms, should prompt consideration of the diagnosis of a mitochondrial cytopathy. In these cases, a muscle biopsy or relevant genetic studies should be carried out.

CHOLECYSTOKININ, CHOLECYSTOKININ RECEPTORS TYPE 1 AND TYPE 2 GENES POLYMORPHISM IN PATIENTS WITH PANIC DISORDER

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Background: Cholecystokininergic system is supposed to be involved in pathogenesis of anxiety disorders. Cholecystokinin (*CCK*), cholecystokinin receptors type1 (*CCK1R*) and 2 genes (*CCK2R*) polymorphysms could be considered as potential candidates for predisposing to panic disorder (PD)

Aim: To determine whether the -36C/T and -325G/A SNPs in *CCK* gene, -81A/G, -128G/T and 984T/C SNPs in *CCK1R* gene and 109C/T and 1550G/A SNPs in the CCK2R gene are associated with PD susceptibility.

Patients and methods: The study included 63 out-patients with PD (DSM-IV), all Caucasian, living in Moscow (19-72 y.o, 52 F) and 170 healthy controls. Isolation of genomic DNA from whole blood samples was performed using commercial kit Magna ™ DNA Prep 200 («IsoGene», Moscow). For SNPs frequencies determination PCR-RFLP-analysis was performed.

Results: 109T-allele frequency in *CCK2R* gene was significantly higher in patients with PD vs healthy controls (4.76% vs 0%, p=0,00074). No significant difference was obtained in 1550G/A A-frequency in *CCK2R* gene between patients with PD (14.29%) and healthy people (10.29%) p=0,228. We also did not find any differences in genotype and allele distribution in *CCK* and *CCK1R* genes between PD patients and controls.

Conclusions: T-allele of *CCK2R* gene carriage, but not *CCK* and *CCK1R* genes polymorphisms is associated with PD susceptibility. In contrast to cholecystokinin receptors type 1 cholecystokinin receptors type 2 are widely presented in brain structures involved in PD pathogenesis (limbic system, cortex, basal ganglia). Thus, genetically determined alteration in cholecystokinin receptors type 2 sensitivity may play role in neurobiology of PD.

EMERY DREIFUSS MUSCULAR DYSTROPHY DUE TO A NEW MUTATION OF THE LAMIN A/C GENE

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Background: Emery-Dreifuss muscular dystrophy (EDMD) is an X-linked, autosomal dominant and, more rarely, autosomal recessive, condition characterized by slowly progressive muscle weakness in a scapula-humeroperoneal distribution, early contractures of the elbows, ankles and posterior neck and cardiac conduction defects and/or cardiomyopathy. EDMD is is caused by mutations in EMD or LMNA genes.

Case report: We report the case of two 17-years-old monozygotic male twins, who were referred to us for a slowly progressive equine foot and toe-walking during the first decade of life and an occasional report of raised serum CK. Their parents were not relatives and familiar history was negative for neuromuscular disease. On neurological examination the patients presented with Achilles'tendons retraction with toe-walking, mild contractures of the elbows and knees, rigid spine, muscle hypotrophy and weakness with humero-peroneal distribution and hyporeplexia. On blood test a consistent increase in CK (> 8-fold). EKG showed bradycardia with short PQ interval. The electroneuromiography showed a myopathic pattern. Mutation screening for EMD and LMNA genes revealed a new heterozygous mutation c.148 C>T R50C (exon 1) of LMNA gene.

Conclusions: In this case report we described a new mutation of the LMNA gene associated to an EDMD phenotype in two monozygotic twins. This point mutation causes a substitution of arginine with a cysteine at position 50. Two previous reports of arginine substitution (not to cysteine) have been associated to the diagnosis of laminopathy. Our and previous data, might therefore suggest that arginine at that position is crucial to protein functioning.

AN AUTOSOMAL RECESSIVE LEUCOENCEPHALOPATHY WITH ISCHEMIC STROKE, DYSMORPHIC SYNDROME AND RETINITIS PIGMENTOSA MAPS TO CHROMOSOME 17Q24.2-25.3

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Single-gene disorders related to ischemic stroke seem to be an important cause of stroke, in young patients without known risk factors. Our study reports a consanguineous Moroccan family with three affected individuals displaying hereditary leucoencephalopathy with ischemic stroke, dysmorphic syndrome and retinitis pigmentosa and segregated as autosomal recessive. A genome wide search was conducted in this family and linkage was found to chromosome 17q24.2-25.3. Analysis of recombination events and LOD score calculation maps the responsible gene in an 11Mb genetic interval between D17S802 and D17S1806 with a maximal multipoint LOD score of 2.85. Six genes with potential functional relevance to the disease and which are located within the disease candidate locus have been selected for sequencing. These include *ATP5H, FDXR, SLC25A19; MCT8, CYGB; GRIN2C*. Screening of the coding sequence of the selected genes has identified three missense mutations in the FDXR gene but we also found these mutations in a homozygous state in three healthy controls, suggesting that the true mutation is likely to be in a neighboring gene within the susceptibility region.

TUNISIAN *STRÛMPELL-LORRAIN* DISEASE: PHENOTYPIC AND GENETIC SPECIFICITIES

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Background: Hereditary spastic paraplegias (HSP) constitute a clinically and genetically heterogeneous group of neurodegenerative disorders characterized by slowly progressive spasticity of the lower extremities. In addition to pure forms, complicated forms involving additional neurological features have also been reported.

Objective: To perform the first clinical, epidemiological and genetic study of HSP in Southern Tunisia.

Results: We investigated 88 patients belonging to 38 unrelated Tunisian HSP families. We could establish the prevalence of HSP to be 5.75/100,000. Thirty one percent of families had a pure HSP, whereas 69% had a complicated form. Genetic studies revealed significant or putative linkage to known HSP loci in 21 families (55.2%) to either *SPG11* (14/38, 36.8%), *SPG15* (4/38, 10.5%) or to *SPG4, SPG5* and the recently identified locus, *SPG46* in one family each. The linkage results could be validated through the identification of two recurrent truncating mutations (R2034X and M245VfsX246) in the *SPG11* gene, three different mutations (Q493X, F683LfsX685 and the novel S2004T/r.?) in the SPG15 gene, the recurrent R499C mutation in the *SPG4* gene as well as the new R112X mutation in the *SPG5* gene.

Conclusions: We report the largest series of North African HSP families of Arab origin investigated so far and establish its prevalence in South Tunisia. Our study confirms the marked heterogeneity in clinical presentation supported by the large underlying genetic heterogeneity, even within homogeneous phenotypic entity. Recessive complicated HSP is the more frequent subtype of HSP in Southern Tunisia with *SPG11* and *SPG15* as the major responsible genes.

HEREDITARY SPASTIC PARAPLEGIA WITH THIN CORPUS CALLOSUM: FURTHER CLINICAL AND GENETIC CHARACTERIZATION OF SPG11 IN MOROCCAN FAMILIES

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Background: Hereditary spastic paraplegias are neurodegenerative diseases mainly characterized by lower limb spasticity with additional neurological symptoms and signs in complicated forms. Among the many autosomal recessive forms, HSP with thin corpus callosum (HSP-TCC) is a frequent subtype of complicated HSP, characterized by early onset spastic paraplegia, cognitive deficits, thin corpus callosum, peripheral neuropathy and mild cerebellar ataxia. *SPG11*, the gene associated with the major locus involved, encodes spatacsin, a protein of unknown function.

Objective: Our objective was to screen the SPG11 gene in 14 Moroccan families with HSP to identify eventual disease-causing variants, and to estimate the frequency and the spectrum of these mutations and describe their associated phenotypes.

Material and methods: A linkage analysis using microsatellites flanking the SPG11 gene was done in 14 families with HSP. All coding exons of SPG11 gene were screened by polymerase chain reaction-DNA direct sequencing in SPG11-linked families.

Results: Among the 14 families with autosomal recessive HSP, linkage analysis to SPG11 locus was observed in 3 families. Direct sequencing of the SPG11 gene showed a two already reported mutation in (Ex2-c.442+1G/T hm, Ex32-R2034X, C.6100C/T) and a new mutation in exon 24 (c.4057_4060del CACA-hm). In these three families, the age at onset was 16 ± 3 years, and the disease was associated with spastic paraplegia, cerebellar symptom, extrapyramidal signs, intellectual deterioration and dysmorphic syndrome. This phenotype is a complicated spastic paraplegia form.

Conclusion: SPG11 should be suspected in patients with recessive HSP, thin corpus callosum, mental retardation and extrapyramidal syndrom.

SPASTIC PARAPLEGIA WITH THIN CORPUS CALLOSUM (SPG11) ASSOCIATED WITH MAJOR CEREBRAL, CEREBELLAR AND MEDULLAR ATROPHY

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SPG11, the most frequent (21%) clinico-genetic entity of autosomal recessive spastic paraplegias, is essentially characterized by the degeneration of the pyramidal tract, thinning of the corpus callosum (TCC) and white matter abnormalities (WMA) at brain MRI, leading to spasticity in lower limbs, mental impairment and peripheral neuropathy in patients. The disease is predominantly associated with loss of function mutations in the *SPG11* gene. We report the case of a 27 years-old woman presenting with a severe progressive disability and mental deterioration, TCC, periventricular WMA, marked frontal and parietal cortical atrophy. Mutational analysis revealed two heterozygous stop mutations in *SPG11*. Autopsy confirmed a severe atrophy of the fronto-temporal cortex, cerebellum, pons and medulla. The white matter was reduced in volume. Dorsal spinocerebellar tract, ventral and lateral corticospinal tracts were atrophied. Histopathologically, severe neuronal loss associated with important astrocytic reaction was observed in frontal and temporal cortex, cerebellum, pontine nuclei and spinal cord. Spongiosis was prominent in the neocortex. The remaining neurons harbored abundant lipofuscin. Cerebellum and pontine nuclei were the most severely affected by neuronal loss. The gracile and cuneiform nuclei and all ventral part of pons showed widespread eosinophilic and round shaped formations. Some of them were PAS positives, argentophylic or ubiquitin positive. They were, in some instances, membrane bounded and seemed to be related to neuronal process. They were not observed in other brain regions. Their biochemical characerisation may contribute to elucidate the changes in intracellular trafficking related to the disease.

COMPARATIVE STUDY OF A SERIES OF 20 PATIENTS OF FRIEDREICH ATAXIA AND 16 PATIENTS OF ATAXIA WITH VITAMINE E DEFICIENCY

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Autosomal recessive cerebellar ataxias (ARCA) are genetically heterogeneous group of neurodegenerative disease caracterised by a progressive cerebellar ataxia associated with many other features such sensory motor neuropathy, ophtalmological disturbances or skeletal deformities. Many genetic defects have been linked to these disorders , however Freidreich ataxia (FA) remains the most frequent ARCA ; Ataxia with isolated Vitamine E deficiency (AVED) is also un autosomal recessive disorder usually with a phenotype resembling FA caused by selectively impaired gastrointestinal absorption of Vit E.

Aim: To characterize clinical, biological and genetic features of FA and AVED and precise their distinctive aspects.

Results: 8 families(20 patients) had GAA expansion in the first intron of the frataxine gene and 7 families(16 patients) had the 744 del A mutation in the a tocopherol transfer protein (aTTP) gene. The Vitamine E serum level was very low in our AVED cases.

Although there wasn't significative differences in age of examination and age of the oncet disease in our two groups, AVED could be distinguished from FA in our study by: A high frequency of head titubation (62,5%) and dystonia in AVED group and an incidence of cardiomypathy higher with a more severe neuropathy in FA group.

Conclusion: Theses clinical differences between FA and AVED are important because the theurapeutic implications for both conditions.

A NEW GDAP1 MUTATION FOR AUTOSOMAL RECESSIVE AXONAL FORM OF CHARCOT MARIE TOOTH

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Introduction: Charcot Marie Tooth disease (CMT) is the most common inherited neurological disorder with clinical and genetic heterogeneity. Usually autosomal recessive (AR-CMT) forms show pure clinical phenotype.

Background: We report clinical and genetic analysis of Tunisian twins affected patients suffering from AR-CMT with pyramidal involvement harbouring a new mutation of GDAP1 gene.

Cases report: 9 year-old twins issued from probable consanguineous marriage with normal milestone. The symptoms had started at the age of two years with abnormal gait, weakness in distal leg muscles and progressive course. Neurological examination showed distal atrophy in lower limbs, pes cavus, gait steppage associated to brisk tendon reflexes. Nerve conduction studies showed an axonal sensory-motor neuropathy in one patient and axonal motor one in the other case. Molecular analysis revealed a homozygous c.117+3A>G mutation in the GDAP1 gene. This mutation was not found in 100 controls. Neurological examination and electroneuromyography of parents were normal.

Discussion and conclusion: The family reported here shows AR axonal CMT syndrome with pyramidal features caused by a new mutation of GDAP1 gene. The majority of reported CMT pedigrees with pyramidal features are consistent with AD inheritance. In another hand, GDAP1 mutations cause both AR axonal and demyelinating CMT4A, without pyramidal signs. The present report broadens the phenotype associated with this gene. Subjects with CMT and pyramidal features should be screened for this GDAP1 mutation. Further cases will define genotype-phenotype correlations in these patients.

CLINICO-GENETIC CORRELATION OF 78 INDIAN SCA2 FAMILIES

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Objective: Study extent of phenotypic variability in SCA2 families in India to establish phenotype to genotype correlation and comparative analysis of clinical spectrum observed worldwide.

Background: SCA2 is autosomal dominantly inherited cerebellar ataxia characterized by cerebellar ataxia, slow saccades and variable occurrence of pyramidal and extra pyramidal features, caused by expansion of CAG repeat at *ATXN2* loci. SCA2 is the commonest SCA subtype in India.

Methods: 96 patients from 78 families were evaluated. Patients underwent neurological examination, Electrophysiological Studies (EPS), Autonomic Function Tests and radiological imaging. CAG repeat lengths were estimated by PCR amplification followed by fragment analysis in automated sequencer.

Results: Expanded CAG repeats range from 28-64 (mean 42.1 ± 4.8) and average age of onset is 29 ± 11 years. Peripheral neuropathy was observed in 63%, autonomic dysfunction in 50% and amyotrophic features with higher repeat range in few individuals. Characteristic SCA2 syndrome with repeat length >42 and a much variable clinical spectrum with lower abnormal range of CAG repeats was found. Slowing of saccades was consistent feature. Strikingly areflexia in upper limb was observed in large number of patients. Characteristic slow saccades and areflexia significantly correlate with larger number of repeats. Parkinsonian phenotype predominates cerebellar ataxia with repeat size < 38 in one family.

Conclusions: Parkinsonian features, amyotrophic changes with cerebellar syndrome indicates alteration in common neural pathway, hence suggests that genetic screening of SCA loci should be done in familial cases of PD and ALS. Clinical heterogeneity is observed among different ethnic population for other SCA subtypes.

DESCRIPTION OF AN ITALIAN FAMILY WITH IDIOPATHIC INFANTILE NYSTAGMUS

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Introduction: Idiopathic Infantile Nystagmus (IIN) is a genetically heterogeneous condition characterized by conjugated, spontaneous and involuntary ocular oscillations that appear at birth or during the first three months of life. Five genetic loci (NYS1-5) have been identified for INN; three are autosomal (NYS2, NYS3 and NYS4) and two are X-chromosomal (NYS1 and NYS5). Only one gene (FRMD7) has been identified so far within the NYS1 locus.

Case report: We herein describe an Italian family including 4 affected members across three generations. All subjects exhibited a conjugate horizontal nystagmus with onset in the early childhood. Pattern of inheritance was consistent with an X-linked transmission. Neurological examination did not evidenced other disturbances. This condition was benign and well tolerated in all affected patients, except one subject presenting a more severe phenotype with impaired reading and fixation. All neurological and ophthalmic causes of nystagmus have been excluded by appropriated examinations.

Conclusion: Family phenotype was strongly suggestive of FRMD7-related infantile nystagmus, the most common type of INN. More than 40 different mutations have been described, but only one in Italy. Genetic analysis searching for mutations within the FRMD7 gene, as well as electrophysiological examinations, are now in progress.

AUTOSOMAL RECESSIVE CEREBELLAR ATAXIAS: TUNISIAN SPECIFICITIES

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Background: Autosomal recessive cerebellar ataxias (ARCA) are heterogeneous group of inherited neurodegenerative disorders characterized by progressive ataxia that results from degeneration of the cerebellum and its connections. Although they are rare diseases, ARCA cover a variety of clinical presentations and genotypes.

Objective: To perform the first clinical, epidemiological and genetic study of ARCA in Southern Tunisia.

Results: We report the clinical and genetic data of a large Tunisian ARCA group of families, fulfilling the clinical criteria for ARCA and including 90 patients (45 unrelated families). We could establish the prevalence of ARCA to be 4.1/100,000. Clinical presentation was suggestive of Friedreich phenotype (46.6%), spastic ataxia (33.3%), ataxia with oculomotor apraxia (8.9%) and other forms of ACAR (11.2%). Genetic studies revealed significant linkage and/or causatives mutations in known ARCA loci in 34 families (75.5%) to either *Friedreich´s ataxia* (13.3%), ataxia with vitamin E deficiency, *AVED* (31.2%), ataxia with oculomotor apraxia type 1, *AOA1* (2.2%) and type 2, *AOA2* (11.2%), autosomal recessive spastic ataxia of Charlevoix-Saguenay, *ARSACS* (4.4%), spastic ataxia type 2, *SAX2* (4.4%) and some forms of hereditary spastic paraplegia including *SPG11* (6.6%) and *SPG46* (2.2%).

Conclusions: We report the largest series of North African ARCA families of Arab origin investigated so far and establish its prevalence in South Tunisia. Our study confirms the marked heterogeneity in clinical presentation supported by the large underlying genetic heterogeneity. Friedreich phenotype is the more frequent subtype of ARCA in Tunisia with *AVED, Friedreich´s ataxia* and *AOA2* as the major responsible genes in Tunisia.

INFANTILE NEUROAXONAL DYSTROPHY: 2 CONFIRMED TUNISIAN CASES

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Introduction: Infantile neuroaxonal dystrophy (INAD) is a rare autosomal recessive neurodegenerative disorder. Mutations in the PLA2G6 gene were identified in patients with INAD. We report on 2 Tunisian cases with genetically confirmed INAD and discuss clinical, neurophysiologic, neuropathologic and neuroradiologic features.

Case reports: Two girls aged of 4 and 5 years. They presented a psychomotor regression respectively at the age of 12 months and 15 months. Examination showed generalized hypotonia, quadripyramidal syndrome, nystagmus and optic atrophy in the two patients. Brain MRI showed cerebellar atrophy in both with signal T2 hyperintensity in the cerebellar cortex in one of them. VCN studies showed respectively anterior horn cell involvement and sensory-motor axonal neuropathy. Genetic study identified mutation of PLA2G6 gene in both.

Discussion: The clinical diagnostic criteria of INAD are defined as: onset of symptoms between ages six months and three years, progressive psychomotor regression, hypotonia, progressive spastic tetraplegia and optic atrophy. Disease progression is rapid with death during the first decade. The Brain MRI hallmarks in INAD are diffuse cerebellar atrophy and T2 hyperintensity of cerebellar cortex. VCN studies can reveal signs of chronic denervation. Our patients had typical clinical, radiological and neurophysiological criteria for the diagnosis of INAD. The most typical neuropathological findings of this disease are neuroaxonal swelling in central and peripheral nervous system. Recently, mutations in the PLA2G6 gene (chr22q12.3-q13.2) have been identified.

Conclusion: The diagnosis of INAD should be considered in children with progressive encephalopathy and cerebellar atrophy because confirmation of the disease allows genetic counselling.

A NOVEL MUTATION IN THE ATM GENE IN A MALIAN FAMILY WITH ATAXIA TELANGIECTASIA

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Background: Ataxia telangiectasia (A-T) is a rare, autosomal recessive disorder of childhood characterized by progressive cerebellar ataxia, telangiectases, and immune defects due to mutations in the ataxia telangiectasia mutated (ATM) gene. A-T cases were reported worldwide, but rarely in the Sub-Saharan African and often limited to clinical findings.

Methods: We studied two children from a consanguineous family that presented with neurological features. Subjects gave written consent before participation, and underwent thorough genetic counseling and neurological evaluations. CT-brain scan, blood chemistries, and direct sequencing of the FRDA and ATM genes were performed.

Results: Clinical findings were consistent with gait ataxia, slurred speech, drooling, weakness and troubles with coordination in upper arms, suggesting Friedrich's ataxia but the FRDA gene testing was negative. A more careful examination revealed oculomotor apraxia, oculocutaneous telangiectasia, and blood chemistries showed elevated AFP and immunoglobulin defects underlining an immunodeficiency. CT-brain scan showed cerebellar atrophy, but there was no abdominal or ganglionnic mass on examination or echography. Based on these findings, the diagnosis of ataxia telangiectasia was made, and the genetic analysis of the ATM gene showed a novel homozygous single-nucleotide substitution at position c.7985T>A, predicting the amino acid change V2662D. The V2662 residue is highly conserved across species.

Conclusion: We report a Malian family with ataxia-telangiectasia and a novel mutation in the ATM gene, suggesting that this disease is present in that part of Africa. Further screening of patients from consanguineous families and with gait abnormalities is underway to identify and characterize the molecular basis their disease.

A GENETICALLY PROVEN ENDOGLIN MUTATION IN HEREDITARY HEMORRHAGIC TELANGIECTASIA TYPE 1 IN A 29 YEAR-OLD FILIPINA: (RENDU-OSLER-WEBER DISEASE: A CASE REPORT)

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Background: The autosomal-dominant trait hereditary hemorrhagic telangiectasia (HHT) affects 1 in 5-8000 people. Genes mutated in HHT (endoglin or activin receptor-like kinase (ALK1)) encode proteins that modulate transforming growth factor (TGF)-b superfamily signalling in vascular endothelial cells leading to the development of fragile telangiectatic vessels and arteriovenous malformations wherein complications from bleeding or shunting may be catastrophic. In the authors' knowledge, there has been no documented case of genetically proven HHT in the Philippines.

Objectives: To confirm the clinical diagnosis by genetic study the presence of HHT in a Filipina and to describe the treatment outcome and follow-up care for patients with genetically proven HHT.

Case report: A 29 year old, right handed female, who has been having recurrent nosebleeding since childhood and was previously diagnosed with multiple pulmonary arteriovenous malformations, was admitted in our institution in active labor and was referred to our service because she developed generalized tonic clonic seizure three days after her normal vaginal delivery. Diagnostics showed multiple cerebral aneurysms. She fulfills the Curacao Criteria for HHT. A genetic study was performed to confirm our clinical diagnosis. It showed a frameshift mutation in exon 6 of the Endoglin gene (chromosome 9q34.1). This confirms the diagnosis of Hereditary Hemorrhagic Telangiectasia Type 1.

Conclusion: The diagnosis of HHT has been facilitated with the identification of several disease-causing genes, but management of both symptomatic and asymptomatic individuals remains highly challenging for experienced specialists.

CMT (CHARCOT MARIE TOOTH) DISEASE IN FRENCH REUNION ISLAND: PHENOTYPES AND GENOTYPES

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CMT is an inherited genetic disorder (1/2500) which is heterogenic by phenotypes and by genotypes. CMT classification used characteristics such as transmission (dominant, recessive or X linked) or electrophysiology (axonal or demyelinating neuropathy).

Material and method: 64 CMT patients, followed by the Neuromuscular Center of Reunion Island were divided in groups by clinical and electrophysiological characteristics. We studied repartition of the mutations by phenotype.

Results: On 64 CMT patients, two sub-groups were observed: The first (51 patients) with demyelinating neuropathy, and the second (13 patients) with axonal neuropathy. In the first group, we noticed 11 patients with dominant transmission (7 PMP22, 3 unknown), 10 with recessive transmission (PRX), 7 sporadic cases and 20 Xlinked. The second group is divided in 2 groups: 4 with dominant transmission (3 with mitofusine mutation and 1 unknown) and 9 with recessive transmission (1 with GDAP1 mutation and 8 unknown).

Discussion: In our group, dominant forms represent 54% of the CMT population, 31% of which are Xlinked, 25% are recessives forms and 20% are sporadics. The genetic study shows specificity: 20% of the dominant forms are Xlinked (Connexine 32), only 10% with CMT1A (PMP22). In the recessive and sporadic, we observed 15% of CMT4F (periaxine). Many mutations remain unknown (20%).

Conclusion: The Reunionese CMT population shows peculiar characteristics. Even if clinical repartition seems to be the same than descriptions made in Continental France, the mutations observed are different: many more CMTX (20%) and CMT4F (15%), and many cases in all groups left unknown (29%).

GENOME WIDE ASSOCIATION STUDY IN CERVICAL DYSTONIA

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Introduction: Dystonia is the third commonest movement disorders. At present, there are over 20 dystonia loci named, *DYT1* to *DYT21*. Majority of dystonia cases appear non-Mendelian inherited and there is no high-density genome wide association study to identify the loci. The following report was the first pilot attempt.

Method: Focal cervical dystonia cases were recruited from 2 UK centres. The cases were screened by movement disorders neurologists. DNA was genotyped with Illumina Human610-Quad BeadChip. Control data was drawn from the Wellcome Trust Case Control Consortium (WTCCC) data set. The case data obtained was assembled in BeadStudio software. Association study of curated phenotype data was performed in PLINK.

Results: 238 cases were genotyped and 194 cases (61 male and 133 female) remained after quality control. Five thousand controls were available from WTCCC. There was no statistical significant association in individual single nucleotide polymorphism (SNP) after Bonferroni correction. SNPs at known DYT loci did not showed any significant correlation. The top 10 hits of the SNPs had a P value in range of 10^{-5} to 10^{-6}.

Conclusions: This pilot attempted to identify any genetic loci associated with idiopathic cervical dystonia. The sample size was small and under-powered to detect an association with SNPs with odd ratios of 1.3 or less. It could detect association if odds were in the range comparable to Complement Factor H in macular degeneration. This suggested there was no SNP with high effect size in cervical dystonia. Imputation may improve yield. Further study with larger cohort is needed.

A NOVEL REFSUM-LIKE DISORDER: CLINICAL AND GENETIC STUDY OF THREE ALGERIAN FAMILIES

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Introduction: Polyneuropathy,hearing loss, ataxia, retinitis pigmentosa and catract (PHARC) is a neurodegenerative disease marked by early-onset in the late teen and involvement of both the central and peripheral nervous systems.

Objective: The purpose is to report clinical and genetic study of three Algerian families with progressive autosomal-recessive neurodegenerative disease that we aseertained initialy as a phenocopy for Refsum disease(RD).

Methodes: We describe clinical data and ABHD 12 gene mutation analysis of five persons belonging to a three Algerian families with PHARC. Concurrent mapping studies in our families were performed with Genechip 10k x bal arrays followed by analysis on selected individuals with the gene chip6.0 arrays (affymetrix).These patients, initialy diagnosed with recessive ataxia, defined a 5,5 Mb linkage interval in the 20p11, 21q12 region on chromosome 20.

Results: The disorder in our families shows an earlier onset of ataxia that has both central and peripheral characteristics.No evidence of behavorial disturbances or abnormalities related to appetite was detected in our adult patients. Cerebral cortical function appears to be spared with only one patient having mental retardation. A predominantly demyeliniating peripheral neuropathy is present in all adult patients. Genetic studies found that our five patients are homozygous for a 7bp duplication (e,846-852 dup TAAGAGC) in ABHD12 gene, with replaces the Histidine residue at codon 285 with a stop codon.

Conclusion: The ABHD12 gene causes PHARC. The discovery of the genetic defect in this new disorder provides additional insights into pathogenesis of disease affecting the retina and peripheral and central nervous systems.

AN UNCOMMON CASE OF PANCREATIC ADENOCARCINOMA WITH LEPTOMENINGEAL METASTASES

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Leptomeningeal Metastases (LM) from solid tumors have a dismal prognosis and are often present at an advanced stage, with median survival of 2 to 4 months. By spreading through the subarachnoid space, LM can produce neurologic signs and symptoms at multiple levels of the neuraxis. We present a very rare case of LM due to pancreatic tumor.

A 62-year-old man with a two-year history of stage-IV adenocarcinoma of the pancreas with hepatic metastasis underwent chemotherapy. He presented symptoms of headache, vomiting, agitation, confusion and lethargy for one week. Cranial CT scan and EEG were normal. Cerebrospinal fluid (CSF) examination revealed an opening pressure of 20 mm H2O, 58 cells/mm3 leukocytes and few cells with signet ring. The protein and glucose levels were 140 mg/dl and 31 mg/dl, respectively. Two days after his admission, a contrast-enhanced MRI study of the brain was conducted and showed widespread leptomeningeal enhancement at the supratentorial and infratentorial regions.

LM consist of metastatic tumor cells growing either attached to the pia mater or floating unattached in the CSF. In either case, the tumor cells live in the subarachnoid space, which offers a hospitable environment for the growth of metastatic tumor cells. LM remain a common problem encountered in every-day practice. Early diagnosis and good clinical determination of the patients are two of the challenges faced by neuro-oncologists confronting the disease. To our knowledge, this is only the third case of LM secondary to a pancreatic carcinoma that has ever been described.

ANTI-YO ANTIBODY POSITIVE CEREBELLAR DEGENERATION ASSOCIATED WITH OVARIAN CARCINOMA IN AN ALGERIAN PATIENT

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Paraneoplastic cerebellar degeneration (PCD) is a rare , non metastatic neurological complication in cancer patient, often with rapid onset and progression which predate the diagnosis of malignancy. Here, we present a a 49-year-old female presented with sudden onset of horizontal vertigo, vomiting, transient loss of speach and oscillopsia. She had previously been in good health.spinal fluid revealed mild pleiocytosis. neurological examination disclosed hyperreflexia. The patient improved in four weeks, but one month later, the patient ´s condition worsened and examination revealed unsteady gait. Neurological examination disclosed hypotonia and areflexia.a general and gynecological examination was normal. Two months later, an investigation for paneoplastic etiology was undertaken and revealed antiYo antibody positive. So, a MRI of ovarian disclosed kystic appearance of left ovarian. Laparoscopy revealed carcinoma of left ovarian. Unfortunately, the patient experienced no improvement after treatment.

CEREBRAL TUMOURS DURING PREGNANCY

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Background and aims: Cerebral tumours are rarely discovered during pregnancy. This disease poses both a diagnostic and a therapeutic dilemma. The aim of the study is to evaluate our therapeutic approach and to discuss evolution of cerebral tumours in pregnancy.

Methods: We collected retrospective and prospective data on cases encountered in the departments of Neurology and Neurosurgery of Fann University Teaching Hospital, from January 2008 to May 2011.

Results: We report five cases. The mean age was 27.8 years ranged from 18 to 38 years. All patients were diagnosed in the second trimester of pregnancy. The clinical features included: increased intra cranial pressure (3 cases) with alteration of consciousness (1 case), focal neurological deficit (4 cases) and seizures (3 cases). The diagnosis was first made by CT-Scan confirmed by a magnetic resonance imaging. Three patients underwent resection (two during pregnancy and one soon after delivery). The fourth patient had a complete remission of her neurological signs after a spontaneous abortion and the fifth, clinically asymptomatic, is still awaiting a neurosurgery procedure. There was one case of maternal death. The others are clinically stable. Two babies delivered by caesarian section are alive and well. For the three others pregnancies, we had two late spontaneous abortion and one still birth.

Conclusions: To reduce maternal mortality and morbidity, approach to cerebral tumour ought to be aggressive and multidisciplinary. However, that of the pregnancy ought to be conservative.

PRIMITIVE NEUROECTODERMAL TUMOUR ARISING FROM WITHIN A LOW-GRADE ASTROCYTOMA

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In approximately two thirds of all astrocytomas, dedifferentiation into a more malignant form may be expected. However, the development of a completely different tumour such as a primitive neuroectodermal tumour (PNET) from a low-grade astrocytoma is almost unheard of. We submit a case of a 36-year-old Filipino female who presented with seizure 8 years prior. A total excision of the left temporoparietal mass revealed a histopathological diagnosis of an astrocytoma, grade II. At subsequent recurrence six and two years from original presentation, tumour debulking were done. Histology was then oligoastrocytoma, grade II. Since a subtotal resection was done on the last surgery, the patient was started on temozolamide. Three cycles later, she became pregnant and discontinued the chemotherapy. After being asymptomatic for 29 months, she gave birth to a healthy boy. Three weeks prior, the patient developed another seizure and right sided weakness. This time histopathological analysis showed two types of tumour, one consisting of differentiated astroglial cells and the other, was composed of small round cells with scanty ill-defined cytoplasm. The tumour was classified as astrocytoma with central nervous system PNET focus. One of the theories for the concurrence of these tumours is that they both originate from common stem cells. Reports of these kinds of cases should be included in a databank for future studies as they pose several prognostic and treatment implications.

INCIDENCE OF CENTRAL NERVOUS SYSTEM METASTASIS IN TWO DIFFERENT POPULATIONS FROM ARGENTINA (PART 2)

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Objective: To investigate the clinical, radiological and histological features of Central Nervous System (CNS) metastasis in two different populations from Argentina.

Background: Metastasis of the CNS are among the leading causes of mortality in patients with cancer. There is no data about the incidence and their characteristics in our country.

Design and methods: The study was conducted in Argentina from November 1, 2007 through October 31, 2008. We recorded any malignant or benign CNS tumors diagnosed in residents of Tres Arroyos, a town of about 60,000 inhabitants, Buenos Aires Province (latitude 38ºS), and Tierra del Fuego, a Province of 115,000 inhabitants, located in the Argentine Patagonia (latitude 54ºS), (Census 2001). Patients were ascertained using multiple case-finding methods. The diagnosis was based on radiological data with histological confirmation. The cases were analyzed according to the first symptoms, age, sex, topography, location and histologic type.

Results: We recorded 18/42 cases (42.9%) with metastasis in the CNS. The incidence was 10.6/100,000 (11.1 age-adjusted to World population). The incidence rate was higher in the population over 65 years of age. Ten cases were lung cancer (55.6%), 3 melanoma (16.7%), 2 colorectal (11.1%), 2 breast (11.1%), and 1 unknown primary tumor (5.5%). The first symptom was: 8 headache cases, aphasia/dysphasia in 7, seizures in 3, limb paresis in 3, and delirium in 3. Neuroimaging showed single metastasis in five cases, 2-3 metastasis in four and > 4 in nine.

Conclusions: This study provides new epidemiological information which contributes to a better understanding of CNS metastasis in Argentina.

INCIDENCE OF PRIMARY CENTRAL NERVOUS SYSTEM TUMORS IN TWO DIFFERENT POPULATIONS FROM ARGENTINA (PART 1)

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Objective: To investigate the incidence rate of childhood and adult primary central nervous system (CNS) tumors in two different populations from Argentina.

Background: Primary brain tumors are among the top 10 causes of cancer-related deaths. There is no data concerning the incidence of CNS tumors in our country.

Design and methods: The study was conducted in Argentina from November 1, 2007 through October 31, 2008. We recorded any malignant or benign CNS tumors diagnosed in residents of Tres Arroyos, a town of about 60,000 inhabitants, Buenos Aires Province (latitude 38°S), and Tierra del Fuego, a Province of 115,000 inhabitants, located in the Argentine Patagonia (latitude 54°S), (Census 2001). Patients were ascertained using multiple case-finding methods. The diagnosis was based on radiological data with histological confirmation. The cases were analysed according to the first symptoms, age, sex, topography, location and histologic type.

Results: Forty two cases were found during the study. Twenty four (57.1%) patients were primary CNS tumors and 18 (42.9%), CNS metastasis. The incidence of primary CNS tumors of childhood and adult populations was 14.2 cases per 100,000 person-years (14.6 age-adjusted to the world population). The incidence rate was higher for women than for men, 15.4 versus 13.0 /100,000 person-years. Also, incidence increased specially in the groups of age 0-4 and 50-64 for both sexes.

Conclusions and relevance: This is one of the first studies of benign/malignant CNS tumors in Argentina, and the results provide new epidemiological data contributing to our understanding of the different incidence rates found worldwide.

CAVERNOUS SINUS LYMPHOMA REVEALED BY A STATUS EPILEPTICUS

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Introduction: Non-Hodgkin Lymphoma “NHL” brain became increasingly frequent. The clinical and radiological signs are nonspecific in both locations cerebro-meningeal and spine. Just the histological examination which confirmed the diagnosis.

Case report: Mr E.A, 20 years old, without significant pathological history, admitted to the emergency for a status epilepticus tonic-clonic seizure. Examination on admission: unconscious patient GCS:13, T: 37°C°, the glycemia was 1.02 g / l, neck was supple, no sensorimotor deficit, the Deep tendon reflexes was present, normal tone, no facial paralysis in Pierre Marie and Foix maneuver. examination of lymph nodes found cervical lymphadenopathies, the most voluminous is submaxillar mesured 3 cm * 4 cm. Cranial computed tomography (CT) without injection reaveld a bitemporal hyperdense lesion. lumbar puncture (PL) showed 46 White Blood Cells with 95%lymphocytic, < 3 red cells, with a hypoglycorrhachia to 0.37 g / l for a concomitant glycemia with 1.02 g / l, hyperproteinorrachie to 0.76 g / l. Second PL with the search of abnormal cells that were in favor of lymphoblastic non-Hodgkin lymphoma.

Discussion: Epileptic seizures represent a rare clinical entity in case of cerebral lymphoma owing to its location deep in most cases. In our case the radiological appearance was highly suggestive, reinforced by the cytological study of CSF that we avoided to achieve a stereotactic biopsy. Through this observation, we recall the different clinical, radiological and therapeutic cerebral lymphoma.

Conclusion: The definitive diagnosis of lymphoma remains histology.

PAEDIATRIC INTRAORBITAR AND INTRACRANIAL EPITHELIOID HAEMANGIOENDOTHELIOMA: CASE REPORT AND REVIEW OF LITERATURE

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Epithelioid heamangioendothelioma (EHE) is a rare tumor of intermediate malignancy.

We report a case of intracranial and intraorbitar EHE.

A 3-years old girl with 3 months history of progressive exophthalmia in the left eye. Neuroradiologic imaging (CT and MRI) showed an intraorbitar process massively taking contrast with intracranial, ethmoïdal, nasal fossa, maxillary sinus, cavernous sinus and temporal fossa. The angio sequence was normal.

The tumor was treated with a partial resection only. The histological diagnosis was epithelioid hemangioendothelioma. The patient was neurologically intact 2 months after surgery. From the 4 months the patient forwarded a fall of the vision of the right eye with intense cephalgias. The control scanning showed a persistence of important tumoral residue.

Epithelioid heamangioendothelioma is an hemorrhagic tumor. Total resection is mandatory where possible. Otherwise radiotherapy seems necessary. The prognosis of intracranial location has not yet been well defined. Despite the noted favourable outcome in the majority of cases.

MALIGNANT TRANSFORMATION SIX MONTHS AFTER REMOVAL OF INTRACRANIAL EPIDEMROID CYST - CASE REPORT

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Introduction: Intracranial epidermoid cysts are uncommon benign tumors of developmental origin; malignant transformation of benign epidermoid cysts is rare and these prognosis remains poor. We report a case of squamous cell carcinoma arising in the cerebellopontine angle.

Case report: A 52-year-old man presented with left facial paralysis, truncal ataxia and papillary edema. He had undergone removal of a benign epidermoid cyst six months previously. Post-operative Magnetic resonance imaging of the brain revealed a heterogeneous and cystic lesion in the left cerebellopontine angle. The cyst wall was enhanced by contrast injection. He underwent removal again and the histopathological examination revealed a squamous cell carcinoma possibly arising from an underlying epidermoid cyst.

Discussion: This entity is being reported for its rarity. The presence of contrast enhancement at the site of an epidermoid cyst combined with a progressive neurological deficit should alert the neurosurgeon to the possibility of a malignant transformation.

MULTIPLE MYELOMA REVEALED BY *HERPES ZOSTER* AND SPINAL CORD COMPRESSION IN A 36-YEAR-OLD CAMEROONIAN: A CASE REPORT

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Multiple myeloma is a malignant plasma cell disorder occurring mostly in subjects above 65 years. We describe a case of multiple myeloma in 36-year-old patient. She was admitted in our Department for paraparesia of progressive onset, evolving for about 6 months. Clinical assessment revealed acute herpes zoster skin lesions of right T4 dermatome, and a spinal cord compression syndrome with sensory level at the T8 level. Myelo-CT-scan, biological exams including bonne marrow biopsy were in favour of Multiple myeloma. HIV serology was negative. The patient was treated with Melphalan (0.2mg/kg/day) and Prednisone (40mg/day) administered for 7 days every 4 weeks associated with supportive measures and blood transfusion to control anaemia. There was an initial improvement of the general state of the patient but not of the neurological deficit. The options of better therapeutic regimens including autologous stem cell transplantation were considered, but financial and other challenges did not allow us envisage these protocols. The patient died a few weeks later because of severe anaemia and dyspnoea.

The diagnosis of multiple myeloma should be considered in all patients with spinal cord compression irrespective of the age of occurrence. In resource-limited settings, the association of Melphalan/Prednisone is the treatment of choice.

A CASE OF INTRASELLAR MENINGIOMA MIMICKING PITUITARY ADENOMA

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Introduction: The authors report a patient with a rare intrasellar meningioma mimicking pituitary adenoma.

Observation: A-65-year-old man was admitted to our hospital for headache and visual trouble. He had no neurological deficit. A CT scan with contrast enhancement revealed a homogenously enhanced mass in the sella region and the sella turcica showed enlargement with intrasellar calcification. Endocrinologic function tests confirmed hypothyroidism. Preoperative diagnosis was pituitary adenoma. The tumor was subtotally removed by using the transsphenoidal approach. The sella floor and dura matter were intact. The grey, soft and necrotic tumor tissue was encountered and bleeding was controllable. The tumor extending to suprasellar region was firm in consistency. Pathologically, the tumor was a typical meningothelial meningioma. Postoperatively, visual field defect improved and visual acuity was recovered immediately. Postoperative MRI showed a thin residual enhanced lesion, which was the attachment of the tumor. It seemed to be the elevated diaphragma sellae.

Conclusion: In clinical and radiological examination and endocrinological findings, there is no definite difference between pituitary adenoma and intrasellar meningioma

PRESERVED LANGUAGE SKILLS SUBSEQUENT TO RISK-ADAPTED TREATMENT FOR EPENDYMOMA

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Background and aims: Factors that increase the risk of reduced neurocognitive outcomes for children following treatment for CNS tumours include treatment protocol, age at diagnosis, presence and duration of hydrocephaly, time post-treatment, and tumour location. The aim of the study was to assess the language outcomes of a child presenting with a heightened risk of reduced language outcomes following risk-adapted treatment at the age of 4 years 8 months for ependymoma located on the cerebellar midline.

Method: Baseline assessment of general language skills and more complex higher-level language skills was undertaken at the age of 7 years 7 months. Follow-up language assessment was undertaken 18 months later. Change in performance scores over time was statistically compared to the change over 18 months in a control group of children.

Results: The results of a modified *t* test indicated that the child's score differences between initial and subsequent assessment were not significantly different to the mean score differences of the control group.

Conclusion: Despite a heightened risk of reduced language outcomes due to factors including a tumour located midline on the cerebellum and extending to the right cerebellar hemisphere, young age at diagnosis, length of time post-diagnosis at follow-up language assessment, and treatment including surgery and cranial irradiation, the child presented with strong stable language skills. Factors that may have contributed to the sparing of her language abilities include the application of risk-adapted treatment and the absence of hydrocephaly.

BRAIN TUMORS AMONGS CHILDREN

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Background: The quality of care for children with brain tumors might be higher in large medical centers; however, it may be possible to improve the quality of care received in smaller centers if they join an effective network.

Aim: This study used the HIT-GBM® database to compare the quality of care provided to pediatric high-grade glioma and diffuse intrinsic pontine glioma patients among various medical centers of differing sizes.

Patients and methods: Overall survival was used as a defining parameter. Indirect measures were the time intervals between the first clinical signs of cancer, initial diagnostic imaging, surgery, or chemotherapy and radiation.

Results: From 1995 to 2003, 310 children (137 girls and 173 boys, aged 3 to 18 years old) were registered from 72 medical centers in Europe. Center sizes differed from 1 to 17 registered patients. Center size did not affect survival, nor any of the time intervals studied.

Conclusion: There was no evidence that the quality of care differed between smaller and larger centers.

SUBACUTE POLYRADICULONEUROTIS REVEALING A LETHAL B LYMPHOMA

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Introduction: Peripheral neuropathies associated with lymphoma are very rare, their diagnosis come frequently after a long delay, which worsen their prognosis. The polyradiculoneurotis form is associated with a bad prognosis.

Case report: A 32 years old man, without any past personal or familial medical history, consulted for a disability of the lower limbs which started 3 months ago. The clinical examination showed a peripheral neurogenic syndrome, more precisely, a polyradiculoneuropathy. The electrodiagnosis was concordant with the clinical findings. Biological assessments were normal or negative, LP was initially negative. Lyme serology, HIV and antibodies for several systemic diseases were assessed but finally negative. Two months after the patient came back for a worsening in the natural evolution of his symptomalogy, he lost 30 Kg in this period. The clinical exam found this time several adenopathies in the cervical and inguinal regions, a biopsy, confirmed an undifferentiated B lymphoma. The patient dead before getting his treatment.

Conclusion: Our case show the severity of the lymphoma associated with the polyradicular form of peripheral neuropathy, an early diagnosis with the repetition of the biological exams and the LP should be performed to realize this objective.

SUCESSFUL SURGICAL MANAGEMENT OF A POSITIVE PROGESTERONE RECEPTOR (PR+) TUBERCULUM SELLAE MENINGIOMA DURING PREGNANCY WITH FULL RECOVERY OF VISUAL IMPAIRMENT

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Introduction: Diagnosing brain tumors during pregnancy is unusual. Meningiomas located on the *tuberculum sellae* potentially compromise the visual pathway and put the gestation at an even greater risk. The ideal timing for treatment of meningiomas diagnosed during pregnancy remains uncertain and the rate of visual recovery after tumor resection varies.

Objectives: We report the case of a pregnant patient who had a *tuberculum sellae* meningioma diagnosed and surgically treated during pregnancy with complete resolution of her visual deficit, and make some further considerations on Progesterone Receptor and its potential role in this instance.

Case report: A 26 year-old woman, in the 33rd week of pregnancy, presented with a complaint of visual loss and a mild headache that had begun one month before, initially compromising both temporal visual fields, but it subsequently progressed to nearly complete amaurosis.

A brain MRI revealed a large mass located in the *sellae*, compressing the optic chiasm, round shaped and homogeneously enhanced by gadolinium on T1 weighted/Gd-DTPA, with a 'dural tail' sign. The patient underwent a cesarian section during the 34th gestational week, followed by neurosurgical removal of the tumor via a classic transcranial pterional approach, performed four days after the cesarian. Both procedures were uneventful. Histopathological analysis disclosed a meningothelial meningioma (Grade 1 - WHO), which tested positive for Progesterone Receptors +++/3.

In the immediate postoperative evaluation, the patient had a significant improvement of visual acuity (20/70) and at the last outpatient visit the patient had normal visual acuity and diplopia had resolved completely.

INTRACRANIAL MENINGIOMA MANIFESTING AS TRANSIENT ISCHEMIC ATTACK - CASE REPORT

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Introduction: Meningiomas are the most common intracranial primary neoplasm in adults. They present a wide variety of clinical manifestations, however cerebrovascular events, particularly transient ischemic attacks (TIA), are uncommon presentation of meningiomas.

Case report: A 56 years-old woman was admitted complaining of a transitory weakness on the right arm lasting 30 minutes with complete strength recover. Her past medical history was remarkable for diabetes mellitus type 2 on use of subcutaneous insulin three times daily. Neurological examination was essentially normal. Encephalic magnetic resonance image (MRI) showed an extra-axial large mass lesion, with 3.91cmx6.47cm on diameter, compressing the left fronto-parietal lobo and with homogeneous gadolinium enhancement. No signs of cervical or cranial arterial stenosis or occlusions were identified. As no other structural abnormality was found, a diagnosis of an extra-axial intracranial tumor was made and the symptoms were attributed to it. Based on this diagnosis, the patient underwent surgical remove of the lesion. Complete mass and dural excision was performed without major complications. Histological investigation revealed meningioma. The patient presented an uneventful recovery without neurologic deficits and was discharged home in good clinical conditions. She completed the treatment with radiotherapy and is currently being follow-up on outpatient appointments.

Conclusion: We reinforce the need for a careful clinical and neuroradiological investigation of patients who present with symptoms of TIA to ensure that such potentially treatable lesions are not missed. Meningiomas are a possible cause of TIA and must be remembered and evaluated in patients manifesting transitory neurologic deficits.

OUTCOMES OF FILIPINO PATIENTS WITH GLIOBLASTOMA MULTIFORME TREATED AT THE COMPREHENSIVE BRAIN TUMOR CENTER OF ST. LUKE'S MEDICAL CENTER: PHILIPPINE EXPERIENCE

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Background: Glioblastoma multiforme (GBM) is the most malignant tumor in the family of gliomas. The standard of care for GBM yields a median survival of only 14.6 months, 1-year progression free survival of 27% and a 2-year survival of 26%. In the authors' knowledge, there is no available data in the Philippines.

Objective: To determine the median overall survival and 2-year survival of Filipino patients diagnosed with GBM.

Patients: All patients with GBM, who had undergone surgical resection, chemotherapy and radiation from 2005-2009. The histological diagnosis was affirmed by well-trained neuropathologists and graded according to the World Health Organization (WHO) classification.

Methods: Chart review of all patients with GBM treated from January 2005 to December of 2009. The following data were collected: (1) demographics, preoperative Karnofsky Performance Scale (KPS) scores; (2) preoperative clinical symptoms; (3) preoperative and postoperative contrast enhancing magnetic resonance imaging (MRI) findings and: (4) type of operation done.

Main outcome measure: Progression free survival (PFS) time and overall survival (OS) time.

Statistical and analysis: Survivor function was calculated with Kaplan-Meier curves.

Results: The median survival was 25.5 months, 1-year progression free survival was 65% and 2-year survival was 40%. Age at diagnosis, preoperative KPS score, seizure, tumor resection extent were statistically significant factors for PFS and OS.

Conclusion: Patients receiving IMRT, and a 24-hour outpatient monitoring for early detection of complications may relate to better survival. It is suggested that future studies should include determining MGMT registry to look for correlation in survival for Filipino patients with GBM.

STROKE AS THE FIRST SIGN OF CANCER DISEASES

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Stroke is a common complication in patients suffering from cancer.Different tests around the world show that almost 15% of patients with cancer suffer a stroke during this difficult disease.Stroke as first manifestation of cancer disease is rarely reported. Malignant process may act directly or indirectly on the occurrence of stroke. Direct influence may be as intratumor hemorrhage, tumor invasion of the arteries and venous sinuses or the appearance of leptomeningealnih infiltrates or tumor embolism. Indirect effects may explain the occurrence of paraneoplastic coagulopathy leading to disseminated intravascular coagulation, thrombocytosis and cerebral intravascular coagulation.

Objective: To determine the incidence of stroke as first manifestation of cancer disease and duration of life after the discovery of the disease.

We retrospectively reviewed 9021 patients hospitalized for stroke from 2000-2010 year in our department /Urgent Neurology/.It was found 76 patients (48 females and 28 males) who suffered from malignant diseases for which previously they did not know. The average age was 61 years ± 17.The most common malignancies are lung, prostate and breast.The main mechanisms of the pathogenesis of stroke are high intravascular coagulation (24/76) and atherosclerosis (18/76). In all 76 patients secondary thrombocytosis was noticeable. After the discovery of malignancy in 23 patients was performed palliative irradiation,3 patients were started chemo therapy,12 patients a surgical treated. 31 patient died during the first two months. Length of life of patients after stroke was 18 months.

Conclusion: Severity and period of survival is closely interconnected with severity of neurologic disability and progress of malignancy.

COMBINATION OF PREOPERATIVE CORTICOSPINAL TRACT TRACTOGRAPHY DATA AND SUBCORTICAL INTRAOPERATIVE STIMULATION ON LESIONS IN OR CLOSE TO PRIMARY MOTOR REGION

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Introduction: The comparison of intraoperative subcortical stimulation and corticospinal tract according to DTI was studied.

Methods: Period 9/2009 - 3/2011, glial tumour or metastasis, preoperative CST tractography, intraoperative MRI. MRI navigation and CST tractography images were performed preoperatively and in selected cases intraoperatively. The corresponding imaging were fused. Stimulation: monopolar, anodal, train of 4 monophasic pulses, 500 Hz, 400 µs. The shortest distance between tumour border and CST on preoperative MRI, cavity wall and CST on iMRI and threshold intenstity for eliciting MEP were recorded. There were included 20 patients. Histology: HGG 10x, LGG 7x, metastasis 3x.

Results: The mean distance between CST and tumour border on preoperative images was 3.2 mm. The mean subcortical stimulation current intensity at resection cavity border was 7.7 mA. There was one case of paresis due to postoperative haematoma. There were 2 cases of new paresis due to extent of resection (by 1 grade). The distance CST and tumour border was 0 and 4.2 mm in these cases, stimulation intensity 3.3 and 3.8 mA. In the remaining 17 cases there was no new weakness. Radical resection without neurologic deficit was achieved in five cases where distance was < 5 mm between CST and tumour border. The mean stimulation intensity in these cases was 8 mA.

Conclusions: The cut-off for safe resection of 5 mm according to DTI data failed to predict that radical resection of tumour would cause neurologic deficit in 5 cases. In two cases predicted the development of neurologic deficit. IGAMZCR12253-5.

NEOPLASTIC MENINGITIS FROM GLIOBLASTOMA

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Neoplastic meningitis in patients with glioblastoma is a rare complication, mostly in the advanced stage of the disease. Clinical diagnosis can be difficult as signs and symptoms from the brain tumor itself are not always easy to distinguish from signs and symptoms of possible neoplastic meningitis.

We report two patients with glioblastoma developing severe headache, which hardly responded to analgesics.

Patient 1 (37a, male), received standard concomitant radiochemotherapy according to the EORTC-protocol. Five month after adjuvant treatment headache occurred, which did not respond to analgesics. The MRI-brain showed no signs of increased intracranial pressure, and only a small contrast enhancing lesion resembling the primary tumor site. Additionally enhancing meninges were detected exhibiting neoplastic meningitis.

Patient 2 (50a, female), developed severe headache 4 weeks after tumor resection. Standard concomitant radiochemotherapy was planned. Due to persistent headache, only little responsive to analgesics, an MRI-brain was performed. The primary tumor showed little progression but no signs of raised intracranial pressure. Additionally enhancing meninges, as well as contrast enhancing nodules along the meninges, were detected exhibiting neoplastic meningitis.

Headache in patients with glioblastoma usually is attributed to tumor progression, edema, development of a cystic lesion, or disturbance of CSF circulation. In our patients, neoplastic meningitis was the cause for headache. Characteristically, headache in these two patients was severe, and only high doses of opiates showed some clinical benefit.

Patients with glioblastoma developing severe headache, refractory to conventional analgesic treatment, neoplastic meningitis should be suspected.

PITUITARY PRIMITIVE LYMPHOMA

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Primary cerebral lymphoma represents 5% of all the cerebral tumours and usually located in the periventricular white mater, corpus callosum ,and the central grey nuclei. Pituitary stalk involvement is exceptional.

26 year old immune-competent patient without any prior medical and surgical history who presented with ataxia, amenorrhea, headaches and visual disturbances within one month of onset. Neurologic examination revealed an isolated static cerebellar syndrome. Cerebral MRI showed two nodular lesions, strongly enhancing with gadolinium contrast on the pituitary stalk and the left subependymal area, with associated diminution of FSH-LH and hyperprolactinaemia. Pathologic examination was consistent with large B-cell lymphoma.

Primary cerebral lymphoma preferentially situates in the deep structures. Pituitary stalk involvement is exceptional (7 cases in the literature). In this instance, the most probable differential diagnoses stand to be inflammatory and neoplastic pathologies. Only surgical biopsy could make a diagnosis and distinguish lymphoma from the more common pituitary and subependymal processes (the diagnosis is essentially based on the biopsy of the lesion).

COGNITIVE DYSFUNCTION AND ORTHOSTATIC LEG TREMOR WITH OBSTRUCTIVE HYDROCEPHALUS SECONDARY TO SPINAL SCHWANNOMA

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Introduction: Orthostatic tremor (OT) is characterized by difficulty in maintaining orthostatic position secondary to tremor, which subsides on walking. Although the mechanism of OT is not fully elucidated, lesions in various neuro-anatomical localizations can cause postural instability and symptomatic OT. This case present progressive cognitive dysfunction with postural instability and OT, which revealed primarily caused by spinal mass.

Case report: A sixty-four year old man complained of progressive of cognitive dysfunction. Within 5 months of follow-up period, his cognitive function was decreased from 24 to 21 score of MMSE and he had developed of voiding difficulty and postural instability with 12-13 Hz. frequency of bilateral leg tremor while standing. However, when he was sit down or tried to walking, there was neither gait abnormality nor leg tremor with preserved arm swing, but slight slowness of gait. Brain MRI revealed dilatation of both lateral, third ventricles compatible to hydrocephalus. CSF analysis revealed the increased protein level to 969 mg/dL, highly suggestive finding of spinal block. Subsequent MRI of the spine revealed extensive intradural cyst formation in T12 to L5 levels with cord compression. After surgical excision, spinal mass was pathologically confirmed schwannoma. After 5 months, his daily activity normalized without any instability, slowness, voiding problem and OT. Cognitive function was also much improved to MMSE score 28.

Conclusion: Various anatomical localizations could cause cognitive dysfunction and postural instability as well as OT. In this case, spinal mass should be considered as one of the possible etiology of hydrocephalus and OT.

ARAC NEUROTOXICITY: PRESENTATION, DIAGNOSIS AND MANAGEMENT

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Purpose: AraC has been an effective chemotherapeutic agent for lymphoma and leukemia for more than 40 years. Since AraC is rapidly deaminated in the body into the inactive uracil derivative (AraU), the drug is given by continuous intravenous infusion. AraC has a narrow therapeutic index, with neurological side effects in 10-28% of patients.

We report the first case of acute AraC-induced cerebellar syndrome that was moderated by plasmapheresis followed by hemodialysis.

Case report: A 56-year-old woman with acute myelogenous leukemia was treated with two continuous infusions of AraC and Daunorubicin, whereupon she developed fever with cholecystitis followed by acute cardiogenic shock with respiratory failure, disseminated intravascular coagulation, and hepatorenal insufficiency. Renal dysfunction persisted and a critical-illness polyneuromyopathy appeared but resolved during rehabilitation. A subsequent third AraC treatment precipitated a severe acute cerebellar syndrome with ataxia, dysarthria and adiadochokinesia. Speaking, eating and walking became impossible. CT was normal, while MRI showed cerebellar and some cerebral white matter abnormalities. Plasmapheresis followed by hemodialysis resulted in immediate clinical moderate improvement. Discrete dysarthria, gait ataxia and fatigue persist ten months later.

Discussion: This is the first report of an AraC-induced acute cerebellar syndrome treated by plasmapheresis and hemodialysis. This treatment should be undertaken as prevention in the setting of hepatorenal insufficiency and immediately upon the appearance of clinical signs of cerebellar syndrome or when daily AraU measurements show climbing levels. Early cerebral MRI may be useful to detect AraC neurotoxicity. How to prevent AraC neurotoxicity without reducing chemotherapeutic efficacy remains the key unsolved question.

CLINICAL CHARACTERISTICS OF SYMPTOMATIC ISCHEMIC STROKE IN PATIENTS WITH GASTRIC CANCER

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Background: The etiology of ischemic stroke in cancer patients is various and might be different from that of conventional stroke patients. This study aimed to evaluate the clinical and laboratory characteristics of acute ischemic stroke patients with gastric cancer.

Methods: We analyzed 30 cases of symptomatic ischemic stroke with gastric cancer (stroke with cancer group, SC) from April 2009 to April 2010. Age, sex-matched ischemic stroke patients without gastric cancer (n=100, SO) and cancer patients without ischemic stroke (n=100, CO) from same period were selected as controls. Age, gender, conventional risk factors, laboratory findings and types of ischemic stroke (TOAST classification) were analyzed and compared between groups.

Results: There were significant differences in hypertension (p=0.019) and heart disese (p=0.024) between SC and CO. The C-reactive protein (CRP) levels (mean ± SD) were 4.63±5.75 mg/dL in SC, 2.90±3.03 mg/dL in CO and 1.44±2.46 mg/dL in SO, which were significantly different among the groups (p=0.001 by one-way ANOVA test and post hoc analysis). In multiple linear regression analysis between SC and CO, the CRP level (odds ratio, 2.39; 95% CI, 1.06-5.41; p=0.036) and hypertension (odds ratio, 2.11; 95% CI, 1.08-4.11; p=0.028) were independently related with ischemic stroke in SC group.

Conclusions: Inflammatory process as evidenced by raised CRP level may be associated with development of ischemic stroke in gastric cancer patients. However, there is not sufficient evidence for elevated CRP is the risk factor of ischemic stroke in cancer patients at present, further work-ups are needed.

SPINAL ACCESSORY NERVE SCHWANNOMA INVOLVING THE CISTERNA MAGNA: A CASE REPORT

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Introduction: Spinal accessory nerve schwannomas unassociated with neurofibromatosis are extremely rare, and can be characterized by their location as either intrajugular or intracisternal foramen. The latter type is rare, and only 10 cases have been reported previously. We report the 11th case of a spinal accessory nerve schwannoma in the cisterna magna, and discuss the clinical, radiologic and therapeutic features of the tumor based on the published literature.

Case report: A 19-year-old female was admitted complaining of vertigo, headache along with intermittent nausea and vomiting. These symptoms worsened over the next 5 months and she began to feel numbness in her right upper limb. Neurological examination revealed tetrapyramidal syndrome, minimal motor weakness in the right upper limb. The cranial nerve examination was unremarkable and there were no cerebellar signs. Magnetic resonance imaging (MRI) revealed a huge extra-axial tumor in the left cerebellopontine angle impinging upon the brain stem and extending through the cisterna magna to the C1 level and severely compressing the medulla oblongata. The tumor was removed via a suboccipital craniectomy and C1 laminectomy. The turnout was diagnosed as an Antoni type a schwannoma histologically. The patient made an uneventful recovery.

Conclusion: Although accessory nerve schwannoma is very rare, one should consider it as one of the differential diagnoses for tumours at the foramen magnum. Total removal of these tumors is recommended as recurrence is probably unavoidable if removal is incomplete.

PARANEOPLASTIC MOTOR NEURON DISEASE (MND) IN A PATIENT WITH BREAST CANCER

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Background: Several reports have suggested that MND may rarely be paraneoplastic. Associations have been described mostly with kidney and breast cancers. The hypothesis of a paraneoplastic etiology of some forms of MND remains elusive and it is still debated.

Objectives: Here we report on a patient with a progressive upper MND who showed a marked improvement after surgical excision of a breast cancer, discovered several months after onset of the neurological symptoms.

Case report: RA is a 60-years-old woman referred to our ALS Center with several months history of a worsening gait disorder and progressive dysarthria. After an extensive diagnostic work-up (including EMG), in April 2010 a diagnosis of Primary Lateral Sclerosis (PLS) was made and, given its relatively rapid progression, a therapy with riluzole was started. ALSFRS-R was 30/48. In August 2010 her neurological conditions had worsened (she walked only with a double cane), and a ductal breast cancer was discovered. She underwent a partial mastectomy and then chemotherapy. Soon after the surgery, the patient noticed an improvement of the neurological symptoms which continued thereafter. In April 2011 she could return to walk without assistance; her speech markedly improved and the ALSFRS-R was 42/48.

Conclusions: This is a case of reversible paraneoplastic PLS. Only very few reports of PLS associated to breast cancer have been described, none of them showing improvement after surgery and therapy (Forsyth et al, 1997). The present case is further indication that an occult tumor should be searched in patients with PLS.

BONE MARROW METASTASES FROM ANAPLASTIC OLIGODENDROGLIOMA

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We report a case of anaplastic oligodendroglioma metastatic to bone marrow and bone, two years after its initial resection.

These metastases were diagnosed by bone marrow biopsy performed because of anemia and fever of unknown origin. Bone scintigraphy showed a pattern of diffuse bony metastases.

Although extraneural metastasis of primary brain tumors including oligodendroglioma are exceptional, the literature documents examples of metastases especially to bone and lymph nodes. Bone marrow infiltration by oligodendroglioma is very rare, no more than nine cases being reported.

Genetic evaluation of the tumor revealed deletions of chromosomes 1p and 19q, corresponding with three earlier reports that evaluated the genetic alterations in patients with extraneural metastases of oligodendrogliomas. This is contradictory to the fact that oligodendrogliomas with this type of genetic alterations in general have a more favourable prognosis.

ATYPICAL TRANSFORMATION IN SACRAL DROP METASTASIS FROM POSTERIOR FOSSA CHOROID PLEXUS PAPILLOMA

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Choroid plexus papillomas (CPP) are rare tumours and spinal metastases of CPP are even less common.

We report a 50-year-old woman with spinal drop metastases at Th9 and S1-2 six years after total resection of a posterior fossa CPP. The metastasis at S1-2 was resected and histological examination showed transformation to an atypical CPP. Atypical transformation in a metastasis years after resection of a benign posterior fossa CPP has been described earlier in only one case report.

We like to advocate craniospinal MRI at the time of initial diagnosis as well as periodic follow-up at least once a year after total as well as subtotal resection of a posterior fossa CPP in adults. This could have resulted in earlier diagnosis of locoregional recurrence in the posterior fossa or of the spinal drop metastasis. After subtotal resection of the sacral metastasis, our patient received radiotherapy to the craniospinal axis with boosts to the spinal drop metastases.

COMBINATION OF QUADRIGEMINAL CISTERN LIPOMA AND FORAMEN MAGNUM MENINGIOMA

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Objective: To perform the paucity of signs in a patient with lipoma of the quadrigeminal cistern and foramen magnum meningioma and the advantages of the magnetic resonance imaging (MRI) over the computed tomography (CT) for the diagnose.

A case of 64 years old woman with pain in the occipital area of the head and impaired balance after a cranial trauma is described. The clinical examination found discrete nystagmus to the left side and positive Romberg test. According to neurosurgical examination the patient is liable to operative intervention.

The CT scan of the head showed well-turned, adipose density zone in the ambient cistern, measured as 12/14mm and groups of calcium density depositions caudal to the latter.

The MRI of the brain demonstrated a quadrigeminal lipoma and foramen magnum meningioma visualized as 12/13 mm lesion in the left half of the quadrigeminal system, high intensive on T1-T2 weighted images and low intensive on fat suppressing images and ovoid 18/14/13mm formation at the level of the foramen magnum on the right side of the skull base compressing the intracranial part of distal medulla oblongata.

This case confirms the difficulty of the diagnose due to the capricious anamnesis and peculiar findings on neurological examination and demonstrates the mainstay of MRI for revealing the tumors. This is especially important in light of the fact that severe symptoms as spastic quadriparesis often develops with the progression of the disease and the earlier the diagnosis, the better the chance for preventing the complications.

ABOUT AN UNUSUAL FORM OF PITUITARY MACROADENOMA

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Introduction: Pituitary Adenomas make up 12-15% of symptomatic intracranial neoplasms. They may occur at any adult age, but are rare in childhood. Pituitary adenomas in childhood and adolescence constitute only 2-6% of all operated pituitary adenomas. They are the most common cause of chiasmal compression.

Observation: We report the case of a 13 year old girl who presented an intracranial hypertension syndrome (headache, vomiting and visual disturbances acuity) with brutal installation of facial paralysis and functional impotence of the left hemicorpus. She has also present anterior pituitary failure (Corticotroph and thyretroph insufficiency). Magnetic resonance imaging revealed a large intracranial process compressing under adjacent structures, reaching the temporal and frontal lobe and deviate median line. A large tumor exerese was realized but was incomplete view tumor extension.

Histologic study of the surgically removed tissue and immunohistochemistry revealed a pituitary adenoma expressing prolactin, although clinical presentation and radiological appearance were not evocative of an adenoma. A therapeutic supplement by cabergoline was administrated in postoperative. Clinical , hormonal control and radiological monitoring are programmed.

Comment & conclusion: Pituitary adenomas are uncommon in childhood and adolescence. They occur mostly in pubertal age. The majority of these tumors are macroadenomas and clinically functioning. Medical therapy should be preferred for secreting adenomas, but in some cases surgery and eventual radiotherapy may be needed.

PLASMOCYTOMA MENINGEALIS. LEUCOENCEPHALOPATHIA TOXICA. HYPACUSIS SENSORINEURALIS GRADUS GRAVIS - CASE REPORT

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Meningeal plasmocytoma occurs rarely in clinical practice and that is the reason for presenting this case report. Patient aged 46 years was hospitalized at the Department of Urgent Neurology during April 2011. He was previously hospitalized in Neurological and Infectious Departments of the General Hospital.

According to the letter of discharge and data from relatives, he has developed signs in mid-March. Dominant symptoms were headache, nausea, vomiting, mental disorder and complex partial epileptic seizures. According to these data initial diagnose was ischemic brain disease. After a short episode of fever and findings of pleocytosis in cerebral fluid we suspected meningitis.

During the admission he had complex partial epileptic seizures and apsans epi attacks. Computerized tomography of the brain excluded focal lesions, and laboratory finding of leukocytosis was registered, without any other markers of inflammation. Suspicion of primary hematological disease was confirmed by computerized tomography of the abdomen (retro and intraperitoneal lymphadenomegaly was found). The MRI of endocranium registered soft-tissue infiltration of leptomenings. Lumbar puncture was performed, and we obtained a result of pleocytosis and recordings of blast cells. By immunophenotypisation, cells from cerebrospinal fluid were confirmed to be a plasmacytes. The presence of IgG paraprotein has not been proved by immunoelectric focusing.

Systemic therapy was began, with high doses of Dexason and intrathecal therapy with Urbason and Cytosin-Arabinosid. The patient reacted well and the epileptic attacks withdrew. As a result of the use of immunosuppressives bilateral sensorineural deafness occcured.

LOW DOSE METHOTREXATE INCREASES PROTOPORPHYRIN IX IN GLIOMA CELLS AND THE EFFICACY OF PHOTODYNAMIC THERAPY WITH 5-AMINOLEVULINIC ACID

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Orally administered 5-aminolevulinic acid (5-ALA) is intracellularly converted to photosensitizer protoporphyrin IX (PpIX). Tumor cells show abnormal accumulation of 5-ALA, which is metabolized into strongly fluorescing PpIX via the action of enzymes involved in heme biosynthesis pathway. However, PpIX fluorescence is not observed in some tumors despite all those factors, and the underlying mechanism remains unknown. We reported that coproporphyrinogen oxidase (CPOX) is strongly related to the accumulation of PpIX in clinical brain tumors. Furthermore, methotrexate (MTX) increases CPOX expression in carcinoma cells and improves the efficacy of photodynamic diagnosis (PDD) and photodynamic therapy (PDT).

We aimed to investigate changes in the expression of CPOX and photosensitivity of brain glioma cell lines.

Malignant glioma cell lines were cultured with MTX contained medium (0.001-1.0mg/L) 72 hours followed by incubation with 0.3mM 5-ALA for 4 hours. The 5-ALA induced fluorescent was observed with fluorescence microscopy and the relative fluorescence intensity was measured with fluorescence-activated cell sorter (FACS). The expression of CPOX mRNA was measured with quantitative real-time PCR (qRT-PCR). For assessment the efficacy of 5-ALA-PDT, colony forming assay was performed.

The fluorescence intensity and PpIX concentration increased with 0.01mg/l MTX incubation compare with no-MTX group significantly (1.5-2.0 fold). The expression of CPOX mRNA also increased about1.5-2.5 fold. Moreover, the efficacy of 5-ALA-PDT was enhanced in all kind of malignant glioma cells treated with 0.01mg/l MTX.

ombination therapy using low-dose MTX and 5-ALA might be a new combination modality to enhance the efficacy of PDT for malignant gliomas mediated with CPOX up-regulation.

A CASE OF CEREBRAL GLIOMATOSIS

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Introduction: Cerebral gliomatosis is an infiltrating glial tumor of unknown etiology, involving at least two brain lobes, which may extend to infratentorial structures and spinal cord without modifying the cerebral architecture. It has a non specific clinical and radiological expression. Its histological diagnosis is sometimes difficult. Even with etiological treatment, the evolution is generally unfavourable within a relatively short term.

Objective: Conduct a literature review of Cerebral Gliomatosis from a case managed in our department.

Methodology: We report a case of Cerebral Gliomatosis who has benefited from a brain CT scan, an MRI and a histological confirmation in 2009.

Results: A patient of 55 years was admitted for disorders of walking, deglutition and phonation. The clinical examination showed multiple cranial nerve disorders (III, VI, V2, IX, X, XI) and a left pyramidal syndrome. MRI evoked the diagnosis. A stereotactic biopsy was performed followed by histological confirmation of the diagnosis. The evolution was unfavorable with a symptomatic treatment and the patient died after 9 months.

Conclusion: Cerebral Gliomatosis is a rare condition. It poses both diagnostic and therapeutic problems due to its diffuse nature and the neuro toxic effect of brain irradiation. Oligodendroglial type that has very often a good chemosensitivity seems to be more frequent with a better prognosis than astrocytic type.

THE CONDITION OF PATIENTS WITH TUMORS IN CHIASMAL - SELLAR REGION AFTER SURGICAL TREATMENT

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Aim: To estimate the condition of recurrence rate of secondary hypogonadism at patients with tumors in chiasmal - sellar region (CSR) after surgical treatment.

Materials and methods: Depending on the character of tumor CSR all 30 patients were divided into 4 groups: 12 patients operated on hormonal inactive pituitary adenoma, 8 patients operated on craniopharyngioma, 7 patients operated on prolactinoma, 3 patients operated on somatoprolactinoma.To verify secondary hypogonadism it was carried out: acquisition of anamnesis, complaints, assessment of objective state, determination of the level of prolactin, gonadotropic hormones - luteinizing and follicle-stimulating ones, sexual hormones - men's testosterone and women's estradiol.

Results: Secondary hypogonadism was detected in 70% cases. Patients operated on craniopharyngioma (87,5%) and on prolactinoma (71,4,%) had more often secondary hypogonadism. There was a bit less percentage in groups operated on somatoprolactinoma (66,7%) and on hormonal inactive pituitary adenoma (58,3%). The average level of men's testosterone was rather low - from 7,7± 2,9 to 1,6±0,9 nmol/l. The indexes of women's estradiol were also significantly reduced - from 110,3± 17,9 to 68,5±10,5nmol/l. The average levels of indexes of luteinizing and follicle-stimulating hormones in all groups were reduced or at the lowest border of norm. This indicates secondary character of hypogonadism.

Conclusion: Secondary hypogonadism is one of frequent presentations of postsurgical hypopituitarism. As the average age of patients was from 40 to 50 years old, prescription of hormonal substitutive therapy is an integral part of treatment. It helps to improve life quality and gives an opportunity to realize reproductive functions.

DEMENTIA WITH LEWY BODIES IN A NIGERIAN WOMAN: A CASE REPORT

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Introduction: There is paucity of information on Dementia with Lewy bodies in Sub-Saharan Africa. We report a case of DLB in a 67 year old Nigerian woman.

Case report: A 67 year old Nigerian woman, a retired nurse with Hb SC, presented with a 6 month history of progressive gait impairment, rest tremors, reduced spontaneous movements and memory impairment. She has had recurrent episodes of fluctuating cognitive functions, during which she might not be able to recall her name or that of her wards as well as her address.

She had gradually become withdrawn socially and apathetic with history of visual hallucination. There was associated urinary incontinence. She was on a regimen of haloperidol and artane for a diagnosis of a possible psychotic disorder/dementia made at a psychiatrist's clinic a month before presentation and referred on account of generalized dystonic reaction developed 6 days prior to admission.

Neurological examination showed a conscious elderly woman, with MMSE of 13/30 having greater impairment in the memory and visuo-spatial domains. She had florid features of parkinsonism.

A diagnosis of probable Dementia with Lewy body was made after normal pressure hydrocephalus was excluded. She commenced L-dopa/carbidopa, donepezil, aspirin and vitamin E. Haloperidol and artane were stopped with consequent improvement of the dystonic reaction.

Conclusion: Early neuropsychiatry manifestation, neuroleptic sensitivity, visuo-spatial disorientation in the presence of Parkinsonism is typical for DLB as in this patient although, tolerance of anti-psychotics does not exclude DLB and anti-psychotic challenge is not advocated.

OCCUPATIONAL STATUS HAS PROTECTIVE ROLE IN PREVENTING POST-STROKE COGNITIVE DECLINE: ONE YEAR RESULTS FROM A LONGITUDINAL STUDY OF TABASCO

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Background: Stroke considerably increases the risk of dementia, with incidence rates approaching 32% within 1 year after stroke.

Objective: To assess the role of pre-stroke occupational status in post stroke cognitive decline.

Methods: The TABASCO (Tel-Aviv Brain Acute Stroke Cohort) study is an ongoing, prospective study of first-ever mild-moderate stroke patients. On admission, all patients had an MRI and cognitive assessment, also determined 12 months thereafter. White matter lesion load (WMLL) was estimated semi-quantitatively. Pre-stroke information collected including demographic data and occupational status.

Results: Post-stroke cognitive decline was diagnosed when there was a deficit in the global cognitive tests from admission to 12 months thereafter. Results from the first 120 patients who underwent cognitive assessment at both time points revealed that 21 (17.5%) patients had cognitive decline. Increased age, higher WMLL and pre-stroke unemployment were independent predictors of this decline (OR=1.24;1.9;3.86, respectively). Neither stroke-related risk factors nor neurological scores at admission or education were predictors of post-stroke cognitive decline.

The effect of working status was even higher in a subgroup analysis of patients below the age of retirement (OR=7.06). Return to work after the event was also associated with decreased prevalence of cognitive decline.

Conclusions: In our cohort of first-ever mild-moderate stroke patients 17.5% developed cognitive decline within 12 months. Increased age, higher WMLL and pre-stroke unemployment were independent predictors of this decline, as well as early retirement after the stroke. These preliminary results from the TABASCO study calls for re-considering early retirement in an attempt to reserve cognitive abilities.

DEMENTIA AND ALZHEIMER'S DISEASE. EXPERIENCE OF THE MEMORY CLINIC OF RABAT

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There are few Memory Clinics in developing countries. We have studied dementia and Alzheimer's disease (AD) from the Memory Clinic of Rabat (MCR) between January 2000 and May 2011. Among 448 consecutive patients presented with memory complaint, 47 were not demented and 401 presented with dementia (89.5%). Diagnosis of dementia was based on complete neurologic and somatic clinical examination, and neuropsychological assessment. All patients had cerebral imaging (CT Scan or MRI). Routine laboratory tests were performed in all cases and sometimes more analysis when a specific etiology was suspected. We used the usual criteria for diagnosis of AD and other degenerative dementias.There were 203 males and 198 females among our dementia cases. The mean age was 64.82 years (SD 13.42; range 21 to 95 years). The mechanism of dementia was degenerative in 214 cases (53.4%) including 182 AD, vascular in 109 cases (27%), infectious in 28 cases and inflammatory in 13. Other etiologies were found in 26 cases, and dementia was of undetermined cause in 11 cases. Early-onset dementia (EOD), defined by an age-onset before 65 years, represented 42.4% of our dementia cases.Our study shows a large diversity of etiologies in dementia. As in developed countries, AD is the first cause of dementia, followed by vascular dementia, but they are found essentially after 65 years. Other etiologies, like infectious and inflammatory diseases, are less frequent and mainly diagnosed in EOD. EOD needs exhaustive investigations for a rapid diagnosis in order to treat the potentially reversible conditions.

WHAT IS THE PLACE OF BIOMARKERS IN THE DIAGNOSIS OF PRIMARY PROGRESSIVE APHASIA (PPA)?

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Introduction: [Dubois et al. 2007] underlined biomarkers association in new criteria of Alzheimer's disease (AD).

The aim of the study: is to describe 2 patients showing discordant biomarkers.

Methods: We report 2 cases of 75 and 79 year-old women. Both initially complained about language's disorders. They underwenta standard assessment (anamnesis, clinical examination, neuropsychological tests, cerebral MRI, FDG-PET and lumbar punction).

Case n°1: The patient described difficulties to find words, a loss of words in spontaneous speech and in naming (no compensation by phonemic assitance). The speech was fluent. The semantic fluency was poor. *Clinical symptoms:* Free Recall/cued recall 16 items: Cortico-sub-cortical profileFDG-*PET results:* ↓ fronto-parieto-temporal left metabolism. *fMRI results:* Bilateral hippocampal atrophy. *CSF markers:* Amyloïdβ normal, Total-tau ↑, Phospho-tau ↑, IATI= 0,46.

Case n°2: The patient complained because she didn´t find words, had difficulties to express an idea. We showed arthric and phonemic troubles. Semantic fluencies were limited. In spontaneous speech, language is fluent despite a loss of words and difficulties to elaborate a sentence. *Clinical symptoms*: Impossible encoding at Free Recall/cued recall. *FDG-PET results :* ↓ fronto-parieto-temporal left metabolism. *fMRI results:* Hippocampal and left temporal atrophy. *CSF markers :* Amyloïdβ normal, Total-tau ↑, Phospho-Tau ↑,IATI= 0,38.

Conclusions: Functional neuroimaging (FDG-TEP) and clinical examination hypothesized Primary Progressive Aphasia diagnosis despite CSF markers were more in favour of AD. In this case, only the histopathological history (autopsy) should make the distinction between the two diagnosis.

EARLY ONSET DEMENTIA: A TUNISIAN COHORT STUDY

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Background: Early-onset dementia (EOD) refers to a dementing process occurring before the age of 65 years. Its prevalence was estimated to 50/100.000H. It is considered as a challenging condition because of specific clinical and etiologic characteristics.

Objectives: To identify the demographic characteristics and the etiologic causes of EOD in Tunisian patients.

Methods: We conducted a retrospective study in the department of Neurology of Razi hospital (Tunisia) during the period between July 2002 and April 2011. Were included demented patients in whom cognitive decline occurred before 65 year-old. A comprehensive methodology was used to attempt to establish a specific cause.

Results: The study identified 330 cases of EOD among 1157 demented patients, giving a frequency of 28.59% of dementias cases. 23 poorly investigated patients were excluded. Male to female ratio was 1.08. Mean age at onset was 54.9 and mean age at presentation was 58.5 years. Neurodegenerative etiologies accounted for 61.37% of the cohort. AD was the most frequent (38.99%). Vascular dementia accounted for 16.61%, metabolic causes for 1.44% and inflammatory causes for 2.53%. At the last follow-up, 16 patients (5.78%) had an unknown etiology.

Conclusion: EOD is frequent in our country and its management presents challenges that differ from those of older patients. Few patients have potentially treatable disorders whether neurodegenerative causes, especially AD are frequent but considerably less common than in elderly. The devastating consequences and financial loss for the patient´s family as well as society, emphasizes the importance of developing strategies for diagnosis and management of younger patients.

CLINICAL DISTRIBUTION OF DEMENTIA SYNDROME IN ARMENIA: RESULTS OF 3 YEAR LONG STUDY

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Objective: Dementia Syndrome (DS) is one of most wide spread cognitive disorders in Armenia, but remains underestimated till recent time. Special three year long program was created to unveil the prevalence, distribution, correct diagnostics and further management for DS. The aim was to conduct research in patients with DS to understand types of dementia.

Material and methods: 321 patients were included in this survey who met inclusion criteria: DS assessed by psychological testing; with further evaluation for thyroid function, vitamin deficiency, brain tomography. Special attention was paid to family history and age of onset. Mean age was 62±6 yrs, gender distribution was 180 women (56%), 141 men (44%).

Results: Number of patients with Alzheimer diseases was only 32 (10%), whether Vascular Dementia was responsible for 159 cases (50%). Mixed cases of most probable Alzheimer and Vascular were 38 (or 12%). The rest consists of other Neurodegeneration causes (Parkinson disease/syndromes) - 33 patients (10%), Hypothyreosis or autimmune thyroiditis -20 patients (6%), different types of hydrocephalus -14 patients (4%), vitamin deficiency - 6 patients (2%), alcohol / drug abuse was counted in 6 (2%) and 13 patients (4%) had another reasons.

Conclusion: Our data suggests that in Armenian population the majority of Dementia cases is conditioned by Vascular origin due to untreated arterial hypertension. Alzheimer type is moderately rare then vascular. More work must be done toward better diagnostics of all dementia cases. About quarter of patients with DS had potentially reversible reasons and good outcomes in proper management.

PRESTROKE AND POST-STROKE PHASE IN CADASIL

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Background: Cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy (CADASIL) is an inherited arteriopathy caused by mutation in the notch 3 gene. Cognitive impairment is the second most frequent clinical manifestation and worsens with recurrent stroke. In Asia, the comparison studies between prestroke and post-stroke phase in CADASIL have not been performed yet. In the present study, we described epidemiological and clinical characteristics of prestroke and post-stroke phase in CADASIL.

Methods: Fifty three consecutive patients were investigated. Then patients were divided into two groups depending on the presence (post-stroke group) or absence (prestroke group) of clinical stroke. Thirty one patients belonged to post-stroke group and the remaining 22 patients to the prestroke group. All patients underwent MRI scan with the same protocol. Cognition was assessed by psychometric tests (Mini-Mental State Examination [MMSE], Vascular Dementia Assessment Scale cognition subscale [VADAS-cog], Trail-Making Test [TMT], Stroop test).

Results: Post-stroke group demonstrated an increase in lacunes and cerebral microbleeds. The memory scores of Alzheimer's Dementia Assessment Scale cognitive subscale (ADAS-cog) and correct numbers of Stroop color naming were lower in post-stroke group than prestroke group. While Hypertension was more prevalent in post-stroke group, chronic headache are more prevalent in prestroke group.

Conclusion: These findings suggest that cerebral microbleeds as well as lacunes may predict the risk of clinical stroke and Stroop color naming and memory scores of ADAS-cog may be used as a cognitive tool for differentiating the phase (prestroke and post-stroke) in CADASIL.

VALIDATION OF THE MAMSE: A TOOL FOR ASSESSING COGNITIVE FUNCTION FOR ALL SOCIO-EDUCATIONAL LEVELS

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Introduction: The Mini Mental State Examination allows a rapid and comprehensive assessment of cognitive function. This test contains 12 items and has a maximum score of 30. Studies have shown that the test is sensitive to differences in educational level. In countries where literacy rates are low, the use of this tool is limited, hence the need to adapt the test to account for socio-cultural differences.

Objectives: The aim of this study is to validate the Malian version of MMSE (MAMS) for use this tool of a dementia screening.

Methodology: A sample of 317 subjects, aged 50 older was recruited. They were distributed in 158 literates and 159 illiterates. Each group received both tests. Subjects were first administered the MMSE and two weeks later, MAMSE. The data were analyzed with use SAS 9.1.

Results: There was a significant association between MMSE and literacy level: average 27,46 P ≤0.04 and for MAMSE with literacy level: average 27,44 P< 0,001, and the MAMSE was to found to be somewhat less sensitive to education than MMSE. The intrinsic characteristics of the change in the evaluation of our entire sample are discriminated at a threshold of 24, sensitivity 0.93, specificity and accuracy at 0.97 to 0.90 with Kappa= 0.83. Moreover, the assessment of illiterate found an overall average of 25.12 with an overall average of 27.44 for the entire sample.

Conclusion: These results suggest that in Mali, the MAMS is a reliable test for screening of dementia in the elderly population.

AN ASSOCIATION BETWEEN MELATONIN SECRETION AND COGNITIVE STATUS IN ACUTE STROKE PATIENTS

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Background and aims: To determine the association between urinary 6-sulfatoxymelatonin level (aMT6s) and cognitive status in acute stroke patients. 25 men (aged 58,31±1,04 years) with first hemispheric ischemic stroke were examined within acute period with clinical and neuropsychological methods: NIHSS, MMSE, FAB, MoCA, Clock Drawing Test, Five Word Test and *Schulte Test* (ST). Assessment of aMT6s level was performed. We used published data on aMT6s level in healthy subjects between the ages of 20 and 84.

Results: The aMT6s level was equal to 7,84 (1,04; 20,47) ng/mL (3.5-fold reduction). By age groups: 36-50 years: 6,58 (1,04; 29,8) (4.5-fold reduction); 51-65 years: 9,0 (2,16; 20,47) (2.3-fold reduction); >60 years: 3,15 (0,54; 9,9) (5-fold reduction). We did not found any correlations between aMT6s level and educational level, severity of stroke, systolic blood pressure, alcohol consumption and smoking. Correlations between aMT6s level and age (r=-0.41; p=0.04); MMSE (r=0.41; p=0.04), especially “recall” subtest (r=0.67; p=0.0002); FAB (r=0,48; p=0,016), especially “mental flexibility” subtest (r=0.40; p=0.046) and ST (r=-0,43; p=0,04); were revealed. The patients with FAB< 16 had a lower aMT6s level (p=0,044).

Conclusion: Acute stroke men have low level of melatonin secretion, which depends on the age. The most significant deficit is revealed in 36-50 and >65 age groups. An association between melatonin secretion and cognitive status, especially executive functions, attention and short memory was found.

STROKE LIKE PRESENTATION OF SPORADIC CREUTZFELDT-JAKOB DISEASE (SCJD)

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Background: CJD is a degenerative neurological disorder.Here we present a case of sCJD, who presented as hemiparesis and hyperintense lesion of caudate nucleus was mistaken as ischemic changes, until patient had developed myoclonus.

Aims and objective: To present a rare presentation of a rare illness CJD.

Methods and observations: A 55 years old male presented with acute onset, progressive right hemiparesis since 1 day.He was a known hypertensive.MMSE- 25/30. CT Brain was normal.MRA Brain shows hyper intensity of left caudate nucleus on Diffusion weighted and FLAIR images.He was started on antiplatelet, antilipid, antihypertensive agent with physiotherapy.On 5th day evening, relative complain that patient was getting some jerky movement of limbs.He was started on clonazepam and all metabolic parameters were within normal limits, but jerks were worsening.No tonic-clonic seizure, loss of consciousness and any new focal deficits except patient's HMSE drop down to 15/30 . No history of fever, drug intoxication etc.No similar or major illness in past. No family history of major or similar neurological illness. Now thought process was changed from ischemic stroke to CJD. EEG was done and typical periodic sharp wave discharges were noticed. Patient was pure vegetarian and has no history of any corneal or organ transplant.Routine CSF study were normal, thyroid profile was normal with negative thyroid antibody.

Conclusions: Hemiparesis as a presenting symptom is a rare manifestation of sporadic CJD. Typical periodic sharp waves on routine scalp EEG in clinically suspected cases can obviates the need of higher sophisticated investigations in diagnosing this rare illness.

IMAGING OF DEMENTIA

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Dementia represents all the affections at the origin of a progressive deterioration of mental cognitive functioning, mental non-cognitive functioning and autonomy in daily life. The diagnosis of any of these affections is not only based on the clinical and neuropsychological tests, but also on morphological imaging that is obligatory in every recent dementia.The interest of this work is to recall the role of imaging in the diagnosis of primitive and secondary dementia, and to illustrate them by their principal morphological diagnosis criteria.First, it is imperative to distinguish between primitive degenerative dementias and secondary neurosurgical, vascular, inflammatory, infectious, metabolic or toxic dementias that need to be eliminated first. Secondly, the morphological diagnosis of dementia requires a good knowledge of signs of normal brain aging.MRI is the best examination for the exploration of dementia. CT-scan has a limited role, and should be only reserved for cases where MRI is not available.On conclusion, a good management of dementia begins with the elimination of a secondary dementia. Then, the objective is to make the diagnosis of the type of dementia. That's why the knowledge of all manifestations in imaging of dementias, notably in MRI, is therefore imperative.

PRIMARY PROGRESSIVE APHASIA: APPLICATION OF THE INTERNATIONAL CONSENSUS CRITERIA AND VALIDATION USING PIB-PET IMAGING

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Background: Primary progressive aphasia (PPA) comprises a heterogeneous group of neurodegenerative conditions with diverse clinical profiles and underlying pathology. The publication of the recent International Consensus Criteria (ICC) is expected to improve the diagnostic accuracy for the three major variants: semantic, nonfluent/agrammatic, and logopenic. The applicability of these Criteria to an unselected clinical sample is unknown and no agreed clinical evaluation scale on which to derive the diagnosis exists.

Methods: We assessed 47 consecutive cases of PPA using a standardised rating scale for Speech and Language in Progressive Aphasia (SLAP). A subgroup of 30 patients underwent PiB-PET scans and were compared to an age-matched group (n=10) with typical AD.

Results: The application of an algorithm based on four items of SLAP (motor speech disorder, agrammatism, single-word comprehension, and sentence repetition) classified 45 of 47 (96%) of the patients and showed high concordance with the gold-standard expert clinical diagnosis. The level of neocortical Ab burden varied considerably across aphasic variants. Of 13 logopenic patients, 12 (92%) had positive Ab uptake. By contrast, 1 of 9 (11%) semantic variant and 2 of 8 (25%) nonfluent/agrammatic cases were positive.

Conclusion: The ICC can be applied to the majority of PPA cases using a simple speech and language assessment scale based upon four key variables. PiB-PET imaging confirms the higher rate of Alzheimer pathology in the logopenic variant and, in turn, the low rates in the other two variants. The study offers insight into the biological basis of clinical manifestations of AD.

HYPOTHYREOSIS AS THE RISK-FACTOR OF DEMENTIA IN ELDERLY

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Background: As known the thyroid status is essential for normal development and retention of cognitive function throughout life. The association between thyroid hormones and cognition has been recognized.

Purpose: To identify the relation of thyreopathy with mild cognitive impairment (MCI) and probable Alzheimer's disease (AD) in aged patients from endemic region of Georgia.

Methods: Non-vascular 110 MCI patients and 70 probable AD aged 60 to 70 years were investigated. Thyroid gland was evaluated by ultrasound. Thyroid gland hormones (FT-4, TSH) determined biochemically. Cognitive status evaluated by Mini Mental Examination Scale (MMSE). AD diagnosis was made according to NINDS- ADRDA criteria. Brain was visualized by conventional MRI. Depressive disorder was evaluated by Hamilton Depression Rating Scale (HAM-D). Control comprised 30 aged matched healthy persons. Spearman rank correlation and the χ^2-test was used to assess associations among categorical variables.

Results: Untreated hypothyreosis was detected in 37(33.6%) patients with MCI and 11(15.8%) patients with probable AD. Hyperthyreosis revealed in 6 (5.45%) patients with MCI. Euthyreoid state detected in 4(3.6%) patients with MCI and 7(10%) patients with probable AD. Severe depression (HAM-D>12) was detected in 2 (2.8%) patients with euthyreoid state and probable AD. Positive correlation was found between hypothyreosis and cognitive status decline in aged patients with MCI and probable AD ($r=0.34$; $P< 0.05$).

Conclusion: Untreated hypothyreosis can be considered as the risk factor for cognitive decline in aged patients with non-vascular MCI and probable AD.

FAHR SYNDROME REVEALING BY DEMENTIA ABOUT TWO CASES

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Introduction: Fahr's syndrome involves calcification of basal ganglia and dentate nuclei of the cerebellum. Clinically it may present with an array of movement disorders, dementia and other behavioural disturbances. Sporadic and familial cases have been reported with or without calcium/ phosphorus metabolism.

Objective: To report two cases of fahr syndrome revealing by dementia.

Observation: The first case of a 55-year-old man with progressive dementia, extrapyramidal symptoms and metabolic disorder. Brain CT showed Fahr-type calcifications in the basal ganglia, cerebellum and centrum semiovale parietal. The second case of 60 years-old women, presented progressive dementia without extrapyramidal syndrome. In both cases, brain imaging and biology resulted in the diagnosis of Fahr's syndrome. The outcome was favorable after treatment in the second case and moderate in the first once.

Conclusion: These two observations illustrate and describe cognitive symptoms of Fahr's syndrome.

THE EFFECTS OF CANNABINOIDS IN A COMPLEX GENETIC MODEL OF NEURODEGENERATIVE DISEASE

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Cannabinoids are putative neuroprotective agents in Alzheimer's disease (AD), Parkinson's disease (PD and Huntington's disease (HD). Neuroprotection is mediated through CB1 and CB2 receptors, that mediate neuronal function and neuroinflamation, respectively. We developed a mouse model of multisystem neurodegeneration by overexpression of mutant human tau + homozygotic deletion of parkin. These animals have abnormal localization and phosphorylation of tau, systemic amyloidosis and neuronal degeneration in hippocampus, cortex, mid brain, striatum and spinal cord.

We tested the effects of SATIVEX*, a mixture of Δ-9-tetra-hydro-cannabinol (THC) and cannabidione (CBD), 1:1, which acts on both CB1 and CB2 receptors, on parkin/tau mice. The animals received SATIVEX*, 4.63 mg/kg, ip, for one month, at seven months of age, when the clinical symptoms become noticeable. Eighteen parkin/tau mice were used for the study, 9 controls and 9 SATIVEX* treated. Motor, cognitive and anxiety behavioural testing were performed every week. At the end of the month of treatment the mice were sacrificed and their brains were used for the analysis of monoamines, proteins and glutathione.

SATIVEX* reduced behaviours stress-related, aggressive behaviour and stereotypy. SATIVEX* reduced the intraneuronal, free radical producing, metabolism of dopamine in limbic system, striatum and mid brain. SATIVEX* also increased the ratio reduced/oxidized GSH. In conclusion, SATIVEX* protects partially in this model of neurodegeneration. The magnitude and duration of neuroprotection should be tested in younger animals, without symptoms. The treatments should be maintained for longer periods of time.

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AN AUTOPSY CASE OF SUPERFICIAL HEMOSIDEROSIS IN ASSOCIATED WITH TAU AND ALPHA-SYNUCLEIN ACCUMULATION

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Purpose: To present an autopsy case of superficial hemosiderosis associated with tau and α-synuclein deposition.

Case: An individual, Japanese male, developed mild cognitive impairment, dysarthria, deafness, pyramidal signs and cerebellar ataxia at age 50. The cerebrospinal fluid examination showed elevated level of iron, transferrin and ferritin.

Neuroradiology: Brain MRI showed an atrophy of the cerebellum and pons as well as iron deposits of the surface of the brain using T2 and T2* images.

Neuropathology: The brain weighs 1,090 grams and showed severe atrophy and necrosis of the cerebellum. No vascular malformation was seen. There were extensive deposits of hemosiderin in the macrophages and glial cells at the level of surface and superficial layers of the cerebrum, brainstem, cerebellum and spinal cord. They are well stained using Berlin blue stains and ferritin immunohistochemistry. In those regions, numerous AT8 (p-tau) immunopositive deposits are present in the neurons and glial cells. The distribution of the tau protein is not consistent with that of Braak's stages. In addition, phosphorylated α-synuclein immunopositive Lewy body and neurites are observed in the brain stem nuclei. In some instance, there are neurofibrillary tangles and Lewy body in the same neuron of the locus coeruleus.

Conclusion: The present case may help to understand pathomechanism of iron induced tau and synuclein accumulation in the brain.

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MIGRAINE HEADACHES, POSSIBLE PREDICTORS OF DEMENTIA?

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In the general population, many people suffer from persistent headaches. The most common types are migraine and tension headaches. Migraine headache is caused by constriction of blood vessels of the head, leading to reduced blood flow. In some cases there are temporary neurological deficit, usually within field of sight. Headaches and migraines are associated with increased risk of stroke. Migraine is associated with a variety of structural brain damage, including clinically silent infarction in the posterior circulation.

Objective: To determine the connection between migraine, occurrence of ischemic lesions of the brain and cognitive disorders. The study included 106 patients aged 48-71 years (65 women, 41 men). During the test it has been used adapted from of headaches (information on duration of headache,frequency of episodes,intensity of pain, characteristics and location of pain, the association of pain with physical activity, sensitivity to sound and light, nausea and information about the existence of the aura) visual scale of pain, Mini Mental State test and memory test. A detailed neurological examination has been performed and patients underwent cranium CT and MR.

Conclusion: The interconnection between headache and cerebral infarction is limited to persons who have migraine with aura. Our data do not indicate an interconnection between specific types of headaches and a significant loss of cognitive function, regardless of the presence of structural brain damage. Nevertheless, it can not be ignored the finding that in all patients with migraine with aura less noticeable loss of cognitive function exist and that it eventually becomes more evident.

[^{11}C]BF-227 PET STUDY IN PATIENTS WITH DEMENTIA WITH LEWY BODIES

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Introduction: Neuropathological characteristics of dementia with Lewy bodies (DLB) are Lewy bodies and Lewy neurites in the cerebral limbic cortices and the amygdala. In addition, neocortical deposition of amyloid-β plaques is frequent in DLB. Our previous study showed high binding affinity of amyloid PET probe BF-227 to α-synuclein. To investigate whether BF-227 detects Lewy body pathology or not, we performed [^{11}C]BF-227 PET study in DLB patients.

Methods: Total 47 subjects, including normal controls and patients with DLB and Alzheimer's disease (AD), underwent [^{11}C]BF-227 PET study. The diagnosis of DLB was made according to the clinical criteria presented by the DLB consortium. After intravenous administration of [^{11}C]BF-227, dynamic PET images were obtained for 60 min using Shimadzu SET-2400W PET scanner. Regional to cerebellar standardized uptake value ratios (SUVRs) were calculated as an index of BF-227 retention.

Results: DLB patients showed similar pattern of BF-227 distribution to AD patients, although neocortical retention of [^{11}C]BF-227 in DLB was milder than that in AD. Regional [^{11}C]BF-227 uptakes of DLB patients were significantly higher in the lateral temporal cortex, posterior cingulate cortex and putamen than those of normal controls. In addition, DLB patients showed significant increase of [^{11}C]BF-227 uptake in the amygdala, which is the most common site of Lewy body pathology in DLB.

Conclusions: These findings suggest that [^{11}C]BF-227 retention reflects the deposition of amyloid-β plaques and Lewy bodies in the brain. Comparison of BF-227 distribution on PET with amyloid-β and α-synuclein deposits at autopsy will be required in the future.

SPONTANEOUSLY RESOLVED IDIOPATHIC HYPERTROPHIC CRANIAL PACHYMENINGITIS PRESENTED WITH DEMENTIA

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Objective: To report a case of Idiopathic Hypertrophic Cranial Pachymeningitis (HCP) that resolved spontaneously.

Background: HCP is a rare chronic condition caused by a localized or diffuse dural thickening. Common presentations include headache, visual symptoms and cranial neuropathies. HCP is usually associated with CNS vasculitis, infection, neoplasm or idiopathic. MRI is used for evaluation and dural biopsy for definitive diagnosis.

Methods: The patient is 66 year old female, diabetic and hypertensive, with a 3 year history of dementia. She underwent an examination, laboratory assessment including CBCD, Renal, hepatic, ESR, thyroid, paraneoplastic, ACE, serology for (HSV, CMV, HTLV, HIV, EBV, syphilis, tuberculosis, brucella), autoantibodies (ANA, anti-dsDNA, RF, ANCA, etc.), Lumbar puncture, CT and MRI were preformed. MRI was repeated in yearly intervals.

Results: All serum and CSF studies were within normal limits. The initial MRI showed diffuse pachymeningeal thickening with enhancement, multiple foci of hyperintensity in the periventricular subcortical white matter and diffuse brain atrophy. The patient declined dural biopsy. Subsequent MRIs revealed marked improvement then resolution of the pachymeningitis.

Conclusion: Dementia could be an initial manifestation of HCP. This is the second case report of a spontaneously resolved HCP to the best of our knowledge, the first was in 1995.

THE EVALUATION OF COGNITIVE FUNCTIONS IN PARKINSON´S PATIENTS WİTH AUDITORY EVENT RELATED POTENTIAL (P300)

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Idiopathic Parkinson's disease is a clinical presentation, resulting from thedegeneration of the dopaminergic nervous system, characterized by akinesia, rigidity and tremor. With the progression of the disease in time, depression and cognitive dysfunction,affected cognitive functions are added to the movement disorder at varying rates. P300component is a useful parameter for the cognitive processing study of Parkinson's disease,because it is independent of motor disability. In this study we evaluated idiopathicParkinson's cognitive functions with event related potentials test-P300 so we aimed to showthat the impact of Parkinson's disease on cognitive functions. A total of 39 patients between 40 and 80years of age and a total of 39 volunteers without a history of cerebrovascular disease,dementia and depression between 44 and 84 years of age (mean 63.5 years) as controlgroup were included in the study. All patients included in the studyunderwent neurologic examination, Standardized Mini Mental Test, UnifiedParkinson's Disease Rating Scale , Hoehn Yahr scale, Modified Hoehn Yahr scale,Hamilton depression scale and P300 tests**.** Parkinson's patients had statisticallysignificantly longer P300 latencies than the control group ($p< 0.001$). P300 amplitudereduction was seen with increasing values of the Hamilton depression scale scores($p=0,044$). P300 latencies reflect only certain domains of mentalprocessing, such as stimulus classification speed, attentional and memory process. Althoughin Parkinson's patient's dont have dementia this functions may be dameged and these areassesed by P300 test that independent of motor disability.

TREATMENT WITH ASSOCIATION BETWEEN GALANTAMINE AND ESCITALOPRAM IN MILD COGNITIVE DISORDER AND DEPRESSION

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Introduction: To evaluate the efficacy of galantamine and escitalopram association in patients with Mild Cognitive Disorder and Depression. So there is a possible relation between the deficit in executive and cognitive cerebral function and depression or relation between the serotonin system and cholinergic system in relation with disease comorbidity cognitive-depression.

Hypothesis: To evaluate the therapeutic response in patients with comorbility between Mild Cognitive Disorder and Depression in treatment with Galantamine (acetylcholinesterase inhibitor) with Escitalopram (Selective serotonin reuptake inhibitors) and the two drugs associated.

Methods: A group of 705 patients with symptoms of Mild Cognitive Disorder and Depression (DSM IV-TR criteria) were separated in 3 groups of 235 patients. Each group received different treatment in a 12 months period:

Group 1: Galantamine 16 mg/day. (Extended release capsules: 16 mg).

Group 2: Escitalopram 10 mg/day.

Group 3: Both drugs, same dose.

Results: The therapeutic response evaluated in Hamilton Scale for Depression (HAM-D), Montgomery and Äsberg Depression Rating Scale (M.A.D.R.S.), Mini Mental State Examination (M.M.S.E.) and Global Clinical Impression (G.C.I.) scores during 12 months. In the third group who received the two drugs associated, had much better response than the others and “brain enhancer”.

Conclusion: The group who received the association of the cholinergic agent Galantamine with antidepressant (SSRIs) Escitalopram had a relevant satisfactory therapeutic response: the best result, so there is a possible relation between the deficit in cholinergic systems and depression.

Discussion: Could be cerebral cholinergic systems deficit a generator of Depressive Disorder?

THE EVOLUTION OF MEMORY DISORDER IN THE ELDERLY PEOPLE: DO YOU RECOVER, WILL REMAIN STATIONARY OR DEMENTIA?

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Objective: Even though most than a hundred years have passed since we know Alzheimer's disease today it's considered as the human's frightful flagellum. While most of mental disease seem to be losing its evilness, the neurocognitives disorders caused by Alzheimer's disease, far from attenuating has duplicated it's appearance every each five years. And its symptoms are still being more depriving. So, in opposition to the rest of the illness that affects the nervous system and the psychic apparatus, which due to the new treatments has been attenuated the clinical forms' Alzheimer. With its severe pronostic and the illness evolution, haven't been soften.

Methods: Present our study group in the four institutional medical centers, with ambulatory patients, who consult about a cognitive disease. We describe the evolution trough time, taking into account the pharmacological treatments. We included 850 patients with diagnosis the Mild Cognitive Disorder and 348 patients with diagnosis the Alzheimer`s Disease (DSM IV-TR criteria).

Results: The importance of the early detection of memory disorder, as one of the first signs of alarm which give us the opportunity to intervene therapeutically in on time.

Conclusions: We can recognize the Mild Cognitive Disorder as a clue which reveal a first therapeutic instance probably in efficacy in this cruel evolution towards dementia.

Discussion: In the presence of a disorder of memory in the elderly people, with the possibility of evolving towards dementia, we prefer to begin drug therapy early, preventive character.

COGNITION IN MIDDLE-AGED INDIVIDUALS WITH VASCULAR RISK FACTORS: CROSS-SECTIONAL AND PRELIMINARY LONGITUDINAL DATA

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Introduction: Cognition of individuals with vascular risk factors (VRF), and thus in the brain-at-risk stage of vascular cognitive impairment, is poorly studied.

Objective: The aim of this study was to examine cognition in middle-aged individuals with VRF as measured with the Vascular-Cognitive-Risks Scale (VCRS; Wiederkehr & Simard, 2008) and to follow-up these individuals over a period of 5 years.

Methods: 83 individuals aged 45-60 years were recruited and divided in 3 groups according to their scores on the VCRS: scores ≥ 3=high risk (n=29); scores 0.5-2.5=moderate risk (n=23); and score 0=control (n=31). An exhaustive battery of neuropsychological tests was administered at baseline and 5 years later.

Results: A MANOVA performed on cognitive scores at baseline showed a multivariate group effect ($F(26,136)=1.708$, $p=.026$). Univariate analyses showed that Abstraction ($F(2,80)=6.608$, $p=.002$), Initiation ($F(2,80)=3.751$, $p=.028$), Visuoconstruction ($F(2,80)=3.642$, $p=.031$), and Psychomotor speed ($F(2,80)=3.500$, $p=.035$) were significant. The high-risk group performed worse than controls on Abstraction ($p=.003$), Initiation ($p=.021$), Visuoconstruction ($p=.038$), and Psychomotor speed ($p=.030$), and more poorly than the moderate-risk group ($p=.016$) on Abstraction. Preliminary follow-up data on 7 participants (VCRS scores ≥ 2.5) and 4 controls showed that only VRF participants deteriorated significantly ($p= .001$) over time on a measure of executive functions.

Conclusion: This study demonstrated that VRF individuals showed poorer performances on measures of executive functions and psychomotor speed compared with healthy-matched controls at baseline. These individuals also deteriorated more significantly on executive functions over a five-year period, although their VRF were under medical treatment and control.

YOUNG UNSET OF DEMENTIA IN A MEMORY CLINIC AT THE DEPARTMENT OF NEUROLOGY, FANN TEACHING HOSPITAL, DAKAR, SENEGAL

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Objective: To evaluate a Senegalese experience in young unset of dementia at the first Memory Clinic of Fann Teaching Hospital, Dakar-Senegal.

Methodology: From January 2004 to June-2011, a Memory Clinic was opened at the Department of Neurology, Fann Hospital, Dakar-Senegal to manage patients with memory disorders. Patients received at this clinic fulfilled a clinical and neuropsychological assessment with laboratory exams. Treatment was prescribed when needed. In this present study, we considered only patients with dementia aged 60 years and less.

Results: In a population of 299 patients, dementia was diagnosed in 213 of them (70%). Young dementia occurred in 30 (10% of the total population and 14.15% of the demented patients). Patients were referred mainly by neurologists, psychiatrists and the family. They had a mean age of 56.1 years (45-60 years). They were male (17 cases), married (73%), educated (83%), with a history of hypertension (66.67%), stroke (30%), diabetes (26.67%), alcohol-smoking (13.3%) and familial memory disorders (53%). Vascular dementia was the most prevalent (19 cases-63.3%) followed by Alzheimer Disease (9 cases-30%) and brain tumor (2 cases-6.67%). Neuropsychological testing was performed with the “Test of Senegal”. Patients were prescribed vasodilatator, ACE, Memantine, antihypertensive drug, antidiabetes, statin, AAS, antidepressant, anxiolytic and physiotherapy.

Conclusion: It is necessary to take into account this new epidemic in our daily neurological practices and to sensitize the community for primary prevention of vascular risk factors.

OPTIMIZATION OF THE THERAPY OF DEMENTIA IN CHRONIC CEREBRAL ISCHEMIA

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Background: To study efficacy and safety of the gradual scheme of cytoflavine as antioxidant metabolic neuroprotector in the patients with dementia in chronic cerebral ischemia.

Material and methods: Investigation includes examination of 40 patients with dementia in chronic cerebral ischemia. All patients were divided into 2 groups. Group 1 included 24 patients receiving therapy with cytoflavine by scheme of ampullar form use for 10 days, then 2 tablets two times/day for 25 days; group 2 consisted of 16 patients receiving piracetam by the same scheme.

Results: The asthenization level on the 10th day of treatment revealed dynamics of parameters 19,2% in group of patients receiving cytoflavine and 9,6% in group of piracetam. The dynamics of parameters was more marked and accounted for 33,7% on the 35 day in group 1 and 15,2% in group 2 ($P< 0,05$). Average parameters by test MMSE on the 10th day of therapy indicated that piracetam ($P< 0,05$), the dynamics of the parameters of treatment was 14,1 and 5,4%, respectively, on the 35 day of treatment. On the 10th day of treatment showed dynamics of parameters 9,2% in group 1 and only 1% in group 2 ($P< 0,01$); on the 35 day of treatment the dynamics of parameters was more marked and accounted for 15,3 and 7,1%, respectively, ($P< 0,05$).

Conclusion: Complex therapy of dementia with chronic cerebral ischemia by method of multistep use of cytoflavine seems to be pathogenically relevant and may be used in the clinical practice.

COMPARISON OF FAMILY CAREGIVER BURDEN IN RELATION TO DEMENTIA SEVERITY IN ALZHEIMER'S DISEASE AND VASCULAR DEMENTIA

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Objective: There are very few reports comparing the burden experienced by caregivers of patients with Alzheimer´s disease (AD) and vascular dementia (VaD). The purposes of this study were to examine the difference of burden of family caregivers between AD and VaD and to find out which factors would be significant in determining burden of caregivers in relation to dementia severity in AD and VaD.

Methods: A total of 144 homecare patients with AD (n=98) and VaD (n=46) and their primary family caregivers (n=144) were recruited by eliminating several incomplete questionnaires. We evaluated clinical characteristics, cognitive impairment, behavioral psychological symptoms, and activity of daily living. The Burden Interview, Caregiver Burden Inventory (CBI) and Life Satisfaction Index-Z were conducted by face-to-face interviews with the primary family caregivers.

Results: Approximately seventy percent of the caregivers were women, and their mean age was 54 years old. Forty-two percent of the caregivers were spouse. Most of the global dementia states did not differ between AD and VaD except for the Barthel index ($p< 0.05$). Most of the caregiver burden tests were scored worse in VD. In mild stage, VaD group had a greater burden in CBI-time dependent burden ($p< 0.05$). In severe stage, VaD group also had a greater burden in CBI-time dependent and physical burdens ($p< 0.05$).

Conclusions: Our study suggests that VD patients have more caregiver burden than AD patients and that the physical activity of daily living influences caregiver burden.

PROGRESSIVE DEMENTIA IN A YOUNG WOMEN REVEALING MIXED CONNECTIVE TISSUE DISEASE

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Mixed connective tissue disease (MCTD) is a systemic inflammatory disorder consisting of overlapping features of systemic lupus erythematosus, systemic sclerosis and polymyositis, along with serum autoantibodies to nuclear RNP. This rare entity associate a low incidence of nervous system manifestations (< 10%).

Cases report: A 52 year-old women, presenting since the age of 25 undiagnosed neurologic relapsing signs: visual, gait disturbance and sphincter dysfunction. She had an acute hemiparesis associated with progressive memory and behavior disturbance. Neurological examination revealed subcortical dementia associated with frontal, pyramidal, cerebellar and posterior cordonal syndromes. MRI showed multiple high intensity signals in T2 and FLAIR sequences with contrast enhancement, associated with cortical brain atrophy and hydrocephalus. An abnormal cerebrospinal fluid was found with mild pleocytosis and increased protein content. Laboratory investigations showed an important inflammatory syndrome and the presence of speckled anti-nuclear and anti-U1RNP antibodies. Specific antibodies of the other connective tissue diseases were also positive pleading for the mixed feature of the illness. Biopsy of salivary glands showed sialadenitis grade 4 of Chisholm classification, antibodies anti-SSA and SSB were negative.

Discussion: Neurological abnormalities were originally noted in 10% of MCTD patients. Multiple neurological features have been reported with MCTD. Severe neuropsychiatric manifestations are thought to be quite rare with few reported cases of acute reversible dementia, psychosis and paranoid delusions. These clinical features, in particular the relative rapidity of onset suggest a vascular pathogenesis.

Conclusion: We emphasize MCTD as a rare cause of progressive dementia.

EFFECT OF ANTIEPILEPTIC DRUGS ON SLEEP

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Many drugs with central nervous system effects can alter patterns of sleep and wakefulness. Most antiepileptics (AEDs) give rise to consolidation of sleep in epileptic patients. Because most of the major AEDs are used for bipolar affective disorders and neuropathic pain, there are emerging opportunities to study these drugs in a variety of populations in which the effects of epilepsy on sleep are absent. In this presentation, the subject will be delineated and the results of our study on carbamazepine and valproate will be described. We studied 60 patients with diabetic neuropathy, and bipolar affective disorders, without psychosis. Twenty healthy subjects were selected as a control group. All patients were subjected to an overnight polysomnographic study (PSG). The PSG assessment was repeated for all patients after one month from the treatment. Carbamazepine or valproate monotherapy for one month was found to improve sleep continuity and increase the depth of sleep in both groups. Valproate increased the REM latency in both groups. Therapy with either drug for one month was found to decrease periodic limb movement (PLM) index. Our study supports the assertion that antiepileptic drugs exemplified by (carbamazepine and valproate) have a role in sleep normalization in non-epileptic, and can be used independently to improve sleep quality and quantity in other neuropsychiatric disorders such as pain, depression, and PLM.

MULTI-MUP ANALYSIS OF PALATAL MUSCLES IN PATIENTS WITH OSAS AND CONTROL SUBJECTS

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Background: The role of the upper airway muscles in the pathogenesis of obstructive sleep apnea syndrome (OSAS) is complex and still being investigated.

Methods: We analyzed the firing patterns of motor unit potentials (MUP) of genioglossus (GG), palatoglossus (PG), palatopharyngeus (PP) and uvular (U) muscles in OSAS patients and control group. Ten OSAS patients diagnosed by the whole-night polysomnography and age- and sex-matched eight healthy volunteer men were prospectively enrolled.

Results: The mean MUP area of PG muscle was significantly lower in OSAS patients (p=0.040), while the MUP area of uvular muscle was significantly higher (p=0.022). The percentage of the polyphasic MUP was significantly higher in GG muscle of OSAS patients (p 0.001), and showed a borderline significance for PG muscle, being higher in OSAS patients (p=0.05). Body mass index in OSAS patients was positively correlated and with the mean rise time (r_s=0.69, p< 0.05) and the mean number of phases of GG muscle (r_s=0.63, p< 0.05), and with the mean duration uvular muscle (r_s=0.71, p< 0.05).

Conclusions: Our findings suggests a motor neuron lesion in OSAS; although a uniform and severe involvement of the upper airway muscles seems unlikely, but may accompany or worsen other precipitating conditions in OSAS.

DEPRESSION AND ANXIETY DISORDER IN COMORBIDITY OF OSAS AND THE EFFECTS OF CPAP TREATMENT ON QUALITY OF LIFE

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While effecting the metabolism, sleep disorders also are comorbid with psychiatric disorders. The relationship between depression/anxiety disorders and sleep disorders has not been clearly enlightened, yet. In our study, we aim to research the relation between presence and severity of obstructive sleep apnea syndrome (OSAS) and depression and anxiety disorder, impacts of comorbidity over quality of life and sexual experinces, efficacy of monthly treatment of CPAP/BPAP. Forty-eight patients with OSAS (39 male, 9 female) were included in our study. Patients were grouped into two groups according to AHI scores, < 30 (mild or moderate OSAS) or $\geq$ 30 (severe OSAS). Psychiatric diagnosis and clinical scale points of patients were compared at onset of diagnosis and one month after the treatment. Significant imptovements were observed in Beck Depression Scale points (p=0,001), Beck Anxiety Scale (p=0,002), Epworth Sleepiness Scale (p< 0,001) and all other subscales of Short Form 36 quality of life scale (p< 0,001), except role limitation due to emotional problems. There were no statistical significant changes in Arizona Sexual Experiences Scale points. In subgroup analysis, severe OSAS patients and patients with a psychiatric diagnosis had more benefits from the treatment. In conclusion, depression and anxiety disorder are commonly observed in comorbidity with OSAS patients, and if so, all patients observed to have benefits from CPAP/BPAP treatment in terms of psychiatric state and quality of life scores.

BORRELIOSIS - CAUSE OF OBSTRUCTIVE SLEEP APNEA SYNDROME.COMPARISON WITH "NORMAL" OSAS

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Introduction: Borreliosis and Sleep Apnea Syndromes are common disorders, which are characterized by impaired daytime functioning in various (neuro-)psychological and affective domains. The objective of our study was to estimate the relationship between Borreliosis and OSAS.

Methods: Our study was carried out involving gradually patients with Borreliosis of the Neurological Rehabilitation in Bad Liebenstein and Bad Oeynhausen. During admission to the clinic, all neurology patients were examined neurologically and neuropsychologically. All test persons must not suffer from any severe psychiatric disorders. In addition the doctors have to fill a special SBAS-Questionnaire at the anamnesis. On the end the patients were screened with MicroMesam (MAP).

Patients: So far, data have been gathered for 101 patients with Borreliosis (49 male, 52 female; mean age: 54.22±13.17; Barthel index: 96.85±10.98) (SBAS-Questionnaire). Of these study participants 66 patients were screened with MicroMesam (32 male, 34 female; mean age: 56.83±12.32; Barthel index: 95.77±13.32); 11 patients refused the screening.

Results: Among the 66 in the study included patients (SBAS-Screening) the prevalence of patients with OSAS was 75.8 % (50); 16.7 % (11) were high risk patients. Only 7.6 % (5) patients could be excluded.

Among 51 patients ca. 1/3 suffered additional under cardiovascular diseases and/or obesity: 23 (37.70 %) under hypertension, 1 (1.64 %) under coronary heart disease, 12 (19.67 %) under arrhythmia und 9 (56.18%) under obesity. 1 (1.64 %) Patient have had a myocardial infarction, 11 (18.03) a stroke.

Conclusion: Our data indicates that there is a causal and strong relationship between Borreliosis and OSAS.

QUALITY OF LIFE IN PATIENTS WITH RESTLESS LEGS SYNDROME IN KOREA; COMPARISON TO THE PATIENTS WITH OTHER CHRONIC DISEASES

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Background: We studied the quality of life (QOL) of patients with restless legs syndrome (RLS) and compared it to normal controls and patients with hypertension, diabetes or osteoarthritis in Korea.

Methods: In total, 288 RLS patients were included in this study. The scores of RLS patients were compared with the scores of 215 normal controls, 195 with hypertension, 164 osteoarthritis and 141 diabetics. All subjects completed the questionnaires, including the Korean versions of SF-36, Johns Hopkins RLS QOL, and PSQI. We developed the Korean version of the Johns Hopkins RLS QOL, which involved translating into Korean and then translating back into English to check its accuracy. The associations between severity of RLS and the scores from the QOL were examined using the Pearson correlation.

Results: The subjects with RLS had a lower QOL than normal controls, and even lower than patients with hypertension, osteoarthritis or diabetes. The more severe the RLS symptoms were, the lower the QOL. Correlation analysis showed a significant negative correlation between the severity of RLS symptoms and QOL ($r= -0.632$, $p< 0.001$). However, neither the gender of the RLS subjects nor the age of symptom onset (early- or late-onset), made a difference in the QOL analysis. The factors most related with the QOL in RLS patients were depression and sleep quality.

Conclusions: We found that Koreans with RLS have a considerably diminished QOL, even more so than those seen in Korean subjects with diabetes, hypertension, or osteoarthritis.

KLEINE-LEVIN SYNDROME: A MOROCCAN CASE STUDY

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Introduction: Kleine-Levin syndrome (KLS) is a rare and underrecognized neurological disorder which usually affects adolescent males. It is characterized by recurrent episodic hypersomnia, and behavioral/psychiatric disturbances particularly hyperphagia, and in some cases hypersexuality. Affected patients are entirely asymptomatic between episodes

Case report: A 17 year-old patient with parent's cansanguinity, present from the age of 15, recurrent monthly episodes of major hypersomnias of 23 hours over 24 for 15 days, interspersed with periods without symptoms. During episodes of hypersomnia, megaphagia with weight gain and hypersexuality are associated with other behavioral disorders. Paraclinical explorations are normal particularly neuroimaging and thyroid function. Sodium valproate resulted in a good improvement.

Conclusion: This patient presents a typical and complete description of KLS. However, the severity of episodes of hypersomnia (sleeping 23 hours out of 24) and the high frequency of recurrences (24 in two years) can be classified as an "invasive forme" of KLS.

THALAMIC STIMULATION MAY BENEFIT PERIODIC LIMB MOVEMENTS OF SLEEP

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Aim: To describe improvement of periodic limb movements of sleep (PLMS) after bilateral thalamic deep brain stimulation (DBS).

Background: We previously reported immediate and dramatic intraoperative improvement of periodic limb movements during wakefulness in a Parkinson's disease patient who underwent bilateral pallidal DBS.

Methods: Case report.

Case: A 62 yo Caucasian male with Essential Tremor (ET) since age 25 underwent successful bilateral thalamic VIM-DBS to alleviate his severe medically refractory hand tremors. Because of excessive daytime sleepiness (EDS) and non-restful sleep, he underwent a sleep study at age 60 which revealed severe obstructive sleep apnea (OSA) and severe PLMS. He, however, was poorly tolerant of his CPAP. After his bilateral thalamic DBS, his wife reported dramatic improvement of his nighttime limb jerking. A sleep study was then performed post-DBS, one night with the stimulators off, another night on. With the stimulators off, he had 113 PLMS per hour, with mild-to-moderate sleep apnea with an apnea-hypopnea index (AHI) of 9, and respiratory disturbance index (RDI) of 15. With the stimulators on, his PLMS dropped to 20 per hour, though his AHI and RDI did not improve. With CPAP titrated to 7cm H20, his AHI improved to 1 and his RDI to 2. Subjectively, the patient reports more restful sleep post-DBS and less EDS with the stimulators on at night, regardless of whether he uses the CPAP or not.

Conclusion: Our case may suggest that bilateral thalamic DBS may potentially benefit PLMS, but not OSA.

THE EFFECTS OF HERBAL MEDICIN AND HOMEOPATHIC REMEDY ON INSOMNIA

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Aim: The aim of this study was the effects of herbal medicine (Valerian officinalis) and homeopathic remedy (Coffea cruda) on insomnia.

Methods: This is a single blind clinical trial study ,conducted on 90 volunteer students who suffered 0n insomnia. Both groups have been matched in age and sex and randomly allocated in two groups. The ethical committee of the university approved the study. One group received homeopathic remedy Coffea cruda drop andplacebo capsules and other ones used allopathic medicine Valeriana officinalisAs a sedamin capsule and placebo drops both group used one cap 1 hour before sleep every night.and one drop every 8 hours for one month . Data were collected through 3 questionnaires: Demographic, Petersburg sleep quality index and Standard Insomnia Severity Index (ISI). Content validity and test-retest methods were used for validity and reliability. Data analysis using descriptive and inferential statistics.

Results: Before usage, The quality and severity average of Sleep in Valeriana officinalis group was mean =11.78and15/14 befor and mean =7.56and8/6 after a period of 1 months , . The quality and severity average of Sleep in Coffea curada group was mean =11/51 and14/53 before usage and mean=5.51and6/05 after a period of 1 months. We have obtained a significant difference between 2 groups 1 months after the start of consumption (P< 0/05).

Conclusion: The results of this study suggested that homeopathic medicine, Cafea cruda, is more effective on reduce insomnia treatment. And also they are cost effective and low side effect complemented treatment methods than chemical medicine.

HEALTH EFFECTS OF NOISE POLLUTION ON SLEEPING

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Objectives: We spend almost a third of our life sleeping. Sleep disturbance is one of the most serious effects of environmental noise. The study shows how the noise pollution influences on sleep and how to prevent this major problem.

Method: The WHO guidelines say that for good sleep, sound level should not exceed 30 dB(A) for continues background noise, and individual noises events exceeding 45 dB(A) should be avoided. Most of the information available on the effects of noise on people comes from studies on young adults. Some of the information obtained may not apply to children. and some situations could affect children only ore differently.

Results: Sleep problems are an increasingly common problem because of lifestyle and environmental factors. More and more people are exposed to noise levels above 55 dB(A), and 45% live in areas considered as uncomfortable for inhabitants. A recent German study found that in the European Union countries alone, 20% of the population (80 million people) suffer from stress and sleep disorders that have a considerable influence on health. Sleep disturbance is one of the most serious effects of environmental noise. Over 15% of primary school children complain that noise disturbs their sleep and up to 35% find it hard to get to sleep.

Conclusion: There are ways that you can control your environment. Noise-blocking devices such as earplugs and headphones cut out sounds that may affect your sleep, work or personal time.

COMPARISON OF INTERFERENCE OF HYPERTENSION AND SLEEP DISORDERS AMONG NORMAL ADULT POPULATION AND REFUGEES

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Background: A recent studies found that insomnia was strongly associated with impaired quality of life and poor physical and mental health, depression and increased morbidity and mortality in population-based studies. Indeed, insomnia has not clearly been shown to be causally associated with hypertension.

Aim: To identify, how the insomnia is correlated with hypertension by comparison of normal population and refugees.

Patients and methods: The 250 patients (mean age 56± 8.5yars) from each group of normal population (I group) and refuges (II group) were investigated for presence of insomnia. Criteria DSM-IV was used for establishment of Primary Insomnia (PI), which was applied after the following symptoms occurrence for at least 1 month: the sleep disturbance, clinically significant distress or impairment in social, occupational, or other important areas of functioning, which did not occur exclusively during the course of any underlying organic or mental disorder or as effect of drug abuse. All patients underwent blood pressure monitoring and evaluated by Hamilton Depression and Anxiety Rating Scale as well.

Results: From I group the PI was found in 8,5%, hypertension-24%($p>0.005$). There was not any significant correlation among them. The II group revealed the strong correlation between the hypertension (48%) and PI (54%), ($p< 0.005$). In both groups PI and hypertension strongly correlated with depression-anxiety disorders ($p< 0.005$).

Conclusion: Chronic stress among refuges followed by PI and neuropsychological disorders may cause hypertension, but not the primary insomnia per se. There is a need of future investigations to establish this relationship.

DESCRIPTORS OF RESTLESS LEGS SYNDROME SENSATIONS

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Restless Legs Syndrome (RLS) is diagnosed and characterised by an urge to move in response to uncomfortable sensations in the legs, exacerbated during evening inactivity. Patients often experience difficulty describing their RLS sensations resulting in a diverse range of descriptors. This, coupled with the various phenotypic presentations of RLS, makes the diagnosis of RLS problematic. This study characterized ways that patients describe their sensations, evaluated the diagnostic accuracy of current descriptors and examined whether various RLS differentiating factors influence the choice of descriptors used by patients.

41 RLS patients completed a researcher-administered interview which involved: providing spontaneous descriptions of their RLS sensations; completing the McGill Pain Questionnaire (MPQ); and selecting words and phrases from a list of previously published RLS descriptors (prompted). Patients were also subdivided according to RLS differentiating factors: RLS severity, age of RLS onset, perception of painful symptoms and gender. The four most frequently selected words were compared between the factor subgroups using contingency tables.

Descriptors most frequently selected were: spontaneous terms 'irritating' (17%), 'painful' (17%) and 'urge to move'(24%); prompted descriptors 'restless' (88%), 'uncomfortable' (78%) and 'need to stretch'(76%); and MPQ words 'tingling' (56%) and jumping (54%). Each different factor showed significantly different word choice between subgroups.

The most frequently cited descriptors in this study differ from terms used in the RLS diagnostic criteria. Inclusion of these descriptors frequently used by patients could improve the diagnostic accuracy of RLS. Diagnosis of RLS should also take into consideration word choices differentiating between different RLS phenotypic expressions.

TIBIAL NERVE F-WAVE DURATION IN CONFOUNDING CONDITIONS OF RESTLESS LEGS SYNDROME ("MIMICS")

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Background and aims: F-wave duration (FWD) and the cutaneous silent period are reported to be useful in the diagnosis of primary Restless Legs Syndrome (RLS). But even the four diagnostic criteria for RLS cannot exclude RLS mimics. The purpose of the present study is to compare the tibial nerve FWD between the control group and the patients of RLS mimics with the symptoms of the urge to move or the unpleasant sensations.

Methods: We measured first and last negative F wave components with a peak-to-peak amplitude of at least 40 microvolt as the onset and the end of F-wave to determine FWD of right tibial nerve in sixteen stimulations. Eight patients with RLS mimics showing the symptoms of the urge to move or the unpleasant sensations and eight age- and sex-matched controls enrolled the study. RLS mimics include secondary RLS and other diseases except primary RLS. Our examined parameters are mean FWD, maximum FWD, evoked number of F waves, and the ratio of mean and maximum FWD per the duration of compound muscle action potential (CMAP).

Results: Our unilateral tibial nerve F wave study showed that Mean FWDs, maximum FWDs prolonged, and the ratio of mean FWD per CMAP durations increased in RLS mimics group. Mean FWD could distinguish RLS mimics in sensitivity 75% and specificity 100%.

Conclusions: Prolonged FDW may be a marker of the urge to move or the unpleasant sensations. We must be careful not to over-diagnose primary RLS by FWD study.

PREVALENCE OF SLEEP DISORDERS IN PATIENTS WITH MULTIPLE SCLEROSIS AND ASSOCIATION WITH FATIGUE, DEPRESSION AND ANXIETY

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The purpose of the study was to evaluate frequency of sleep disorders in patients with multiple sclerosis (MS) and analysis of correlation between clinical features of the disease, anxiety, depression and fatigue.

Material and methods: In the study 122 patients with MS took part. Mean age of the examined patients was 37.7+/-10.8 years, mean disease duration - 6.7+/-7.6 years, mean EDSS - 2.5+/-1 points. The study was done by usage of the Epworth Sleepiness Scale (ESS), Athens Insomnia Scale (AIS), Fatigue Severity Scale (FSS) and Hospital Anxiety and Depression Scale (HADS).

Results: In the examined group, 45 of MS patients (37%) declared sleep disorders. Excessive daytime sleepiness was recognized in 25 patients (20.5%), insomnia - in 73 patients (60%). Fatigue was observed in 75 patients (61.5%), anxiety - in 32 (26.2%), and depression - in 15 (12.3%). In women insomnia was significantly more common than in men (p=0.006). Longer duration of the disease was associated with higher frequency of insomnia (p=0.0001), but not excessive daytime sleepiness. Either insomnia or excessive daytime sleepiness correlated with presence of fatigue and depression. No correlation between sleep disorders and age, level of education, EDSS, and form of MS was observed. We also found no correlation between sleep disorders and type of therapy.

Conclusion: Sleep disorders occur in a number of MS patients independently from age, education, therapy, form of the disease and degree of disability. They could be associated with mood disorders and fatigue. Medical care of MS patients should take it into consideration.

THE ROLE OF THE SLEEP DEPRIVATION IN TRAFFIC SAFETY: MEDICOLEGAL PERSPECTIVE

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Introduction: This abstract highlights the important neurocognitive role of sleep loss in traffic safety impairment.

Case report: A 40 year old male truck-driver with no prior medical history was involved in a collision with a passenger vehicle that was fatal for the other driver. The collision occurred at 4:00 AM on a rural road. No alcohol or drugs were found in the system of the truck-driver, however the driver who died was found to have alcohol in his blood, below the legal limit.

Review of the driving history revealed that the truck-driver was noted to have been in a self-imposed sleep-deprivation state. He had altered his trucking log-book records, claiming a rest period of 8 hours for a 40 hour drive. Forensic examination of the driving history revealed that in fact he had only had 4 hours of sleep during this time period.

The impact of sleep deprivation on traffic safety can be as deleterious as alcohol intoxication. Mechanisms of impairment include frontal lobe dysfunction and intrusion of alpha-theta microsleep episodes into waking consciousness. Circadian factors of diurnal variation in the sleep-wake cycle have an additive effect to homeostatic factors of cumulative sleep loss. This phenomenon has been studied with a driving simulator at our centre.

Conclusion: Legal issues related to sleep loss and driving safety need to be better highlighted to professional drivers and screening programs should be put into place by trucking companies to ensure drivers are screened in terms of sleep health and adequate rest breaks.

THE IMPACT OF OBSTRUCTIVE SLEEP APNEA ON ALZHEIMER'S DISEASE: A PROSPECTIVE STUDY

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Introduction: There is an association between Alzheimer's disease and sleep disordered breathing. This study evaluates the interaction between polysomnographic and blood parameters of OSA (obstructive sleep apnea) and non-OSA AD (Alzheimer's disease) patients and normal aged controls.

Methods: Thirty-seven, patients, 49-91 yrs, 12 males, 25 females, with mild to moderate Alzheimer's disease, (22 OSA, 15 non-OSA) and 22 normal aged controls, 63-85 yrs, 10 males, 11 females (14 OSA, 7 non- OSA) were included. Polysomnography, EEG spectral analysis, laboratory tests and cognitive evaluation using ADAS-cog subscale were performed. Cognitive and sleep data were analyzed using factorial ANOVA. Main effects were presence of OSA and AD.

Results: Overall, frontal, parietal, temporal and occipital slowing ratio was increased in AD patients without OSA effect ($p< 0.05$). Folic acid $p< 0.05$). Platelet count was increased in OSA patients with no AD effect ($p< 0.05$). LDL and Na levels were increased in AD patients ($p< 0.05$). Calcium, amylase, and TGP levels were reduced in AD patients ($p< 0.05$). AD patients with OSA showed reduced microarousal index compared with non-OSA while increased microarousal index was found in non-AD with OSA (interaction $p< 0.05$). There was a reduction in REM sleep percentage in AD patients independently of OSA condition ($p< 0.05$).

Conclusion: In this group OSA did not affect cognitive scores in AD patients. The concomitance of OSA and AD was associated with reduced folic acid levels.

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INSOMNIA IN FLIGHT CREW

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Introduction: Insomnia is characterised by a range of complaints around difficulties in initiating and maintaining sleep, together with impaired waking function. It affects 5 - 35% of the general population. It is known to have a negative impact on the quality of life and professionnel efficiency.

Aims of study: The aims of study is to evaluate the prevalence of insomnia in flight crew, to study the aspects of insomnia and their impact on professional activity.

Material and methods: A transversal descriptive study was performed at the medical expertise center of air and sea crew at Mohammed V Teaching Military Hospital for two months. We included all the patients aged over 18 years, who came for medical checkups and who agreed to fill in the questionnaire. The questions contained epidemiologic and socio-professionnel characteristics, sleep difficulties and the impact of insomnia.

Results: One hundred sixty persons were engaged in this study. There were 79% males and 48,6% were in the military. The mean duration of sleep was 7h (+/- 1h26). 32% had regular naps. 43,8% suffered from insomnia and 29,4% had chronic insomnia. Its had a negative impact in 29% of cases on professional performance and in 24,1% of cases on social interactions.

Conclusions: The prevalence of insomnia in air crew is higher than the general population. It is a real problem because it is often underestimated and can have negative impacts especially in flight crew.

BENIGN NOCTURNAL ALTERNATING HEMIPLAGIA OF CHILDHOOD: A CASE STUDY AND LITERATURE REVIEW

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Nocturnal alternating hemiplegia of chilhood is a benign neurolgical disorder, characterized by hemiplegic attacks exclusively during sleep. Only few cases have been reported in the literature. This disease that has a spontanous good prognosis, should be differentiated from malignant form, which is more common.

A 3 year-old boy presented since the age of 16 months a stricly nocturnal and alternating hemiplegia with good psychomotor development and normal neurological examination. Paraclinical investigations were normal and Lamotrigine reduced the frequency of attacks.

The authors report a new case of benign nocturnal alternating hemiplegia of childhood and discuss the many other mimicking diagnoses.

A NOCTURNAL POET!

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Rapid eye movement sleep (REM) behavior disorder (RBD) is a sleep disorder that predominantly affects older males with extra pyramidal disease, although «idiopathic» forms were reported. Violent and non-violent behaviors have been described previously in RBD, but reciting poetry and verses of the holy Koran have not been reported yet. We report a 61-years-old male, who had abnormal movements several times per night during 7 years. He never injured himself, but he often hit his wife while asleep. He had also non violent manifestation of RBD, which consisted of reciting poetries, and long verses of the Koran. His neurological examination was normal; in particular there was no extrapyramidal syndrome. The neuroimaging was normal. During videopolysomnography, RBD occurs in the first part of the night by hitting, kicking his bedpartner, than he recited some arabic poetries. No recitation of the Koran verses was recorded. The analysis of his polysomnography found a total disorganization of the sleep structure, with a lengthening of the REM sleep and an important shortening of the slow wave sleep. The association of violent and non violent behaviors in RBD patients was described previously, but the semiology of non violent events in our case is unusual. We have 7 years follow-up, we can suppose that our patient has an « idiopathic » RBD. A high risk of developing neurodegenerative diseases in idiopathic RBD, even 10 years later, was reported, what justifies a regular monitoring.

SENSORY SYMPTOMS OF RESTLESS LEGS SYNDROME (RLS) COULD CHANGE WITH SEASONAL / TEMPERATURE DIFFERENCE

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Objectives: Worsening or relief of RLS symptoms related to temperature change is clinically experienced, however, this phenomenon has rarely been discussed. The aim of the study was to elucidate whether the temperature or seasonal change could alter the severity of RLS symptoms.

Methods: Fifty-two consecutive RLS patients (21 males and 31 females, mean age: 59.1 SD 16.0) who consulted Hiroshima Sleep Center were included in the study. Seasonal difference in the severity of sensory symptoms of RLS, temperature conditions that worsen or relieve the symptom, and dose of medical treatment for RLS were investigated.

Results: RLS symptoms worsened at summer in 19% and worsened at winter in 17% of the patients. Two of the patients with seasonal difference participated the clinical trial of RLS medication in the past. Patients with summertime worsening experience relief of the symptom in cooler condition in 60% and worsening of the symptom in warmer condition in 40%. Patients with wintertime worsening experience relief of the symptom by bathing in 33%. 54% of the patients with seasonal worsening under medication were required to increase the dose of medication when their symptoms were worse due to seasonal change.

Conclusions: As far as we know, this is the first study identifying the change of RLS symptom associated with temperature change. Possibility of seasonal worsening of the symptoms should be taken into consideration as this may mimic augmentation or could affect the result of the clinical trial of RLS medication.

LATE-ONSET ONDINE SYNDROME: A REPORT OF A CASE IN A 54-YEAR OLD ADULT

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The Ondine's syndrome is a rare disease characterized by a congenital absence of control of central ventilation associated to diffuse autonomic nervous system dysfunction.

We report a case of a central hypoventilation syndrome in a 54-years patient with no symptoms in childhood. She consulted for dyspnoea on effort associated with moderate dysphonia. She has a history of primary sterility. The childhood history was free. A pluridisciplinary complete work-up led to the exclusion of the following affections: neuromuscular disease, cardiac disorder, thyroid dysfunction, tumoral pathology, thrombo-embolic disorder. A few months later, she was admitted in the intensive care for an acute respiratory distress syndrome associated to severe hypercapnia at 112 mmHg. A non-invasive ventilation assistance (intermittent nasal mask during the day and a continuous mask at night) was used. The symptoms evolved with the onset of sleep disturbances notably frequent night wakes and predominantly early-morning headaches. The ventilatory response to hypercapnia was almost nil. Polysomnography revealed alveolar hypoventilation during sleep; which was more marked during slow wave sleep than paradoxical sleep. Genetic analysis did not reveal any mutation in the PHOX-2b gene.

Tracheotomy was used after failure of the non-invasive nasal mask ventilation.

The Ondine's syndrome does not appear to be as rare as is often thought. Polysomnography is the key of diagnosis. Early diagnosis leads to better assessment of the respiratory involvement and optimal management.

THE FREQUENCY OF DIABETIC RETINOPATHY AMONG SUDANESE PATIENTS WITH DIABETIC AUTONOMIC NEUROPATHY

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Introduction: Diabetic retinopathy is frequently present in patients with DM and may coexist with other diabetic complications .This study is aimed at investigating the frequency of diabetic retinopathy in a group of Sudanese patients with diabetic autonomic neuropathy.

Patients and methods: The research design used was a descriptive prospective cross sectional study. It was conducted in Gabber Abu Elaez diabetese center and makkah eye hospital in Khartoum, Sudan, over a period of six months from September 2010 to March 2011.

One hundred type 1 and type 2 diabetic patients with diabetic autonomic neuropathy diagnosed according to five cardiovascular tests described by Ewing, were studied using standardized questionnaire, including medical history and clinical examination which included fundal eye examination.

Results: Male to female ratio was 1.27:1. Fundal changes compatible with diabetic retinopathy were detected in 67% of the patients. Common age group affected was > 60 years and common type of DM affected was type 2. The majority had simple (background) retinopathy.

Conclusion: Diabetic retinopathy is common in patients with diabetic autonomic neuropathy.

There is a striking association between diabetic retinopathy and DAN and that is DAN may be a risk factor for retinopathy in addition to other known risk factors.

ENDOSCOPIC THORACIC SYMPATHICOTOMY FOR THE TREATMENT OF COMPLEX REGIONAL PAIN SYNDROME

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Complex Regional Pain Syndrome (CRPS) is a neurological syndrome that usually affects one or more extremities, and can cause chronic pain and permanent deformities.

This study aimed to analyze the long-term efficacy of endoscopic thoracic sympathicotomy (ETS) in the treatment of pain in patients with CRPS stage II and III operated on in our clinic.

Seven patients (four males and three females; mean age 34.7 years; ASA physical status I and III; post-operative follow-up from 90 to 134 months, mean 118 months) with the diagnoses of CRPS type I and II, and stages II and III, were operated on as outpatients. The sympathetic chain was severed over the rib from T2 to T5, along with the communicating rami of this segment, including the Kuntz nerve. The ETS was performed bilaterally in four patients. Pain was assessed using a visual analogic scale (VAS: 0 -10).

The pain disappeared in all patients operated on during rest (VAS= 0). Four patients reported pain during repeated movement of the affected limb (mean VAS= 1.57), the intensity of which was lower than before surgery (mean VAS= 9.43). Analgesics were no longer needed after surgery. All patients had their quality of life improved.

Conclusion: According to the present investigation, ETS, as described, was efficient in the long-term for the relief of pain and improvement of the quality of life in patients with CRPS stage II and III.

EVALUATION OF AUTONOMIC MODULATION OF PUPILLARY DIAMETER BY PHARMACOLOGICAL BLOCKADE

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Introduction: Pupillary diameter (PD) oscillates due to fluctuating autonomic innervation. Heart rate (HR) oscillations in low- (LF: 0.03-0.15Hz) and high-frequency (HF: 0.15-0.5Hz) ranges are associated with fluctuating sympathetic- and parasympathetic-outflow. Associations between frequencies of PD-oscillations and autonomic outflow have not yet been evaluated.

Objective: To determine whether PD-oscillations in LF- and HF-ranges are associated with autonomic modulation.

Methods: In 13 healthy persons (25±2 years), we monitored HR, blood pressure (BP), and PD using infrared-pupillometry. We repeated measurements after parasympathetic blockade by intravenous atropine (0.04mg/kg), and 2-3 hours after ingestion of the alpha-beta-adrenoreceptor-blocker Carvedilol (25mg). For HR-, BP- and PD-oscillations in LF- and HF-ranges, we calculated normalized spectral powers {LFnu= [LF/(LF+HF)]x100%, and HFnu= [HF/(LF+HF)]x100%}. We compared values with and without pharmacologic blockade (ANOVA, post-hoc analysis; significance: $p< 0.05$).

Results: Atropine did not change BP, LFnu-BP, HFnu-BP, increased HR, LFnu-HR, PD (5.1±1.4 vs. 6.3±1.1mm), and LFnu-PD (38.9±11.6 vs. 59.0±8.2%), but decreased HFnu-HR and HFnu-PD (61.1±11.6 vs. 40.9±8.2%).

Carvedilol decreased HR, did not change LFnu-HR and HFnu-HR, decreased BP insignificantly, and decreased LFnu-BP significantly. Carvedilol did not change PD, LFnu-PD and HFnu-PD.

Conclusion: Atropine had similar effects on HR and PD, and similarly enhanced LF- and attenuated HF-oscillations of both signals. Thus, parasympathetic activity significantly modulated HF-PD-oscillations.

Absent effects of Carvedilol on PD and PD-oscillations might be due to insufficient effects on pupillary muscles or inadequate dosage. Better suited sympathetic blocker or higher dosage might be needed to determine any possible sympathetic origin of LF-PD-oscillations.

Acknowledgement: The study was partially supported by IBRF.

THE PRESENCE OF DIABETIC CARDIOVASCULAR AUTONOMIC NEUROPATHY AMONG SUDANESE ADULT DIABETIC PATIENTS WITH ISCHEMIC HEART DISEASE

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Background: Diabetic cardiovascular autonomic neuropathy (CAN) is a serious and common complication of diabetes, as it carries a high risk of mortality, this high mortality rate may be related to silent myocardial infarction, cardiac arrhythmias, cardiovascular and cardio respiratory instability and to other causes not yet explained. Strict glycemic control can slow the onset of diabetic autonomic neuropathy and sometime reverse it.

Objectives: The diabetic cardiovascular autonomic neuropathy is a poorly studied subject in our medical literature. The study was aimed at investigating the presence of diabetic cardiovascular autonomic neuropathy in a group of sudanese adult diabetic patients with ischaemic heart disease.

Patients and methods: This is a descriptive prospective cross sectional hospital based study. It was conducted at Shaab Teaching Hospital in Khartoum. Seventy five diabetic patients with ischaemic heart disaese were studied using standardized questionnaire, including medical history and clinical examination and investigation, then they were tested for the presence of cardiovascular autonomic neuropathy using the five cardiovascular tests described by Ewing.

Results: Male to female ratio was 1.88:1. Common age group affected was > 51 years and common type of DM affected was type 2. Cardiovascular diabetic autonomic neuropathy was detected in 94.67% of the patients.

Conclusion: Diabetic cardivascular autonomic neuropathy is a very common problem among our studied group. It can occur at any age and at any time even at early diagnosis of diabetes .Poor glycaemic control is the main implicating factor.

POSTURAL ORTHOSTATIC TACHYCARDIA SYNDROME; SINGLE CENTER RETROSPECTIVE STUDY

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Objective: Postural orthostatic tachycardia syndrome (POTS) is a type of orthostatic intolerance that is characterized by excessive tachycardia without prominent hypotension in the upright position. We evaluated the clinical and neurophysiological findings of POTS.

Method: A retrospective analysis was done for patients who were found to have postural orthostatic tachycardia in autonomic function tests (sympathetic skin responses, heart rate variability test and tilt table test). POTS was classified with symptoms, history of orthostatic intolerance during standing and s of tilt table test.

Results: We identified 33 patients with postural orthostatic tachycardia from the 519 cases during study period. Four patients with diabetes, 3 hypertensive patients with medications and 4 patients with alcoholic polyneuropathy were excluded, and finally 22 patients were included with idiopathic patients with POTS. Common symptoms for evaluation were syncope, dizziness and frequent palpitation. In autonomic function tests, mean orthostatic heart rate increments and mean peak heart rates were 36.7 (±6.5) and 102 (±14.9) bpm, respectively. All patients showed normal heart rate variability and 6 patients (27%) had abnormal sympathetic skin responses. Interestingly, prominent increments of diastolic blood pressure (15.4 ±8.7 mmHg) were found during tilt table test in all patients without significant change of systolic blood pressure (2.5 ±8.7 mmHg).

Conclusions: POTS is not uncommon in patients who are frequently referred to neurology department. We should consider them as a differential diagnosis for evaluating syncope, dizziness, headache or chronic fatigue.

LOCAL BRAIN-COOLING INCREASES PERIPHERAL SYMPATHETIC AND CARDIOVAGAL ACTIVITY

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Introduction: Therapeutic hypothermia is an effective treatment of cerebral ischemia and edema, e.g. due to stroke or trauma. Effects of brain-cooling (BC) on cardiovascular autonomic function have not yet been assessed.

Objective: To evaluate cardiovascular autonomic changes during local BC.

Methods: In 10 healthy men (35 ± 13 years), we applied BC using a head- and neck-cooling device (HVM medical, Germany). In each participant, we assessed five-minute mean values and standard deviation of RR-intervals (RRI), systolic, diastolic blood pressures (SBP, DBP) and laser Doppler skin blood flow (in perfusion units [PU]) at the right index finger pulp, before and after 60 minutes of BC. We calculated spectral powers of mainly sympathetic low- (LF: 0.04-0.15 Hz) and parasympathetic high-frequency (HF: 0.15-0.5 Hz) RRI-oscillations and sympathetic LF-powers of BP-oscillations. We compared values before and during BC (Wilcoxon-test; significance: $p< 0.05$).

Results: BC significantly increased DBP (64.8 ± 5.0 mmHg vs. 72.9 ± 6.0 mmHg), RRIs (983.4 ± 192.0 ms vs. 1101.5 ± 231.2 ms) and RRI-HF-powers (464.9 ± 289.1 ms^2 vs. 1271.6 ±1072.0 ms^2), and decreased SBF (189.7 ± 84.9 PU vs. 33.8 ± 20.8 PU). SBP increased insignificantly (116.8 ± 7.0 mmHg vs. 125.9 ± 9.1 mmHg), RRI-LF-powers and LF-powers of BP remained unchanged during BC.

Conclusion: BC induced SBF decrease and DBP increase indicate peripheral vasoconstriction due to sympathetic activation. RRI and RRI-HF-power increases indicate cardiovagal activation. Cardiovagal activation may be beneficial in stroke or brain injury patients with increased sympathetic cardiac modulation.

AUTONOMIC DYSFUNCTIONS IN YOUNG OBESE ADULTS WITH FAMILY HISTORY OF TYPE 2 DIABETES MELLITUS

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Aims: The purpose was to evaluate cardiovascular autonomic regulation using heart rate variability (HRV), blood pressure variability (BPV) analyses in obese adults with family history of type 2 diabetes mellitus (DM).

Methods: 50 subjects with average age 22,4±2,12 years, body mass index (BMI) > 30 kg/m^2 and antecedence in the family of type 2 DM and 25 age matched subjects with normal BMI (control) were included in the survey. Using Biopac Acquisition System, we monitored the HRV in basal condition and during Ewing's tests. From these measurements using simultaneously fast Fourier and Wavelet transform, HRV parameters were calculated: low (LF-index of sympathetic control), high-frequency bands (HF-index of parasympathetic activity), LF/HF index, time-domain parameters (mean RR interval, SDNN, SDANN, SDNN index, rMSSD and pNN50%).

Results: Obese subjects had a significant increase in the mean heart rate at rest (p< 0.003), and higher mean systolic (p< 0,01) and diastolic blood pressure (p< 0,05) compared to controls. The pNN50 (p< 0,001), rMSSD, logHF (p< 0,001) were significantly lower in obese compared to controls and an increase in the LF/HF component ratio (p< 0,01) indicating a vagal- sympathetic dysfunction in obese patients. Average results obtained in Valsalva and postural hypotension for obese are statistically significant less than controls averages.

Conclusion: Higher mean values of heart rate, blood pressure, reduced parasympathetic activity with sympathetic predominance were found in obese adults with family history of type 2 DM. The changes in HRV, BPV are non-invasive methods and could be used for screening in primary prevention.

APPLICATION OF THE AUTONOMIC SYMPTOM PROFILE TEST TO TRIGEMINAL-AUTONOMIC CEPHALALGIAS

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Introduction: The trigeminal-autonomic cephalalgias (TACs) are characterized by local autonomic involvement, though controversy exists regarding the systemic extension of these disorders. For years, the autonomic symptom profile test (ASP) has demonstrated its capacity to quantify systemic autonomic involvement. Accordingly, the principal aim of this study was to evaluate possible differences in the ASP score between controls and patients with TACs.

Materials and methods: Over a period of one year we included 21 patients with TACs in the headache consulting offices of Alicante University General Hospital (Alicante, Spain) and Rafael Mendez Hospital (Lorca, Murcia, Spain). The patients completed the ASP in the symptomatic and/or asymptomatic phase of the disease, together with the Hospital Anxiety-Depression scale (HAD). As control group we included 21 patients without autonomic alterations seen in the general consulting offices of the Department of Neurology (Alicante University General Hospital).

Results: The patients with TACs showed higher scores with the ASP test than the controls (36.52 ± 18.38 vs 10.22 ± 7.32; $p< 0.0001$). However, the ASP and HAD scores showed no differences among the patients with TACs on comparing the symptomatic versus the asymptomatic phases of the disease.

Conclusions: In our experience, patients with TACs present systemic autonomic alterations that are independent of the phase of the disease or of the possible accompanying anxiety-depressive alterations. These results are in agreement with most of the data found in the literature, and moreover, demonstrate the validity of the ASP in evidencing autonomic dysregulations.

THE STUDING OF AUTONOMIC HOMEOSTASIS IN YOUNG PATIENTS WITH CERVICAL OSTEOHONDROSIS

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Functional damage of hypothalamic region may appear due to focus of hyperactivity in peripheral sympathetic centers, especially in truncus sympaticus ganglions. As peripheral disorder progresses in severity and duration, as autonomic dysfunction (AD) manifested much stronger, revealing the syndrome of hyperactivity of the higher autonomic centers.

The aim is to estimate the AD in young patients taking into consideration the level of vertebrobasilar insufficiency (VBI) due to cervical osteohondrosis. Observed 87 people age from 18 to 44 years (52 women, 35 men) with cervical osteohondrosis. For diagnosing the MRI and functional X-ray examination of cervical part of vertebra column was done, also for blood supply estimation neurosonology were performed. For evaluating the degree of AD intervalocardiography and the scheme, based on expert estimation of autonomic changes were used. Depending on hemodynamic changes in vertebrobasilar system we isolated: 1 group - 22 patients with angiodystonical stage of VBI, 2 group 31 patients with angiodystonic-ischemical stage of VBI, 3 group - 34 patients with ischemical stage of VBI. Increasing of autonomic reactivity more often (72,7±9,4)% in 1 gr. was revealed, comparing with 3 gr. (31,8±9,2)%, that indicates on overstrain of regulatory mechanisms in patients with more earlier stage of VBI. The trend to registration of adequate autonomic maintenance in 1 gr. comparatively with 3 gr. was determined, containing (68,1±9,9)% and (41,6±10,0)%. Thus, progression of VBI overstrain especially of sympathetic part of ANS is registered, performing adaptive functions of organisms. Our results are in direct dependence from the level of blood supply insufficiency.

POSTURAL ORTHOSTATIC SYNDROME MIMICKING SIC SINUS SYNDROM - CASE REPORT

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Background: Postural orthostatic tachycardia (POTS) syndrome is an autonomic disorder characterized by orthostatic tachycardia in the absence of orthostatic hypotension. POTS is defined as the presence of orthostatic intolerance (OI)

symptoms associated with a heart rate increase of 30 beats/min (or a rate that exceeds 120 beats/min) within the first 10 min of standing or upright tilt. OI symptoms may include syncope, near syncope, fatigue, palpitations, exercise intolerance, lightheadedness, diminished concentration, and headache. Sic sinus syndrome (SSS) is arrhythmia characterized by sinus bradycardia and sinus incompetence.

Methods: Eighteen-year-old male with repeated syncope was referred for pacemaker implantation due to SSS suspicion. The patient presented symptoms of fatigue, cognitive dysfunction, orthostatic palpitations and either near syncope or real syncope. These symptoms resulted in impaired activities of daily living, to such an extent that the patient became unable to attend the school.

Results: The diagnosis of POTS and exclusion of SSS was established with tilt table test, baro-reflex sensitivity test, heart rate variability at rest, echocardiography and 24-hours ECG monitoring. All symptoms withdrew after fluid therapy, liberal sodium intake, reconditioning exercise program and vasoconstrictor agents therapy. The treatment led to improvement of daily activities and resulted in return to school.

Conclusion: The study highlights the fact that sinus bradycardia at rest in young patients with syncope or other symptoms of OI should be differentiated with autonomic system disorders. Proper diagnosis is sometimes difficult but is crucial for providing appropriate treatment.

POSTERIOR REVERSIBLE ENCEPHALOPATHY SYNDROME OF POSTPARTUM - ABOUT 3 CASES

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Introduction: Posterior reversible encephalopathy syndrome is a clinicoradiological entity important to know because of its favorable evolution in cases of early and appropriate therapeutic care.

Case reports: We report the observation of 3 primiparous patients who present in postpartum Generalized tonic-clonic seizures associated with a hypertensive peak without edematous syndrome. Laboratory tests were unremarkable. The EEG showed epileptic abnormalities and brain MRI was in favor of a reversible posterior leukoencephalopathy.

Discussion: The PRE is an unusual neurological complication of post-partum with vasogenic edema by disrupting the blood-brain barrier (BBB) wich seems to be the main actor. The initial clinical presentation is variable, ranging from simple headaches to dramatic presentations of status epilepticus. The DWI MRI is the best diagnostic tool enabling rapid and appropriate treatment to prevent the occurrence of irreversible neurological damage and permanent sequelae.

Conclusion: The PRES should be evoked before any neurological call sign in postpartum seen the favorable evolution without sequela on early and rapid treatment.

POSTERIOR REVERSIBLE ENCEPHALOPATHY: ABOUT FIVE CASES

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Introduction: The posterior reversible encephalopathy (PRE) is a clinico-radiologic syndrom characterized by seizures, consciousness's disorder, visual loss, and headache associated with cerebral posterior abnormalities on imaging. It raises often a problem of differential diagnosis with cerebral infarction.

Materials and methods: We report the cases of 5 patients whose the first is follow-up for lupus erythematosus, the second is hypertensive, the other 3 patients are in postpartum after cesarean delivery. All our patients had Generalized tonic-clonic seizures associated with a peak hypertensive without edematous syndrome. Laboratory tests were unremarkable. The EEG showed epileptic abnormalities and brain MRI was in favor of a reversible posterior leukoencephalopathy. The evolution under treatment was favorable without recurrence with a progressive decline of 20 months.

Conclusion: Rapid regression clinical and radiolologic abnormalities suggest cerebral vosogenic oedema as mechanism of this disease and confirm its mildness. Nevertheless, PRE may not be reversible without an early control of causes.

AUTONOMIC NERVOUS SYSTEM INVOLVED DURING MUSLIM PRAYER IN PRIMARY HYPERTENSIVE PATIENTS COMPARED TO NORMOTENSIVE SUBJECTS

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Muslim prayer involves changes of the position of the human's body. The autonomic nervous system (ANS) plays a crucial role in the control of the variation of blood pressure (BP) and heart rate (HR) . The purpose of this study was to evaluate the magnitude of these changes in hypertensive (HT), during the different steps of Muslim's prayer (standing, bowling and prostrating) compared to a control (C) group.

Patients and methods: A total of 62 subjects were divided into two groups: hypertensive (HT) and control (C,) matched for sex and age. HT patients were not treated. All subjects were monitored for heart rate and blood pressure. Basal BP and HR were recorded in supine position and then on standing, bowing (90°) and prostrating position. The comparison of results was performed using Student t test, $p < 0.05$ was considered as significant.

Results: There were no significant changes in HR between HT and C group in various positions of prayer. Basal BP was 162.1 ± 16.8 vs. 111.7 ± 8.4 mmHg respectively, $p < 0.01$. HT group showed a significant decrease of BP ($p < 0.01$) when moving from standing to P90° (167.4 ± 10.4 mmHg vs 147.6 ± 12.4 mmHg) and from bowing (90°) to prostrating (147.6 ± 12.4 mmHg vs. 130.6 ± 10.6 mmHg).

Conclusion: Change of individual postures during prayer involves ANS mainly by aortic and carotid baroreceptor. The prayer, as performed in the standard positions, seems to be beneficial for HT insofar as it reduces BP.

CARDIOVASCULAR AUTONOMIC REFLEXES IN PRIMARY HYPERTENSIVE PATIENTS TREATED WITH AMLODIPINE

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High blood pressure is a major cause of cardiovascular disease and primary hypertension is a frequent pathological condition. Sympathetic hyperactivity may be involved in primary hypertension. The purpose of this study was mainly to evaluate sympathetic activity response in patients before and after receiving Amlodipine as antihypertensive agent.

Patients and methods: This prospective study included one group of hypertensive patients (n=32, mean age 58,2±5,8 years). Autonomic tests performed in hypertensive patients before and 3 months after treatment with oral Amlodipine administration, included deep breathing, hand-grip, orthostatic and mental stress tests. Comparison tests between the 2 studies were made using Student t test.

Results: Autonomic reflexes responses before and 3 months after Amlodipine administration were as the following : the direct cortical stimulation method produced an alpha adrenergic response of 34.3±12.6% vs 15.7±4.9% ($p< 0.05$), a beta sympathetic response of 28.0±7.1% vs 9.3±3.0%, $p< 0.05±05$, BP response to hand grip test was 16.0±0.1% vs 10.0±3.0% ($p< 0.05$), vagal stimulation was 19.7±6.7% vs 31,3±3,8% ($p< 0.05$). HR at rest had shown no significant change before and after oral amlodipine medication (64,5 ± 8.2 vs 67,5 ±12.2bat/min).

Conclusion: Cardiovascular autonomic reflexes in hypertensive patients treated with Amlodipine has shown a significant decrease in sympathetic response and a significant increase in vagal response. This attests in one hand that cardiac autonomic reflexes before and after anti hypertensive treatment are of interest and in another hand that Amlodipine may have an antisympathetic effect.

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FREQUENCY AND CLINICAL PATTERN OF AUTONOMIC NEUROPATHY AMONG ADULT DIABETIC SUDANESE PATIENTS

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Diabetic autonomic neuropathy can cause cardiac, gastrointestinal, genitourinary, and metabolic disorders. Strict glycemic control can slow the onset of diabetic autonomic neuropathy and sometimes reverse it.

Objectives: The study was aimed at investigating the presence of diabetic autonomic neuropathy in a group of Sudanese diabetic patients.

Methods: This is a descriptive prospective cross sectional study. It was conducted at Herra medical center and Alnoor specialized center in Omdurman. One hundred diabetic patients were studied using standardized questionnaire, including history, clinical examination and investigations.

Results: Female to male ratio was 1.7:1.Most of the patients had type 1 DM. Common age group affected was >51 years and common duration of DM was < 10 years. Diabetic autonomic neuropathy was diagnosed in 70% of the patients. The majority of the patients had early stage diabetic autonomic neuropathy.

Conclusion: Diabetic autonomic neuropathy is a very common problem among our studied group. It can occur at any age and at any time even at early diagnosis of diabetes but poor glycemic control is the main implicating factor. All diabetic patients have to do annual Expiration/Inspiration ratio to detect early stages of diabetic autonomic neuropathy.

AUTONOMIC DYSFUNCTION RELATED TO THE MICROELEMENT DISBALANCE IN CHILDREN FROM URBAN AREAS WITH HIGH TECHNOGENIC LOAD

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A disturbing trend in children's health is the reported increase of the autonomic dysfunction (AD) nationwide, which can be caused not only by the increased concentration of the toxic elements in children dwelling in areas with high technogenic load, but also aggravated by the deficiency of essential ones. The aim of the present study was to determine the degree of the elements' disbalance and whether it has influence on the state of the autonomic nervous system (ANS), which can be assessed by the heart rate variability (HRV). In the study group (60 children with the AD 10-16 year old) living in industrial areas (eastern Ukraine) excess of the toxic elements prevailed, whereas in the control group (117 age-matched healthy children) living in recreation areas (Crimea, Ukraine) deficiency of the essential elements predominated. Pb, Cd, Sr, Cu, Ca and Zn concentrations measured in hair with the use of X-ray spectrophotometry were taken to assess complex action of these elements and their effects on HRV spectral parameters. Multiple regression analysis revealed a positive association between hair Cu, Zn levels and TP; Cu, Zn, Pb levels and LF; Cu and VLF; Cu, Zn, Cd and HF; Sr - LF/HF and LFn and negative one between Sr and HFn in the study group. TP and all its components significantly increased with increasing hair Cu levels, while elevated Pb and Sr levels might increase sympathetic activity and Cd - parasympathetic one. In control group only negative association between Cu level and HFn was observed.

FULMINANT VARIANTS OF MULTIPLE SCLEROSIS - LOCAL EXPERIENCE AT SHIFA INTERNATIONAL HOSPITAL, ISLAMABAD

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Background: Fulminant variants of multiple sclerosis (MS) are usually monophasic and lead to rapid and continuous progression of disabilities. Very high mortality and morbidity has been reported with these cases however in our series patients treated aggressively with immunotherapy have shown complete or near complete recovery.

Methods: We report a case series of 4 patients with fulminant variants of MS between January 2008 and February 2011 at Shifa International Hospital, Islamabad. Data was collected retrospectively through chart review and follow up information was obtained from clinic visits.

Results: Four patients, 3 females, with mean age of 27 years (range 13-40). Onset was acute with significant progression over 2 weeks in all cases. Pertinent presenting symptoms were hemiparesis and speech difficulty in all 4 patients, 3 had visual difficulty, and 2 had headache. CSF pleocytosis was seen in 3 patients and raised CSF protein in 3 patients. VEP was abnormal in one patient. Based on the characteristic MRI findings, 3 patients were diagnosed as Balo's concentric sclerosis and one patient with Marburg's variant of MS. All patients were initially treated with I/V steroids followed by immunomodulatory therapy. 2 patients received IVIG and mitoxantrone, one received IVIG only and one received mitoxantrone only. On follow up, all 4 patients have shown marked improvement with 3 being independent in activities of daily living.

Conclusion: Aggressive treatment with IVIG and mitoxantrone resulted in significant improvement in this small case series. Early and aggressive immunosuppression should be considered in patients with fulminant variants of MS.

ANALYSIS OF RISK FACTORS FOR PROGRESSIVE MULTIFOCAL LEUKOENCEPHALOPATHY IN NATALIZUMAB-TREATED MULTIPLE SCLEROSIS PATIENTS

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Objectives: To quantify progressive multifocal leukoencephalopathy (PML) risk in MS patients using three risk factors: increasing natalizumab treatment duration, prior immunosuppressant use, and anti-JCV antibody serostatus.

Methods: Data from natalizumab postmarketing sources, clinical studies, and an independent Swedish registry were used to estimate PML incidence in natalizumab-treated MS patients by duration of natalizumab treatment (1-24 or 25-48 months), prior immunosuppressant use (yes or no), and anti-JCV antibody status (positive or negative).

Results: As of March 2011, 102 PML cases were confirmed among 83,300 patients exposed to natalizumab in the postmarketing setting. Blood samples were available from 5896 MS patients and from 25 natalizumab-treated MS patients with PML (pre-PML samples). Employing the 2 established PML risk factors, risk was lowest in patients receiving 1-24 months of natalizumab without prior immunosuppressant use (0.19 cases per 1000 patients; 95% CI: 0.10-0.33), and greatest in patients treated for 25-48 months with prior immunosuppressant use (4.3 cases per 1000; 95% CI: 2.9-6.2). When anti-JCV antibody status was also considered, PML risk was lowest in anti-JCV antibody negative patients (≤0.11 per 1000; 95% CI: 0-0.59) and highest in patients with all 3 factors (7.8 per 1000; 95% CI: 5.2-11.3).

Conclusions: These analyses, representing approximately 150,000 patient-years of natalizumab experience, demonstrate that discrete MS subpopulations can be identified at lesser or greater PML risk based upon the presence of risk factors (natalizumab treatment duration, prior immunosuppressant use, and anti-JCV antibody status). Studies are ongoing to better characterize the risk of PML in anti-JCV antibody negative patients.

ASSESSMENT OF EDUCATION THERAPEUTIC TO IMMUNOMODULATORY THERAPIES IN PATIENTS WITH MULTIPLE SCLEROSIS IN AUVERGNE

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Objectives: Patients with relapsing-remitting multiple sclerosis can benefit from disease-modifying therapies (DMT) among five currently available treatments. At the start of treatment the patient education can be made by a neurologist, a visiting nurse or a nurse trained to education therapy. In Auvergne, networks of care for multiple sclerosis exist with a nurse trained to education therapy. The aim of the study was to evaluate the therapeutic education conducted in Auvergne.

Methods: From March 2010 to April 2011, we conducted an observational study with a questionnaire. Patients with relapsing remitting multiple sclerosis treated with a DMT and included in the network through registration. Four sections of questionnaire on the patient's education about treatment including, follow-ups, side effects, injections and adherence.

Results: Response of 120 patients was obtained, including 97 women and 23 men. 35 were taking AVONEX ®, 34 COPAXONE ®, 29 BETAFERON® and 22 REBIF ®. 28.6% of patients treated with AVONEX® were autonomous against 86.2% for BETAFERON®, 85.3% for COPAXONE® and 77.3% for REBIF ($p < 0.005$).

74.3% of patients treated with AVONEX® never forgot injection compared to 44.8% for BETAFERON®, 47.1% for COPAXONE® and 31.8% for REBIF® ($p < 0.005$). A score was established using the criteria of: patient satisfaction, information side effects, how to prevent skin sensitivities, autonomy and compliance. The nurse was given with the best score.

Conclusion: AVONEX ® brings the worst autonomy with better compliance. The best score for patient education were obtained when it was performed by a nurse trained to patient education.

EFFICACY OF SUBCUTANEOUS INTERFERON B-1A IN PATIENTS WITH A FIRST CLINICAL DEMYELINATING EVENT: SUBGROUPS OF THE REFLEX TRIAL

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Background: REFLEX demonstrated that interferon (IFN) β-1a, 44 µg subcutaneously (sc) three times weekly (tiw) and once weekly (qw), significantly delayed McDonald MS 2005 and clinically definite multiple sclerosis (CDMS) versus placebo in patients with a first clinical event suggestive of MS. The efficacy of the serum-free formulation of sc IFN β-1a in predefined subgroups was assessed.

Methods: Risks were estimated by the Kaplan-Meier method; effects analysed by proportional hazards regression for predefined subgroups.

Results: 517 patients randomized. Baseline (BL) covariates had a statistically significant effect on time to McDonald MS 2005 (higher vs lower risk): multifocal vs monofocal, ≥1 vs no BL gadolinium-enhancing (Gd+) lesions; and ≥9 vs < 9 BL T2 lesions. Similar trends (not statistically significant) were observed on time to CDMS. Significant treatment effect of tiw vs placebo on time to McDonald MS (risk reduction: multifocal 55%, monofocal 42%; ≥1 BL Gd+ lesions 51%, no BL Gd+ lesions 46%; ≥9 BL T2 lesions 54%, < 9 T2 BL lesions 58%); similar but smaller effects were observed with qw. McDonald MS risk was lower for tiw vs qw in all subgroups. Treatment effects on CDMS were maintained across most subgroups. There was no statistically significant difference in CDMS delay between tiw and qw in any subgroup.

Conclusions: Risk of McDonald MS or CDMS was greater in patients with increased disease dissemination/activity at first attack. Treatment effects of sc IFN β-1a tiw and qw across subgroups were consistent with the REFLEX ITT analysis.

SAFE AND EFFECTIVE USE OF THE SINGLE-USE INTRAMUSCULAR INTERFERON BETA-1A AUTOINJECTOR IN THE TREATMENT OF MULTIPLE SCLEROSIS

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Objective: Injection anxiety and impaired motor function can negatively impact self-administration of parenteral multiple sclerosis (MS) treatments. Autoinjectors may facilitate self-administration and enhance patient convenience, adherence, and quality of life. This study assessed the safety and efficacy of a single-use autoinjector (prefilled pen) for administration of intramuscular interferon beta-1a (IM IFNβ-1a) in MS patients.

Methods: This open-label, multicenter study enrolled MS patients using IM IFNβ-1a (30µg/week) via prefilled syringes for ≥12 weeks prior to enrollment. Patients self-administered IM IFNβ-1a in the clinic using a prefilled syringe on day 1 and a prefilled pen on day 8. On day 15, patients self-administered IM IFNβ-1a with the prefilled pen at home, returning on day 22 for study staff observation of the final, self-administered study dose. Serum samples for measuring neopterin levels were collected 1 hour before and 24 and 48 hours after injection on days 1 and 8. Adverse events (AEs) were monitored throughout.

Results: Most patients (89%) successfully used the prefilled pen according to protocol. There were no device malfunctions and one unsuccessful dosing occurred due to subject error. Most patients (94%) preferred the prefilled pen to prefilled syringe, finding it easier to inject (85%), less painful (68%), and anxiety reducing(65%). Injection site pain was the most commonly reported AE (n=5,7%). Mean patient-rated injection site pain score ranged from 0.7-1.3 (scale, 0-10). Neopterin induction was comparable between injection methods.

Conclusion: The IM IFNβ-1a prefilled pen is safe, effective, and preferred by patients over the prefilled syringe.

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T REGULATORIES (TREGS) AND IL-27 INCREASE AFTER ALEMTUZUMAB TREATMENT IN MS

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Objective: Phenotypic analysis and cytokine, chemokine, and chemokine receptor mRNA levels after alemtuzumab in relapsing-remitting (RR)MS: first year of follow-up.

Background: Alemtuzumab is highly effective in RRMS, is associated with a long-standing lymphopenia, and not rarely with autoimmunity.

Design and methods: Multicenter 4-year follow-up of alemtuzumab-treated RRMS patients in CAMMS323 or 324 trials. Polyclonally-stimulated PB lymphocytes analyzed by FACS for intracellular IFNγ, IL-17 and Foxp3, and for surface CD4, CD25, and CD127. Twenty-two immunological molecule mRNA levels (chemokines: CCL-11, CXCL-10; chemokine receptors: CCR-4, CCR-6; cytokines: IFNγ, TGFβ, TNFα, IL-

1β, IL-2, IL-6, IL-10, IL-12p35, IL-17A, IL-17F, IL22, IL-23, IL-26, IL-27; and T-bet, RORγt, Foxp3) quantified by TaqMan® (Applied Biosystems 7900HT, Applera Italia, Monza, Italy) low-density array (TLDA) real-time polymerase chain reaction in whole blood. Definitions: Baseline: before first alemtuzumab course; Month 6 (M6): 6 months after; Month 12 (M12): 12 months after and before second alemtuzumab course.

Results: Nine-teen patients from 6 sites. After alemtuzumab, Th1- and Th17-related immunological molecules were decreased, while those Treg-related and IL-27 increased. CD4+ lymphocytes decreased from 45 to 14%. Within this depleted population, Th1 percentage was slightly increased from baseline at M12; Th17 markedly increased at M6-M12; Tregs (CD25highFoxP3+) unchanged. No patient developed autoimmunity or MS relapses.

Conclusions: The overall alemtuzumab-induced CD4+ lymphocyte depletion might relate to the reduction of MS disease activity. The increase of Th1 and Th17 might be a risk for autoimmunity counteracted, in our patients, by the increase of IL-27 and of Treg cytokines.

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CAUSE OF DEATH IN MULTIPLE SCLEROSIS PATIENTS FROM THE 21-YEAR LONG-TERM FOLLOW-UP STUDY

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Objective: To examine the underlying causes of death in 81 deceased patients from the 21-Year Long-Term Follow-Up study. We assessed the effects of original treatment (either 250 µg or 50 µg interferon beta-1b [IFNB-1b] versus placebo) on survival in 366/372 patients (98.4%) ascertained 21 years following this randomized controlled trial (RCT). Those originally randomized to IFNB-1b 250 µg had significantly lower all-cause mortality versus placebo (hazard ratio=0.532, *P*=0.0173). The categorical cause of death and relationship to multiple sclerosis (MS) were determined to better understand the biological basis of this finding.

Methods: US National Death Index (US patients) and chart and proxy information (Canadian patients) were the main sources used to identify cause of death for deceased patients. Data were categorized by a cause-of-death adjudication committee blinded to original treatment assignment.

Results: Mean age at death was 51.8 years. Cause of death was adjudicated for 83% of patients (67/81); with 81% (54/67) adjudicated to be MS related. Of the 67 deaths, 10 were due to cardiovascular disease/stroke; six cancer; 17 pulmonary infectious diseases; 11 accidental death/suicide; 21 MS; one gastrointestinal bleed; and one hepatic insufficiency, multisystem dysfunction or iatrogenic drug toxicity. In 14 cases, no information was available to determine cause of death.

Conclusions: Most deaths were MS related (81%), reflecting the relative youth of this RCT-derived cohort. This predominance of MS-related causes of death is consistent with the established natural history of MS mortality. The difference between treatment with IFNB-1b and placebo appears to be due to MS-related causes.

LONG-TERM EFFECT OF EARLY TREATMENT WITH INTERFERON BETA-1B AFTER FIRST CLINICAL EVENT SUGGESTIVE OF MS: 8-YEAR OBSERVATIONAL BENEFIT EXTENSION TRIAL

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The BENEFIT study evaluated the impact of early treatment initiation with IFNB-1b (Betaseron®/Betaferon®) in patients with a first event suggestive of MS.

In the placebo-controlled phase, patients were randomized to IFNB-1b 250 ug sc, eod or placebo for 2 years or until CDMS. Patients were then eligible for an open-label single-arm follow-up study with IFNB-1b, but were allowed to take other, or no medication. Thereafter, an observational extension study enrolled any patient randomized and treated at least once in the placebo-controlled phase.

Of the initial 468 patients (IFNB-1b: 292, placebo: 176), 284 (60.7%; IFNB-1b: 176, placebo: 106) were enrolled in the extension. Risk of developing CDMS was lowered by 32.2% in patients who received IFNB-1b early (HR=0.678; *p*=.0029). EDSS remained low and scores were similar over time between groups (median 1.5). Since study start, 444 patients (94.9% of the 468) received any disease modifying therapy (DMT) at any time during the study period (including study medication IFNb-1b). 24 patients (5.1%) never received any DMT, 383 patients (77.6%) exclusively received IFNB-1b, while 31 (6.6%) received other DMTs that may be considered as escalation therapies.

The 8-year results of the BENEFIT Extension study provide further evidence supporting early initiation of treatment with IFNB-1b in patients with a first event suggestive of MS. After 8 years there was still a risk reduction of CDMS in favor of initiating IFNB-1b treatment up to 2 years earlier. The entire cohort showed rather low disability grades and use of escalation therapies was infrequent.

IDENTIFICATION OF ASTROCYTE-DERIVED IMMUNE SUPPRESSOR FACTOR THAT INDUCES APOPTOSIS OF AUTOREACTIVE T CELLS

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Introduction: In experimental autoimmune encephalomyelitis (EAE), an animal model of multiple sclerosis, apoptosis of T cells is mainly seen at inflammation sites of the CNS. Cumulative data suggests that astrocytes might render T cells susceptible to induction of apoptotic cell death. We observed that apoptotic cell death of proteolipid protein-reactive T cells was induced by an IFN-γ-treated astrocyte cell line.

Aim: In this study, we tried to identify and clone the genes derived from the IFN-γ-treated astrocyte cell line that induce apoptosis of autoreactive T cells.

Methods: We created subtraction cDNA libraries from the IFN-γ-treated astrocyte cell line and obtained 100 positive clones.

Results: After screening of subtracted cDNAs, we found two candidate genes that induced apoptosis of the PLP-reactive T cell line. The first is unknown gene of 726 base pairs that we named astrocyte-derived immune suppressor factor (AdIF). It contained an open reading frame encoding a polypeptide of 228 amino acids. The second was SPARC/osteonectin, a multifunctional glycoprotein secreted in the extracellular matrix. Purified recombinant AdIF protein inhibited the proliferation of activated PLP-reactive $CD4^+$ T cells and induced their apoptosis *in vitro*. Intravenous administration of recombinant AdIF protein to mice with in which acute EAE was induced prevented the incidence of EAE and suppressed the symptoms.

Conclusion: The newly discovered molecule AdIF may render auto-reactive T cells susceptible to the induction of apoptotic cell death.

EXCESSIVE INTERFERON ACTIVITY IN A SUBSET OF MULTIPLE SCLEROSIS PATIENTS: PATHWAY AND CLINICAL IMPORTANCE

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Interferon-beta (IFN) is a drug for multiple sclerosis (MS). Some patients show an increased IFN-like activity prior to treatment. We studied the expression of genes involved in IFN signalling, and the effects of IFN-beta therapy on these pathways. We further examined the clinical relevance of endogenous IFN-response activity.

We used Affymetrix microarrays to measure the blood transcriptome of 61 MS patients before start of therapy with IFN-beta, and after one month. The transcript levels of genes involved in IFN signalling (JAK/STAT pathway) and genes regulating IFN expression (TLR and RIG-I pathway) were compared between patients with relatively high and low endogenous IFN-like activity. Relapses and progression in the expanded disability status scale (EDSS) were documented for a 5-year follow-up period.

Before therapy onset, increased expression of IFN-induced genes was observed in 11 of the patients (group "high"). TLR receptors (TLR7, TLR8), RNA helicases (IFIH1, RIG-I) and transcription factors (STAT1, IRF7, IRF9) were also higher expressed in those patients. After one month into therapy, the expression of these genes remained unchanged in group "high", whereas patients in the "low" group showed a significant induction up to the levels of group "high". Both patient groups had a similar EDSS score increase and a comparable annual relapse rate.

IFN-beta therapy induces the expression of genes involved in IFN regulation and signalling. A subgroup of MS patients with elevated IFN activity before treatment is characterised by expression differences in the JAK/STAT and RIG-I pathways. Nevertheless, this group of patients shows similar clinical outcomes.

SHORT-COURSE ORAL THERAPY WITH CLADRIBINE TABLETS FOR RELAPSING-REMITTING MULTIPLE SCLEROSIS (RRMS) IN CLARITY: SAFETY PROFILE AND FOCUS ON INFECTIONS

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Purpose: The efficacy of short-course annual cladribine tablets therapy for RRMS was demonstrated in the 96-week CLARITY study. Cladribine tablets treatment works by reducing circulating lymphocytes, so we evaluated the safety of cladribine tablets in CLARITY, with particular focus on infections.

Methods: Safety was evaluated for patients treated with placebo (n=435) or cladribine tablets cumulative dose 3.5 mg/kg (n=430) or 5.25 mg/kg (n=454), given as 2 and 4 short (5-day) courses in the first 48-week treatment period (TP1), respectively, and 2 short courses (both groups) in the second treatment period (TP2).

Results: In placebo, 3.5 and 5.25 mg/kg groups, lymphopenia was reported as an adverse event in 1.6%, 14.9% and 26.2% patients in TP1, and 0.5%, 12.3% and 12.6% in TP2, while infections/infestations occurred in 34.3%, 38.4% and 36.8% patients in TP1, and 23.4%, 32.8% and 30.8% in TP2, respectively; investigators rated 99% of infections as mild-to-moderate. Herpes zoster infections developed in 20 patients (all cases dermatomal; all in cladribine recipients). One patient experienced probable reactivation of latent tuberculosis; this patient died following complications. Treatment was discontinued due to adverse events for 2.1%, 3.5% and 7.9% patients in placebo, cladribine 3.5 and 5.25 mg/kg groups, while 6.4%, 8.4% and 9.0% experienced serious adverse events, respectively.

Conclusion: Together with efficacy data, these results suggest an acceptable benefit-risk profile for cladribine tablets when used in a controlled clinical setting with appropriate monitoring and assessment. Long-term safety and efficacy are being evaluated. Screening for tuberculosis is recommended before starting therapy.

IFNB-1B THERAPY STARTED IN CLINICALLY ISOLATED SYNDROME REDUCES THE EVOLUTION OF PERSISTENT BLACK HOLES ON MRI

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Black holes, or chronic T1-hypointense lesions, are regarded as the MRI equivalent of severe tissue destruction. In particular, persistent black holes (PBH), i.e. lesions that persist to be hypointense over time, indicate definitive axonal loss. The aim of this study was to evaluate whether early treatment with IFNB-1b (250mcg) in clinically isolated syndrome (CIS) is superior to delayed treatment started up to 2 years after CIS in preventing the development PBH out of new lesions on MRI.

A post-hoc assessor-blinded evaluation of MRI data collected during the BENEFIT study was performed in 468 CIS patients. The study comprised a placebo-controlled phase (IFNB-1b (n=292) or placebo (n=176)) of 2 years or shorter dependent on a clinical diagnosis of MS, followed by an up to 5 year period where all patients were offered IFNB-1b. PBHs evolving from new (gadolinium-enhancing or new T2-weighted) lesions for ≥ 1 year up to study end were identified.

Scans from 452 patients qualified for the analysis showing 3789 new lesions. Patients starting on IFNB-1b showed a significantly lower number of PBHs compared to patients switching to IFNB-1b after a start on placebo (mean (SD) 0.66 (1.47) early IFNB-1b vs 1.15 (2.72) delayed IFNB-1b; p=0.0008 if adjusted for time in BENEFIT (< 18m/≥18m) and time in follow-up after BENEFIT (< 30m /≥30m) and p=0.007 if not adjusted**).**

Early treatment with IFNB-1b started in CIS as compared to a delayed treatment started up to 2 years later, had a significant impact in reducing the absolute number of PBHs.

SAFETY AND EFFICACY OF MITOXANTRONE IN CYPRIOT PATIENTS WITH MULTIPLE SCLEROSIS

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Purpose: Safety and efficacy of Mitoxantrone in Multiple Sclerosis (MS).

Methods: 136 patients (mean age: 34.7, mean MS duration: 11.4 years) were studied prospectively for 2 years. 58 patients (42.6 %) had Relapsing Remitting (RR) MS, 44 patients (32.3 %) Secondary Progressive (SP) and 34 patients (25 %) Primary Progressive (PP) MS.

59 patients (43.4%) completed the study receiving 12mg/m² of Mitoxantrone intravenously every 3 months for 2 years.

Two years before treatment, mean worsening of EDSS was 1.4 for the RRMS, 1.3 for the PPMS group and 1.0 in the SPMS group.

Mean annual relapse rate 1 year before Mitoxantrone treatment was 2.3 for the RRMS group.

Results: 77 patients (56.6 %) discontinued the study: 31 (22.8%) due to treatment ineffectiveness, 8 (5.9%) due to cardiac side effects, 7 (5.1%) due to increased LFT's, 6 (4.4%) due to nausea, 5 (3.7%) due to decreased WBC and 20 (14.7%) due to other side effects.

Two years after treatment initiation, mean worsening of EDSS for patients completing the study was 0.3 for the RRMS group (78.6% reduction from baseline), 0.5 for the PPMS (61.5% reduction) and 0.7 for the SPMS (30% reduction).

Mean annual relapse rate 2 years after Mitoxantrone was 1 for the RRMS completers, signifying a 56.5% reduction from baseline.

Conclusion: Mitoxantrone proved beneficial in delaying the progression in all MS patients as well as in reducing the number of relapses in patients with relapsing MS.

However, 33.8% of our patients discontinued treatment due to adverse reactions.

RESPONSE TO DISEASE MODIFYING THERAPIES IN AFRICAN- AMERICAN POPULATION WITH MULTIPLE SCLEROSIS IN SOUTH CAROLINA

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Background: African American (AA) population has lower risk for developing multiple sclerosis (MS) than Caucasian (CA) population, however, the disease tends to be more severe with early disability. This could be caused by different response to disease modifying therapies (DMT's).

Objective: To compare the response to disease modifying therapies used in AA and CA MS patients in South Carolina.

Design: Retrospective chart analysis of AA and CA MS patient cohorts from South Carolina that were treated with DMT's and followed at MUSC. Rating of disease progression was based on expanded disability status score (EDSS) difference at the time of first and last visit.

Results: Gender and age at the time of diagnosis did not differ significantly between AA and CA. There was statistically significant difference in disease duration which was longer among CA patients ($p< 0.001$). Median of EDSS difference was higher in AA population than in CA population ($p< 0.001$). Increased EDSS difference suggests poorer response to DMT's among AA patients in our study.

Conclusions: This study follows only a southern AA population, which is uncommon in the aspect of relatively little genetic admixture and as such remains remarkably homogenous. Genetic studies have demonstrated relatedness to the African tribes and low degree of Caucasian admixture. AA patients in South Carolina showed poorer response to DMT's when compared with CA patients. This suggests a trend, however further prospective studies on the response of AA patients to DMT's are warranted to develop more targeted treatment strategies.

SUPPRESSION OF EAE IN MICE TREATED WITH ATORVASTATIN IS RELATED TO DOWNREGULATION OF IFN-Γ, RHOA EXPRESSION AND UPREGULATION OF IL-10

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Purpose: To explore the potential therapeutic effect of Atorvastatin and its molecular mechanisms in mice affected with EAE.

Methods: EAE was induced with MOG_{35-55} in C57BL/6 mice. Atorvastatin was orally administered in a dosage of 10mg/kg·d from day 3 post-immunization (p.i.), and followed by 15 consecutive days. Administration of saline was set up as control. On day 18 p.i, splenic mononuclear cells (MNCs) were prepared, and cultured in the presence or absence of MOG_{35-55} in vitro. The supernatants were harvested for the detection of cytokines by ELISA, and the brains were dissected for the detection of inflammatory cell infiltration and RhoA expression by immunohistochemistry.

Results: The differences of incidence, body weight and mean maximum clinical scores were statistically significant between Atorvastatin-treated mice and control EAE mice ($p< 0.05$). Typical “muff-like” inflammatory cell infiltration was detected in brains of control EAE mice, but was obviously decreased in mice treated with Atorvastatin. There is statistically significant correlation between expression of RhoA and clinical scores ($r = 0.872$, $P = 0.001$). After intervention of Atorvastatin, the secretion of IL-10 was increased ($P< 0.05$), but the level of IFN-γ and proliferation response of splenic MNCs induced by MOG_{35-55} were statistically significantly inhibited ($P< 0.05$ and $P< 0.01$).

Conclusions: Atorvastatin decreases incidence rate, postpones onset of disease, relieves clinical severity and prevents inflammatory cell infiltration, showing that Atorvastatin is an effective drug in suppressing murine EAE. The possible mechanisms may be related to downregulation of IFN-γ, RhoA expression, and upregulaion of IL-10.

CHANGES IN BLOOD CELLS LEVEL IN PATIENTS WITH MULTIPLE SCLEROSIS AFTER CLADRIBINE THERAPY

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Introduction: Cladribine is cytostatic drug from purine analogs group. From the perspective of autoimmune pathogenesis, 2-CdA might have significant meaning for multiple sclerosis treatment. Among side effects of 2-chlorodeoxyadenosine is bone marrow suppression. Purpose of research was assessment of influence of 2-CdA on blood cells levels.

Method: We examined 54 patients (36 women,18 men) in age from 26 to 68. Cladribine was given subcutaneously (0,7 mg/kg/day) on 4-6 days and repeated at 5 weeks until 6 cycles. Total dose per treatment was 150-175 mg/kg. Venous blood was collected before treatment, every 5 weeks before each drug application and after 6 cycles of treatment.

Results: The difference of level of thrombocytes before and after treatment is significant ($p< 0,01$). Number of platelets after 6th dosis was 233,68±57,864x10^{9}/l so it was clinically safe. The difference of number of red blood cells is also statistically important and the same as platelets, final level of erythrocytes was safe for patients. Reduction of level of white blood cells, hemoglobine and hematocrit were not statistically important. We discovered statistically importance of reduction of number of lymphocytes ($p< 0,01$). Lymphocytes have high level of adenosine deaminase and low level of 5'-nucleotidase what leads to 2-CdA accumulation in those cells and their apoptosis.

Conclusions: Influence of cladribine on blood cells levels is unquestionable but this doesn´t produce unfavourable clinical results. The results obtained from our research suggest that suitable qualification for treatment and haematological control allows for safe use of cladribine in the treatment of multiple sclerosis.

IL17RC AS A NOVEL CANDIDATE AS GENE EXPRESSION MARKER FOR PROGNOSIS OF RELAPSING-REMITTING MULTIPLE SCLEROSIS IN BLOOD

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In multiple sclerosis (MS) treatment interferons are one of the most important first-line medications. However, individual prediction of therapy outcome is difficult. Several gene expression studies revealed potential blood-based markers that may allow prognosis in MS.

Most of the ca.100 genes that have been suggested in 11 studies as predictive biomarkers were also measured in the gene expression data we published 2010. We classified our patient cohort (n=49) according to number of relapses and changes in EDSS during two-year follow-up into disease progression status “good”, “poor”, and “very poor”. The subset of genes that showed a significant differential expression between the groups in our data were further validated using expression data from Gurevich et al. (2009) and Singh et al. (2007).

Fourteen genes were found to be significantly expressed between patient groups. We reassessed using public microarray data sets the value of those genes whose expression level had been related to disease progression. Transcript levels of nine genes could be verified by either of two independent data sets from different studies had been analysed under the same biostatistical regime for marker gene assessment. Two genes could be outlined as the most predictive marker candidates: GPR3 and IL17RC.

IL17RC forms with IL17RA a receptor for IL17A and IL17F. IL17F levels in serum have been correlated with therapy outcome earlier. However, expression and function of IL17RC in blood is unclear. We characterized IL17RC and interacting proteins in peripheral blood cells and serum samples in healthy individuals and MS patients.

OUTCOME OF BETA INTERFERON 1 ALPHA THERAPY IN MULTIPLE SCLEROSIS PATIENTS FROM INDIA

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Background: Reports of long term longitudinal follow up of Multiple Sclerosis patients using standardized assessments like Extended Disability Scale Scores (EDSS) and response to disease modifying therapy with Beta interferons are not available from India.

Aim: This is a longitudinal interventional study of 142 consecutive patients with RRMS treated with weekly intramuscular injections of IFN Beta-1a, at a tertiary care center for Multiple Sclerosis, at Chennai, India.

Methods and materials: The study included 142 RRMS patients who satisfied the McDonald's Criteria for MS, seen at the CVRF from 1999 till 2010. Routine evaluation including contrast enchance MRI, evoked potentials and CSF evaluation were done. Patients were treated with IFNBeta-1a (Avonex: 30 mcg/wk intra-muscularly).

Patients experienced at least 2 attacks in the 3 years prior to starting treatment with of IFN Beta-1a.

Results: Mean age at diagnosis was 33.2 (range- 19-57). There were 106 women and 36 men. Mean EDSS score was 3.5 (range 2.5 - 5.5) at baseline. Treatment with IFNBeta-1a for more than 2 years produced a 1-point reduction in the EDSS progression rate. In addition, the clinical attack rate and the MRI attack rate as measured by the median number of gadolinium enhancing lesions were reduced. No major adverse events were noted.

Conclusions: IFN Beta-1a reduces the biological activity of RRMS in Indian subjects with MS and improves both clinical and MRI outcomes. There was a 1-point reduction in EDSS progression rate and the tolerability of the drug was excellent in the Indian patients.

THE USE OF MONTHLY CYCLOPHOSPHAMIDE (CTX) IN PATIENTS WITH RECURRENT DEMYELINATING DISEASE IS SAFE AND EFFECTIVE

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Introduction: Demyelinating diseases such as multiple sclerosis (MS), recurrent neuromyelitis optica (RNMO), diseases associated with the presence of NMO-IgG (NMO-IgGrd), recurrent disseminated encephalomyelitis (RDE) and autoimmune diseases with primary involvement of the central nervous system (CNS) including systemic lupus erythematosus (SLE) and antiphospholipid syndrome (APS) are generally susceptible to individualized treatment and sometimes respond to monoclonal antibodies.

Objective: Demonstrate the safety and efficacy of monthly cyclophosphamide (CTX) in patients with recurrent demyelinating diseases with a management protocol of six months duration and a second bimonthly treatment schedule.

Methods: We carried out a longitudinal study among patients with recurrent demyelinating diseases with recent relapses and rapidly deteriorating forms (RD), RNMO, RDE and APS with primary CNS involvement. Patients attending at the NINN were recruited from January 2005 to date. Patients who had completed at least a 24 month follow-up period after the last dose of CTX were eligible.

Results: We studied 55 patients, 22 patients fulfilled criteria for SPMS, 14 for RRMS, 19 for NMO in recurrent or single episodes RDE, SLE and APS. The average EDSS before treatment was 5.0 and 4.5 at final follow-up, the rate of progression in patients with NMO and RRMS before treatment was 1.69 and 1.26 at follow-up; the pre-relapse rate was 1.33 and 1.05 at the end of the follow-up period. 73% of subjects showed improvement or stabilization.

Conclusions: The use of monthly CTX in a one year treatment is safe and effective in reducing relapse rate and slowing the rate of progression.

FINAL RESULTS OF THE SAME (SWISS ANALYSIS OF MULTIPLE SCLEROSIS) STUDY COMPARING 4 DISEASE-MODIFYING TREATMENTS FOR MULTIPLE SCLEROSIS

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Objective: Comparative multicenter clinical data are limited for multiple sclerosis (MS) patients on intramuscular (IM) interferon beta-1a (IFNβ-1a), subcutaneous (SC) IFNβ-1a, SC IFNβ-1b, and glatiramer acetate (GA). This retrospective study compared the efficacy and tolerability of these disease-modifying therapies (DMTs) in MS.

Methods: This multicenter, noninterventional, retrospective cohort study analyzed data from 546 clinically isolated syndrome (CIS) or relapsing-remitting MS (RRMS) patients treated with IFNβ or GA at 30 Swiss clinical sites. Patients were 18-65 years old and on only 1 DMT for at least 2 years. Mean annualized relapse rate (ARR) in the previous 2 years, mean Expanded Disability Status Scale (EDSS) score, and tolerability were assessed.

Results: Demographic data were comparable across DMTs, with overall mean CIS and RRMS durations of 6.1 and 9.6 years, respectively. DMT distribution was n=105 for IM IFNβ-1a (14.1% CIS), n=186 for SC IFNβ-1a (6.3% CIS), n=167 for IFNβ-1b (15.2% CIS), and n=88 for GA (10.0% CIS). There were no significant group differences in mean ARR over 2 years (IM IFNβ-1a, 0.27; SC IFNβ-1a, 0.29; IFNβ-1b, 0.22; GA, 0.24; *P*=0.370) or EDSS change between years 1 and 2 (*P*=0.752). Adverse events included flu-like symptoms (IM IFNβ-1a, 46.7%; SC IFNβ-1a, 39.8%; IFNβ-1b, 25.8%; GA, 2.3%) and injection-site reactions (IM IFNβ-1a, 10.5%; SC IFNβ-1a, 33.9%; IFNβ-1b, 38.3%; GA, 26.1%).

Conclusions: All DMTs showed comparable effects on MS relapse rate and EDSS change during the study period. The IM IFNβ-1a and GA cohorts had the lowest incidence of injection-site reactions and flu-like symptoms, respectively.

A CASE OF MULTIPLE SCLEROSIS ASSOCIATED WITH CHRONIC MYELOGENOUS LEUKEMIA

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Association between MS and CML is rare with diverse correlations. Some studies have shown that INF-Alfa can induce or aggravate MS. Conversely, other treatments of CML such as Imatinib and Hydroxyurea may be effective in management of MS. In this paper, we report association beween CML and MS in a 42 Y/O Iranian patient. He is a known case of CML since 4 years ago on Imatinib till 9 month ago. Imatinib was discontinued due to myelofibrosis and Hydroxyurea was started. Our patient seems to be a case of neglected MS, too. His complaint has started with lower limbs muscle weakness and paresthesia since 15 years ago and progressed gradually.Since 2 years ago, he has developed ataxia and paraparesis. On physical examination, paraparesis, increased DTR and upward plantar reflexes were detected. According to clinical signs, typical MRI (periventricular plaques some displaying characteristic configuration and orientation to corpus collososeptum) and other diagnostic works up (abnormal VEP and positive OCB in CSF), diagnosis of MS was made. He received methyl prednisolon and IVIG. His signs improved significantly. Meanwhile according to prolonged duration of patient´s neurological symptoms and diffuse brain plaques, we expected that he should have had more neurological dysfunction. It is reasonable to suggest that Imatinib and Hydroxyurea may have had protective effect on his MS course.

DEMOGRAPHIC, CLINICAL MANIFESTATIONS AND COURSE OF MULTIPLE SCLEROSIS A RETROSPECTIVE STUDY

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Introduction: Many international studies describe demographic and clinical course of multiple sclerosis. However, the profil of Moroccan patients is still unknown.

Aim of study: To report the clinical manifestations and the course of MS.

Methods: Moroccan Multiple sclerosis group which includes 4 neurological departments, had performed a retrospective study between January 2004 to June 2011.

Results: 554 MS patients with definite MS according to Mc Donald criteria were included in the study. Average age was respectively 28 years old +/- 8 at onset, and 32 years +/- 8 at diagnosis of MS. The sex ratio was 2.1. There were 61.3%. Relapse MS (RRMS) 26.2% secondary progressive MS (SPMS) and 12.5% primary progressive (PPMS). Average age of onset in RRMS is 28 ± 9 years old and for PP MS is 33 ± 5 years old. Average expanded disability status scale score was 3.2 ±2. at the time of diagnosis. Average time to reach the EDSS 3 or 4 is higher than 5 years for PP and RR MS. In PPMS, The time to reach EDSS of 6 is higher than 10 years. Average time between EDSS's scores 4 and 6 in progressive forms is 3.6±2 years. Patients were treated respectively by immunomodulatory of 37.6% and immuno-supressor 47.4%. 15% patients received only a pulse of Methylprednisolone.

Discussion and conclusion: Our results appear to be comprarable to the ones reported in the litterature. However after reaching EDSS 4, patients progress rapidly in a shorter time.

MULTIPLE SCLEROSIS IN GHANA?

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Introduction: Multiple sclerosis is known to be a rare presentation in sub-Saharan Africa, yet evidence is building up to the contrary. We present 33 cases of variants of demyelinating diseases using the ICD 10 G35-G37 classification seen in indigenous Ghanaians, who have been followed up since 2005.

Methodology: This was a retrospective study of patients attending the Neurology clinic with features of demyelination. Data of the clinical presentation, MRI findings, treatment regimen and outcome was acquired from case notes and coded using the ICD 10 G35-G37 system.

Results: 33 cases of demyelinating diseases excluding transverse myelitis were identified, with 29 females and 4 males, mean age 34 years with average disease duration of 3 years. Only 18% of the cohort had travelled abroad to the Northern hemisphere at or before diagnosis. Neuromyelitis optica, Acute demyelinating encephalomyelitis and Multiple sclerosis variants were seen in our cohort of patients MRI findings showed varied features of demyelinating plaques in the white matter, periventricular areas, cervical/thoracic cord, and syringomyelia which accounted for significant morbidity in patients. Treatment was mainly with IV methylprednisolone followed by tapered oral prednisolone, Azathioprine, Neurovitamins and physical therapy. 5 members of the cohort have died so far.

Conclusions: Demyelinating diseases are not as rare in Ghana as previously thought and should be actively sought and aggressively treated. Further analysis and prospective follow up of our cohort is needed in addition to specialized investigations. Furthermore, a support group, Sharecare4u of patients has been formed.

MULTIPLE SCLEROSIS AND HYPOVITAMINOSIS D IN MOROCCO

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Hypovitaminosis-D Is one of the most studied environmental risk factors for multiple sclerosis(MS). There are few data on the study of MS risk factors in Morocco. Despite sunshine, hypovitaminosis-D in the general population is not uncommon in Morocco.

The objective of this study is to assess the prevalence of hypovitaminosis-D in patients with MS in Morocco(Preliminary study).

A prospective study was conducted at Neurology Department, IBN ROCHD university hospital of Casablanca, between January and December 2010. MS patients were included according to McDonald-criteria, free of relapse and any Vitamin D treatment. Patients with an EDSS-score> 6 were excluded. Measurement of 25-OH-Vitamin-D was performed for each patient in the same laboratory by chemiluminescence. HypovitaminosisD was defined as a level of circulating 25-(OH)-D below 30ng/ml. Hypovitaminosis-D is severe if 25-OH-vitamin-D < 10ng/ml.

28 patients participated in the study, with a mean age of 37+/-15, sex-ratio of 1.8.The mean rate of 25-OH-Vitamin-D was 14.2ng/ml. Twenty seven patients(96%) had hypovitaminosis-D and 13 patients(46%) a severe deficiency(< 10ng/ml) of vitamin-D. A rate less than 15ng/ml was found in 75%.

The prevalence of hypovitaminosis-D in Morocco is not known, a study of health Moroccan women had estimated the rate at 91%. In this study 45% of cases had a rate of 25-OH-vitaminD below 15ng/ml.

Despite the high prevalence of hypovitaminosis-D in the general population we found a higher incidence of severe hypovitaminosis D in Moroccan patients with MS. This preliminary work encourages to investigate the causes of hypovitaminosis D in the Moroccan population and MS patients.

DEMYELINATING DISEASES AND MULTIPLE SCLEROSIS IN ARMENIA: AN EMERGING PROBLEM

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The growth in both of incidence and prevalence of Demyelinating Diseases (DD) in Armenia during last decade made DD an emerging medical problem. Total number of patients with DD at period of 1999-2010 increased four times. The reasons contributing to demyelination growth are known.

The aim of this study was to unveil possible factors, assess and re-evaluate all patients previously diagnosed with multiple sclerosis (MS), compare clinical and MRI or lab data.

Within framework of National MS Research special program for doctors and patients accordingly was implemented. Trained specialists provided evaluation and research, assessment of the quality of life, epidemiology and demographics of DD in Armenia.

During 10 years the number of patients with DD increased from 299 to 1240. We completed investigations among patients with DD diagnosed in 2009-2010: total number of new patients, who diagnosed with DD for the first time, was 123. For the first time in Armenia we proved that 7 patients, previously diagnosed with MS, had Lyme Neuroborreliosis (5.7%), 3 patients had CADASIL (2.4%), two had ADEM (1.6%). Clinically isolated syndrome was diagnosed in 6 patients (4.9%), Devic`s syndrome - in 8 (6.5%). The rest 97 (78.8%) were patients with MS. Remitting-relapsing form was in 69, secondary progressive - 27, and one had primary progressive form.

Conclusion: This is first report on research of MS in Armenia, proving the substantional growth of both incidence and prevalence of DD in the country. Investigation toward understanding of risk factors and quality of life are going on.

CLINICAL, PARACLINICAL AND EVOLUTING PROFILE OF MULTIPLE SCLEROSIS: ABOUT A SERIES OF 261 PATIENTS

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Introduction: Morocco is considered an area of low prevalence of multiple sclerosis (MS), but the MS epidemiology is poorly understood because of the limited number of epidemiological studies.

Work purpose: To specify the phenotypic, paraclinical characteristics and outcome of MS in a series of 261Moroccan patients and compare them with those in literature.

Patients and methods: Retrospective descriptive study of 261MS patients admitted in the Neurology Department of Ibnrochd University Hospital center of Casablanca from 1997 to 2010.

Results: Sex ratio was 2.03.Mean age of supervention was 29.6.Yearly rate of relapses was 0.93.Relapsing-remitting forms predominated (62.4%), followed by primary progressive forms(19.4%) and secondary progressive(18.2%)

Inaugural clinical features: motor manifestations in 51.4 % and brainstem affection in 43.7%,sensory affections in 28.8% and visual relapse in 20.7 %.

Cumulative analysis of our patients'clinical data showed predominance of deficitary pyramidal signs(57.1%) and brainstem affection(33.8%)

Since the first MRI,Barkhof diagnosis criteria were met in 90 %.CSF study revealed intrathecal synthesis of IgG in 60.2%.

Mean time to achieve to EDSS up to 6 was 16 years, with 0.82 as index of progression.Disease-modifying drugs were administred in 68.5 %.

Conclusion: Despite the limiting retrospective nature of our study, our series could confirm the severity of the clinical and evoluting profile of our patients compared to data in Western literature.

Our study is characterized by the importance of motor and brainstem impairment, with a high yearly incidence of relapses, and a lesion load on imaging precautiously important.

THE CLINICAL INAUGURAL MANIFESTATIONS OF RELAPSING-REMITTING MULTIPLE SCLEROSIS: STUDY OF 208 CASES

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Introduction: The aim of our work is to describe the inaugural clinical manifestations of relapsing-remitting multiple sclerosis (RRMS) by underlying their prognosis features and comparing them with literature data.

Patients and methods: A Retrospective study of patients files admitted in the neurology department of Ibn Rochd UHC of Casablanca for RRMS defined by the McDonald criteria reviewed in 2005, was carried out between 1997 and 2011.

The clinical, radiological, biological and functional criteria have been entered into the EDMUS database.

The authors have correlated the initial symptom type to the progression of the disease by using the progression index (PI) (Poser et al. 1982).

Results: 208 patients were identified with a sex ratio of 2W/1M. The onset mean age was 30 years with no significant differences between the various symptoms.

The main clinical demonstrations were the inaugural motor disorders (51%), sensory (29%), ataxia (25%) followed by optic neuritis (21%). The inaugural sphincter disorders were noticed in 6% of the cases.

Spatial dissemination radiological criteria were collected at the first thrust in 90% cases. The sphincter disorders were associated with the highest PI followed by ataxia and motors disorders. The PI was lower in cases of sensory disorders and optic neuritis.

Conclusion: In comparison with literature, this series is characterized by higher frequency of motor signs and ataxia in relation to sensory disorders and to optic neuritis. It also shows that certain symptoms can be correlated to worse prognosis, highly controversial notion in literature.

LATE ONSET MULTIPLE SCLEROSIS

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Introduction: Multiple sclerosis (MS) is typically diagnosed in the third/fourth decade of life. Late onset multiple sclerosis (LOMS) defined as the first presentation over 50 years is unusual and frequently misdiagnosed.

Aim: To describe the clinical and paraclinical characteristics of LOMS patients followed in our MS Clinic.

Methods: Among our whole MS population (n=507) we retrospectively reviewed the clinical protocols of all LOMS patients: demographical and clinical data; MRI, cerebrospinal fluid (CSF) and visual evoked potentials (VEPs).

Results: We found 17 patients (7 males, 10 females) with LOMS (3.35%), whose mean age at diagnosis was 58 years and mean disease duration until diagnosis was 3.2 years. Motor symptoms were the commonest presentation (41%); most patients had progressive forms (secondary and primary in 5 and 4 cases, respectively); relapsing-remitting course was seen in 7 patients and 1 patient had clinically isolated syndrome. Brain and spinal cord MRI showed typical lesions in 100% and 82% patients, respectively; CSF analyzed in 14 cases revealed oligoclonal bands in 79%; VEPs were positive in 61.5% of 13 tested patients. The mean EDSS was 4.4 (range 0-8.5) and the mean progression index (MSSS) was 6.14 (range 0.35-9.88).

Conclusion: The general characteristics of this LOMS series are similar to those elsewhere described, particularly as regards its low frequency in MS populations, high occurrence of motor function involvement and severe evolution. We highlight the lower female/male ratio, the higher frequency of progressive forms and the greater progression index than the usually reported in MS starting at younger ages.

PEDIATRIC ONSET MULTIPLE SCLEROSIS IN BLIDA -ALGERIA

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Objective: To evaluate the prevalence of pediatric onset multiple sclerosis and analyse clinical features and clinical course and outcome of multiple sclerosis in children

Design/methods: We performed prospective and retrospective study in patients with pediatric onset multiple sclerosis who were consecutively recruited at their clinical visits at the neurological department of Blida. All the patients aged 17 years or less with defined MS seen at neurological department were studied.

Results: The first demyelinising event before 17 years of age was observed in 18 patients representing 3% of all MS patients in our department. The female preponderance is clear. However, in 3 cases (2 male + 1 female) the disease begin before 11 years of age 11 .the mean age of onset is 14.60 .The familial MS was noted in 1 case. The interval between the first and second attack is around 5 years .Polyfocal symptoms at onset are manifested in 7 cases. In 2 cases the disease started with ADEM symptoms. Inaugural neuritis optic occurred in 4 subjects. The clinical course of MS is relapsing remitting in 17 cases from 18 and the progressive MS was observed only in 1 case. 14 subjects are treated with interferon.

Conclusion/ relevance: Clinical features of MS in pediatric population seem to be similar to MS in adult. The sex ratio female-male varies depending on age at first presentation. Onset of MS before age 10 years remains rare but with preponderance masculine. A larger female preponderance is clear in adolescent and adult.

VITAMIN D AND MULTIPLE SCLEROSIS - A PROSPECTIVE SURVEY OF 50 MOROCCAN PATIENTS

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Introduction: The risk of developing Multiple Sclerosis (MS) is determined by a combination of genetic and environmental factors. Only recently has the relation between serum concentrations of 25-hydroxyvitamin D and risk of developing MS been rigorously investigated.

Methods: We measured the 25-OH vitamin D serum level in 50 MS patients followed up in the department of Neurology at the university hospital of Fes- Morocco between 2007 and 2011 and in 50 controls matched for age, sex, date of blood sample analysis and for the chosen laboratory and measure of Vitamin D. All patients with vitamin D deficiency received vitamin D supplementation. After a 3 months supplementation, a second comparative clinical and radiological analysis was done.

Results: We search for correlations between 25-OH vitamin D serum levels and disability (EDSS), relapse rate during the previous year, MS form, number of T2 and T1 lesions and the number of T1 enhancing lesions. The same radio-clinical analysis is performed after vitamin D supplementation in MS patients with hypovitaminosis D.

Conclusion: Many studies showed than 25-OH vitamin D serum level is low in MS patients. These findings demonstrate the implication of vitamin D deficiency in the pathophysiology of MS and suggest that MS patients should be screened for vitamin D deficiency and given supplementation systematically when vitamin D deficiency is proven.

EPIDEMIOLOGY OF MULTIPLE SCLEROSIS IN NORTH AFRICA

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Introduction: North Africa was considered as a region of low frequency for MS and with a pattern and an evolution considered more severe compared to other regions such as Europe

Objectives: To describe frequency natural history and prognostic features of MS in North African population (Algeria Morocco and Tunisia,).

Methods: We reviewed litterature about epidemiology of MS in North Africa.In 5 neurological centers in Tunisia, Algeria and Marroco we reviewed. patients who fulfilled Mc Donald (2005/2010?) criteria for clinically definite MS. A common file was filled for statiscs analysis.

Results: We studied 975 patients. No difference was found between patients from the three countries . The prevalence of MS iwas found to be more than 20% per 100000. Sex ratio (F/M) was 2.15. From 1977 to 2011, the sex-ratio increased from 1.1 to 2 In Tunisian studies. North Africa, the mean age of onset was 29.2 ± 8.9 years and the duration of illness was 10.8 ± 6.6 years. The course was relapsing-remitting in 67% of patients, secondary progressive in 15% and primary progressive in 18%. The mean time for progressive onset was 8.45 years. Progression index was 0.49.

Conclusion: This is the first multicentric study in our region. Epidemiological features of MS are the same in the three North African countries. The present study showed a similar course of MS in patients in North Africa compared to other countries and the same trend in inceasing prevalence especially in women.

DEMOGRAPHIC AND CLINICAL CHARACTERISTICS OF MULTIPLE SCLEROSIS IN ALGERIA

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Multiple sclerosis (MS) is relatively frequent but scarcely documented in Algeria. The purpose of this study was to determine the clinical characteristics of Algerians patients affected with MS.

We performed a descriptive retrospective and prospective study of 983 patients (683 female,300 male) with clinically definite MS , followed in 5 Algerian departments of neurology between 2000-2011 including details of their clinical and laboratory features.

Mean age was 37.4 ± 9.64 years. The peak age of onset in our cohort was in the third decade and 70 % of them had the disease between 20 and 40 years. The mean duration of the disease was 8.1± 6.2 years .The female/male ratio was 2.3/1.0. A positive family history for MS was present in 5.9% of patients. Symptoms at onset were defined in all the patients: motor symptoms were present in 62.1 % patients, cerebellar in 41.3%, sensory in 44.7% and visual in 37.7%. 80% of the patients had a monosymptomatic onset. A RRMS was reported in 71.9%, SPMS in 17.3 % and PPMS in 10.2% patients. In this cohort of MS patients the majority had a benign to moderate rate of disease progression .Median EDSS was 3 (range 0-9). Progressive index was 0, 7.

We present the first MS multicenter study in Algeria. On the whole the clinical characteristics were similar to the previously described cohorts. Nevertheless motor and cerebellar signs at onset were more frequent in this cohort presaging a more severe disease outcome.

SCALABLE PROFILE OF MULTIPLE SCLEROSIS IN ALI AIT IDIR NEUROLOGY SERVICE

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Introduction: Multiple sclerosis (MS) is an inflammatory, autoimmune, demyelinating and degenerative central nervous system disease. It is considered as the first cause of non-traumatic disability of young adults.

Objective: Establishing the evolutionary profile and the clinical characteristics of patients having MS followed at E H S Ali Ait Idir.

Method: We report a retrospective analysis on cases of patients with an established MS (Mac Donald revised criteria 2005) hospitalized at least once in Ali Ait Idir neurology service (Algiers) between january2005 and june2O11.

Results: We put in details the results of this study which deals with clinical, evolutionary and therapeutic parameters.

AQUAPORIN-4 MRNA EXPRESSION IS GREATEST IN CNS TISSUES MOST SUSCEPTIBLE TO NEUROMYELITIS OPTICA PATHOLOGY

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Background: Neuromyelitis optica (NMO) is characterized by the presence of NMO-IgG that targets aquaporin-4 (AQP4). Few studies have addressed the expression of AQP4 in human optic nerve and spinal cord and none in CNS tissues from an NMO-IgG seropositive patient.

Objective: To evaluate AQP4 mRNA in NMO susceptible versus non-susceptible tissues and to compare AQP4 expression between a NMO patient and controls.

Method: CNS autopsy tissue was obtained from an NMO-IgG seropositive patient and six patients deceased for causes other than neurological. In four of the controls, only optic nerve was obtained. Kidney and liver were obtained as NMO “non-susceptible” tissues. mRNA was measured using Taqman-based hybridization probes and SYBR Green QPCR using oligoprimers designed to measure total AQP4, AQP4-M1 and AQP4-M23 isoforms and HPRT1. Results were normalized for the tissue with the highest expression.

Results: Similar results were obtained by TaqMan and SYBR Green assays. Optic nerve had the highest expression of total AQP4, followed by spinal cord (0.67), brain stem (0.27), brain cortex (0.07), kidney (0.01) and liver (0.0001). There was no significant differences between the expression of AQP4 in optic nerve of the NMO case and the optic nerve of six different control individuals. Because of the short segment of unique 3'-UTR specific sequence, design of a specific M23-isoform primers was unsuccessful.

Discussion: Tissues that are highly susceptible to NMO have greater expression of AQP4 mRNA than other CNS or non-CNS tissues. Further study of differences at the protein level, including evaluation of supramolecular aggregation is warranted.

ASSOCIATION BETWEEN THE PREVALENCE OF MULTIPLE SCLEROSIS AND ENVIRONMENTAL FACTORS IN LATIN AMERICA AND THE CARIBBEAN: AN ECOLOGICAL STUDY

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Objective: To analyze the association between the prevalence of multiple sclerosis (MS) and particular risk factors. To set up a statistical model to estimate the ratio of prevalence variation explained by the independent variables. To form a multicenter collaborative group in Latin America and Caribbean countries for the study of multiple sclerosis.

Methods: This was an ecological study to analyze the association between collective exposure characteristics and the risk of MS. A total of 28 studies from 15 LAC countries were included in the study.

Variables: Prevalence, latitude, sun exposure, ethnia, altitude, temperature, ultraviolet radiation (UV) and education. We analyzed the correlation between MS prevalence and each independent variable. The multivariate analysis (multiple linear regression) included those variables where p value was similar or lower than 0.25. The application conditions of the model were verified. The ratio of the prevalence variation was estimated by means of the R2 value explained by the model.

Results: LAC countries have low-medium prevalence rates (or less than 50 cases per 100,000). The bivariate analysis showed a statistically significant association between MS prevalence and geographic area, ethnia and altitude ($p < 0.05$) with a R2 value of 0.758.

Conclusion: LAC countries provide evidence that environmental factors act at the population level to influence common geographic distribution of MS. Similarly, this study showed the role of ethnicity or ancestral background as a possible genetic explanation for the geographic dispersion.

GEEMAL: Grupo Colaborativo Multicéntrico para el Estudio de la Esclerosis Multiple en America Latina y el Caribe (Melcon CM, Bartoloni LC, Cristiano E, Duran JC, Grzesiuk AK, Y. Da. Fragoso, Bidin Brooks JB, Diaz V, Romero García KM, Cabrera Gomez JA, Abad P, Macías Islas MA, Gracia F, Hamuy Diaz de Bedoya VF, Córdova Ruiz ME, Hackembruch HJ, Oehninger C, Soto A)

CLINICAL PROFILE OF MULTIPLE SCLEROSIS PATIENTS IN MONGOLIA

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Objective: To determine the prevalence of Mongolian demyelinating diseases regarding demographic data, symptoms and signs, disease progression and imaging findings.

Methods: A retrospective study of 62 MS patients attending the Shastin Central Hospital and First Central Hospital of Ulaanbaatar during 2006-2010 years was performed. Baseline data included history, presenting symptoms and signs, investigations, particularly MRI and treatments.

Results: Fifty-four patients (93.6%) were classified as clinically definite MS, four patients (6.4%) as Devic's syndrome. There were 51 females (82.25%) and 11 males (17.75%) with female:male ratio of 4.8:1. The age at onset was 30 ± 10 years. The mean disease duration was 4.5+3.5 years and the mean number of relapses was 2.5±2.3 with annual relapse rate 1.1 ± 0.9 times. The relapsing remitting course was in 74.19% patients, followed by 16.1% secondary progressive MS and 3% primary progressive MS. Non reported a family history of MS. The first symptom of 23 (37.03%) patients was optico-spinal , 21 (33.87%) had optic signs. Most common presenting symptom was visual impairment (70,9%) . Magnetic resonance imaging showed demyelinating lesions in 81.81% patients. 90% of patients used methylprednisoloni during attack, non used any disease -modifying drugs.

Conclusions: Mongolian MS patients had clinical forms different from Western countries. There were no occurrence of MS in families, higher incidence of visual impairment at onset , more common recurrent opticospinal clinical course. Disease-modifying drugs still don't used in MS patients.

NEUROMYELITIS OPTICA: STUDY OF 31 CASES

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Introduction: We report a series of neuromyelitis optica (NMO) and discuss the epidemiological, clinical and prognosis specifities of this entity.

Methods: Retrospective study based on patients files with NMO, followed in the neurologic department of Ibn Rochd UHC of Casablanca, between January 2000 and May 2011. The NMO diagnosis was defined with respect to Wingerchuk's (1999) criteria.

Results: Thirty-one patients were included: 22 women and 9 men, with a 39 years old mean age. 77.4% of the cases were relapsing forms. The mean delay between the first relapse and the diagnosis for NMO was 36.3 months. Optic neuritis was inaugural in 58% of the cases. Of the 12 patients tested, 4 cases were NMO-IgG-positive.

An associated pathology was noted in 58% of the cases dominated by pulmonary tuberculosis (3 cases) and Gougerot Sjogren´s syndrome (4 cases).

The treatment protocol evoluted from corticotherapy alone, to its combination with cyclophosphamide and later the use of plasmapheresis, intravenous immunoglobulin, and ultimately the use of other immunosuppressors (monoclonal antibodies, mitoxantrone).

The first episode of optic neuritis was blinding at least for one eye in 45.2% of the cases. Inaugural myelitis led to the ambulation loss in 22.6% of the cases. 16% of our patients died upon severe myelitis.

Conclusion: The comparison of our study to literature series allows us to conclude to the NMO severity in our country as well as to the multiple sclerosis and its frequent association with other diseases including tuberculosis.

A CASE SERIES OF CHRONIC RELAPSING INFLAMMATORY OPTIC NEUROPATHY (CRION)

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Background: Chronic relapsing inflammatory optic neuropathy (CRION) is a recently described syndrome characterized by a generally bilateral decreased visual acuity, associated with pain and a relapsing-remitting course. It responds favorably to steroid treatment. An association with granulomatous optic neuritis has been put forth.

Objective: Determine the prevalence of CRION among Mexican patients and describe socio-demographic and clinical characteristics in these patients, as well as the presence of NMO IgG antibody and the possible development of a full clinical spectrum of neuromielitis optica (NMO) .

Methods: We carried out a descriptive analytic study in patients diagnosed with relapsing-remitting optic neuritis, older than 15 years of age at diagnosis. Exclusion criteria included the presence of an associated autoimmune disease.

Results: We selected 10 patients (8 women and 2 men) with a mean age of 40 years (range 20- 50 years), with an average recurrence of 4.2 years (range 2 - 10). All participating patients had bilateral visual involvement. The follow-up was 24 months during which 90% of patients displayed a decrease of visual acuity. Two patients were positive for NMO IgG autoantibody and were treated with Rituximab (1 gr IV) and to date are symptom free.

Conclusions: Syndromic CRION is an entity that primarily affects women (8:2) with an age range of 20-50 years (χ= 40). It involves both optic nerves and severe sequelae. A determination of NMO-IgG is warranted among these patients as it plays a crucial role in treatment choice and functional outcome.

MULTIPLE SCLEROSIS IN SRI LANKA - A SOUTH ASIAN REGIONAL COMPARISON

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Introduction: Multiple sclerosis (MS) is uncommon in Sri Lanka (SL) . A significant increase in the number of clinically definite MS cases seen, may be due to wider MR usage, awareness and facilities.

In this study clinical characteristics of 35 Sri Lankan MS cases are descriptively analyzed. This is the largest such series to date here. Cases were diagnosed using revised McDonald´s Criteria. Results were compared with similar regional studies.

Results: Caucasian ancestry in 1. No F/H.

Age at onset was 29.86Y. Females (87%). Pyramidal and sensory in 73%. Optic N in 70%. Bladder 50%. Cerebellar 53%. Epilepsy and tremor 6.6%. Fatigue 36.6% and pain 26.6%. Devic's type 3.3%.

RRMS 50%, SPMS 26.6%, PPMS 20% and PRMS 3%.

MR brain done in all. 94% (33/35) satisfied MR brain criteria (Barkof) for MS. Periventricular /Dawson's fingers (100%), Corpus Callosal (67.8%), Cerebellar (26.6%), Brain stem (40%), T1H Black holes (36.6%). GAD enhancement 65.7%. Spinal imaging 62.8%. 17/22 had cord lesions. Oligoclonal bands (OCB) only in 5. Serum NMO-Ig G - 2 tested 1 positive. IVMP 93.3%. Interferone beta in 5/35. One Natalizumab(US).

50% fully independent. 26.6% mostly WC- 23.3% walking with constant support-

Conclusion: Western- type is the predominant form of MS in native populations of Sri Lanka and other South Asian countries. Devic´s type was rare.Clinical characteristics of MS in the region seems very similar. In our series and in the region significant disability was found amongst patients.

ANTI-JCV ANTIBODY PREVALENCE ACROSS A MULTINATIONAL COHORT OF MULTIPLE SCLEROSIS PATIENTS

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Objectives: Progressive multifocal leukoencephalopathy (PML) risk in patients treated with natalizumab can be stratified according to anti-JCV antibody serostatus, duration of natalizumab therapy, and prior immunosuppressive use. The aim of this study is to evaluate anti-JCV seroprevalence across different geographies and examine factors associated with prevalence.

Methods: Serum from MS patients in 5 countries: Denmark (n=1073), Germany (n=2586), Israel (n=377), Italy (n=378), and Sweden (n=1134) was tested for anti-JCV antibodies using an analytically validated 2-step ELISA. A logistic regression model was used to compare antibody prevalence across groups; all possible pairwise comparisons were made using the model estimates. Cochran Q test and the I^2 index were used to test for heterogeneity across the groups.

Results: Overall, anti-JCV antibody prevalence in the multinational cohort was 57.1%; Denmark 52.5%; Germany 58.8%; Israel 57.6%; Italy 57.9%; Sweden 57.0%. By an unadjusted logistic regression model, patients in the region with the lowest prevalence (Denmark) were less likely to test anti-JCV antibody positive compared with German (OR=0.77; 95% CI: 0.67-0.89) and Swedish (OR=0.83; 95% CI: 0.71-0.99) patients. No other significant differences were observed. There was significant heterogeneity across the studies (Q=10.74, P=0.03) with a high magnitude (I^2=62.8% of the heterogeneity between the studies is caused by true heterogeneity and not sampling error).

Conclusions: Anti-JCV antibody prevalence was similar (52.5%-58.8%) in the various geographic regions studied. The overall prevalence (57.1%) was consistent with results from previous trials. Analyses are ongoing to determine patient factors associated with anti-JCV antibody prevalence.

THE ROLE OF ASTROCYTES IN AN ANIMAL MODEL OF MULTIPLE SCLEROSIS GREY MATTER DEMYELINATION

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Objectives: We previously described an association between glia limitans damage and cortical grey matter demyelination in human postmortem multiple sclerosis cases. Here we characterise astrocyte changes at the pial surface in a rat model of grey matter demyelination to evaluate the consequence of decreased barrier function in the propagation of meningeal inflammation.

Methods: Rats were immunised with a sub-clinical dose of myelin oligodendrogyte glycoprotein (MOG) followed by injection of pro-inflammatory cytokines (TNF-α and IFN-γ) into the subarachnoid space. Using immunofluorescence labelling of the glia limitans (GFAP) and basal lamina (Laminin) layers on coronal cryosections of the cerebrum, analysis of disruption was carried out using both quantitative and semi-quantitative methods. Leakage of serum protein across a disrupted glia limitans and consequent demyelination and inflammatory activation in the subpial region were further assessed.

Results: A significant early disruption of the glia limitans was present in rats receiving cytokine injections as opposed to non-cytokine controls ($p < 0.05$). Extravasated fibrinogen within the subarachnoid space showed leakage into the parenchyma across sites of glia limitans damage. Extensive demyelination and number of Iba-1 positive microglia/macrophages within the parenchyma were both associated with sites of glia limitans disruption.

Conclusion: Our results demonstrate an early disruption in the pial glia limitans barrier and we suggest a cytokine-mediated mechanism of glial retraction as a cause of such damage. Resulting leakage of CSF proteins and subsequent immune cell activation within the parenchyma may create an inflammatory milieu that contributes to grey matter pathology.

AGE-ASSOCIATED ALTERATIONS OF MONOAMINE OXIDASE, MEMBRANE FLUIDITY, NEUROLIPOFUSCIN AND GLUCOSE TRANSPORTER IN MALE RAT BRAIN: NEUROPROTECTIVE ROLE OF DEHYDROEPIANDROSTERONE

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Introduction: Dehydroepiandrosterone (DHEA), one of the major steroid hormones, and its ester have recently received attention with regard to aging and age-related diseases like Alzheimer 's disease. These changes increase during aging when the level of DHEA is decreased. DHEA is synthesized de novo in the brain and its substantial fall with age has been shown to be associated with neuronal vulnerability to neurotoxicity processes.

Objective: The objective of this study was to observe the changes in activitiy of monoamine oxidase (MAO), glucose transporter-4 levels (GLUT-4), membrane fluidity, lipid peroxidation levels and neurolipofuscin accumulation occurring in aging male rat brain, and to see whether these changes are restored to normal levels after exogenous administration of DHEA.

Methods: The aged male rats (4, 14 and 24 months age group) were given subcutaneous injection of DHEA (30 mg/kg/day for 1 month).

Results: The results obtained in the present work revealed that normal aging was associated with significant increases in the activity of MAO, lipid peroxidation levels and neurolipofuscin accumulation in the brains 4, 14 and 24 months age group male rats, and a decrease in GLUT-4 and membrane fluidity. Administration of DHEA brought these changes to near normalcy.

Conclusions: It can therefore be suggested that DHEA's beneficial effects seemed to arise from its antioxidant, , antilipofuscin, antilipidperoxidative and thereby neuroprotective actions.

THERAPEUTIC EFFECT OF FASUDIL ON EXPERIMENTAL AUTOIMMUNE ENCEPHALOMYELITIS (EAE) MICE BY REGULATING INF-Γ, IL-10 AND IL-17

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Purpose: To explore the potential therapeutic effect of Fasudil and its cellular and molecular mechanisms in mice affected with EAE.

Methods: EAE was induced with MOG_{35-55} in C57BL/6 mice. Fasudil was intraperitoneally injected in a dosage of 50mg/kg·d from day 6 post-immunization (p.i.), and followed by 13 consecutive days. Injection of saline into mice was set up as control. On day 18 p.i, splenic mononuclear cells (MNCs) were prepared, and cultured in the presence or absence of MOG_{35-55} in vitro. The supernatants were harvested for the detection of cytokines by ELISA, and the brains were dissected for the measurement of inflammatory cell infiltration and demyelination by immunohistochemistry.

Results: The differences of incidence, body weight and mean maximum clinical scores were statistically significant between Fasudil-treated mice and control EAE mice ($p< 0.05$). Typical “muff-like” inflammatory cell infiltration and demyelination were detected in brains of control EAE mice, but were decreased obviously after intervention of Fasudil. The levels of splenic INF-γ and IL-17 were also declined in mice treated with Fasudil compared with control EAE mice. In contrast, the production of IL-10 was increased in mice treated with Fasudil ($p< 0.05$).

Conclusions: Fasudil, a Rho kinase inhibitor, decreases the incidence rate, relieves the clinical severity and prevents inflammatory cell infiltration and demyelination in EAE mice possibly through the inhibition of INF-γ and IL-17 production and the up-regulation of IL-10 secretion.

GREY MATTER PATHOLOGY IN MULTIPLE SCLEROSIS: ABOUT 182 PATIENTS

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Background: Multiple sclerosis (MS) has been classically regarded as a white matter disease. However, recent histopathological studies have convincingly shown that grey matter (GM) regions are also heavily affected. Detection of GM lesions by use of standard MRI techniques has proved challenging.

Objectives: To determine the characteristic of GM lesions brain by use of conventional MRI.

Methods: It is a retrospective study concerning 182 MS patients definite according to the criteria of McDonald 2010 in our department of neurology. Plaques were analyzed for lesion length and location, signal intensity, and morphology with study of the relation between cortical atrophy and clinical characteristics.

Results: 182 consecutive patients with clinically diagnosed MS, constituted 66 male and 116 female patients between the ages of 20 and 63 years. All the patients underwent brain MRIs on a 1.5 Tesla Magnet. The lesions were varied in size from 4 mm x 3 mm to 12 mm x 7 mm and were particularly well seen in the juxtacortical and periventricular regions. They were situated in the juxtacortical region in 160 patients and in basal ganglia in 2 patients. The brain atrophy is diffuse in 31 patients at first MRI. A correlation between atrophy and number of black holes (p=0.018) and between atrophy and disability was demonstrated.

Conclusion: GM pathology already occurs early in MS and accumulates substantially with progressing disease. At present we are unsure of the causes of demyelination and degeneration of neuroaxonal elements in GM regions in MS.

ATYPICAL CLINICAL AND IMAGIOLOGICAL MANIFESTATIONS CONFOUNDING THE DIAGNOSIS OF MS - TWO CASE REPORTS

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Introduction: MS is a diagnosis of exclusion that may be confounded by the presence of atypical clinical manifestations or laboratory conditions which suggest alternative diagnosis.

Case report:

Case 1: Male, 48 years with epilepsy since childhood, who in 2005 presents multiple expansive brain lesions, interpreted as mycotic abscesses from histopathology, with resolution after amphotericin B, with associated idiopathic lymphopenia. In 2007 he presents with Herpes Zoster's myeloradiculopathy, without improvement with acyclovir but good response to methylprednisolone. In 2009, the increasing number of brain lesions in supra and infratentorial regions suggested MS. He started glatiramer acetate, with clinical improvement and stabilization.

Case 2: Male, 20 years, with pyramidal signs of the left limbs and left hemihypoesthesia with 8 days of evolution. MRI revealed multiple lesions in the supra and infratentorial white matter and a cervical lesion, with the same characteristics, interpreted as tuberculomas. Due to clinical progression he began anti-mycobacterial treatment, without improvement. Biopsy of the cervical lesion revealed a schwannoma. Given the imaging features and the presence of positive oligoclonal bands in CSF, MS was diagnosed, with improvement after methylprednisolone. There were new lesions on control brain MRI. He started natalizumab, with a new relapse after the first treatment.

Conclusion: MS is an essentially clinical diagnosis and is necessary to exclude all other diagnoses that can mimic or mask the disease. In our cases the presence of atypical manifestations contributed to the delay in diagnosis and initiation of immunomodulatory therapy.

AN INVESTIGATION OF THE RETINAL NERVE FIBER LAYER IN MULTIPLE SCLEROSIS BY USING OPTICAL COHERENCE TOMOGRAPHY

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The thinning of the retinal nerve fiber layer (RNFL) was suggested to correlate with diffuse axonal loss in patients with multiple sclerosis (MS). Optical coherence tomography (OCT) allows to quantify the axonal damage. The purpose of our prospective controlled study was to investigate the RNFL thickness in patients with MS and to compare with controls.100 eyes of 50 MS patients with and without history of optic neuritis (ON) and 100 eyes of 50 healthy people were evaluated. Patient with a recent diagnosis of ON, with a history of glaucoma, other retinal or optic nerve disease and refractive error + - 2D were excluded.Circular peripapillary scan of diameter 3,4 mm and fast macular thickness scan were carried out.The mean peripapillary RNFL thickness was in MS eyes 90,0µm, in the MS eyes with ON 79,8µm, in the MS eyes without ON 95,3µm and in the controls 100,7µm. The mean RNFL thickness in macula was in MS eyes 29,5µm, in the MS eyes with ON 27,7µm, in the MS eyes without ON 31,0µm and in the controls 30,3µm. The mean macular volume was in MS eyes 6,6mm^3, in the MS eyes with ON 6,3mm^3, in the S eyes without ON 6,8mm^3 and in the controls 7,1mm^3.Thinning of RNFL thickness of patient with MS was detectable with time domain OCT. Peripapillary RNFL thickness was significantly reduced in MS patients. Measurements of macular volume were less significant and no significant differences were observed in macular RNFL.

IMAGING OF PSEUDOTUMORAL MULTIPLE SCLEROSIS ABOUT 7 CASES

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Aim: Know imaging aspects of multiple sclerosis pseudotumoral forms.

Recognize the signs of inflammatory injury against a tumor-like lesion on imaging.

Methods: 7 cases of pseudotumoral multiple sclerosis collected in the neuroradiology department in collaboration with the neurology department between 2006 and 2011, explored by MRI.

Results: MRI showed 4 cases of giant plates, 1 case of Marburg form and 2 cases of Balo concentric sclerosis

In 3 cases, spectroscopic MRI was performed and led to correct diagnosis. In 1 case, stereotactic biopsy was necessary to diagnosis.

Conclusion: MRI is the imaging of choice for investigation of demyelinating disease, thanks to its excellent contrast, the ability to acquire multiplanar, and extremely useful new sequences, including MR spectroscopy, since these pseudo forms can mimic a tumor-glial tumor, lymphoma or metastasis.

CORRELATION BETWEEN MRI FINDINGS AND BAD PROGNOSTICS FEATURES AMONG SUDANESE PATIENTS WITH MULTIPLE SCLEROSIS

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Objective: The purpose of this study is to determine the correlation between MRI findings and bad prognostic features among Sudanese patients presented with multiple sclerosis.

Methods: This aprospective, cross-sectional.descriotive, hospital based study. Fifty patients with multiple sclerosis seen in Elshab Teaching Hospital in the period between August 2006-April 2008 were included in the study.

Results: 30 out of 35 patients with motor symptoms had periventriculr plaques and out of 21 patients with cerebellar symptoms 18 had cerebellar plaques and 21 had periventricular plaques indicating significant correlation between them based on EDSS. Two out of four patients with primary progressive MS showed significant correlation with spinal cord plaques. No significant correlation was found between site of plaques and bladder dysfunction. Significant correlation was found between late presentation of MS and periventricular plaques as well as other sites like basal ganglia, subcortical region and corpus collosum. No significant correlation was found between late presentation of MS and brain stem, cerebellum or spinal cord plaques.

Conclusion: Strong correlation between the site of MS plaques seen on MRI and bad prognostic feature of MS was seen in most of our studied group.

RADIOLOGICALLY ISOLATED SYNDROME AND CEREBRAL ARTERIO-VENOUS MALFORMATION: SIMPLE CO-OCCURRENCE OR SEQUENTIAL?

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Background/objective: An impaired cerebrospinal venous drainage, defined as chronic cerebrospinal venous insufficiency (CCSVI), has been recently identified to be the possible cause of multiple sclerosis (MS). We report a case of simultaneously arterio-venous malformations (AVM) and radiological isolated syndrome (RIS) suggestive of MS. The possible mechanisms of this rare association are discussed.

Methods: A review of the literature revealed only one case of demonstrated association of MS with an AVM (found incidentally at autopsy of a 63 yr old woman with a 25-yr-history of MS) Ho et al, Cancer 1981.

Result: A 30-year-old woman had enjoyed good health until 2 years ago when she experienced tinnitus, headaches followed by loss of consciousness associated with jerking movements of the left arm. A similar episode was repeated 3 months later leading to discovery on cerebral MRI of a right temporal AVM and multiple inflammatory lesions (with evidence of dissemination in space and time highly suggestive of RIS). DSA/AG: right temporo-parietal 30x27x21mm AVM; intranidal aneurysms were present. Distal branches of right MCA serve as efferent vessel. Venous drainage was superficial through cortical veins into SLS.

Conclusion: Abnormal cerebral venous reflux is peculiar to MS. Our case supports the possible cause-effect relationship between CCSVI and RIS (potential MS). Further studies are warranted to clarify whether possible abnormal venous reflux induced by AVM is associated with later or different disease stages of MS.

CLINICAL SPECTRUM OF THE LONGITUDINALLY EXTENSIVE TRANSVERSE MYELITIS (LETM)

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Detection of an LETM lesion on MRI has been regarded as the most specific indicator of NMO spectrum disorders (NMOsd). But, LETM indicates a radiologically defined syndrome rather than a specific disease entity. Evidence has been piling up that LETM appears in various diseases. Our object was to clarify the clinical spectrum of LETM and to approach its nosology.

After reviewing our myelitis registry, we identified 58 patients with LETM who had been admitted to Ajou University Medical Center between 2002 and 2010.

Of the 58 patients with LETM, 23 (39.7%) patients experienced clinical relapse and 20% showed NMO-IgG seropositivity. Lesions predominantly affected thoracic or cervical cord. Among the etiologies, idiopathic LETM was most frequent (35, 60%), followed by NMOsd (14, 21%). 4 (7%) patients were suspected of having a parainfectious etiology, 3 of viral myelitis, and 2 of multiple sclerosis. There was a male predominance in idiopathic LETM compared to NMOsd (p=0.00). NMOsd (10.4±6.1) had longer spinal cord involvement than idiopathic (5.7±3.9). Patients with parainfectious and viral myelitis showed more extensive cord involvement (11.0±4.5) and worse discharge EDSS (7.4±3.0). Autoantibodies such as ANA were frequently detected in NMOsd, while high levels of IgE and seropositivity to D. farinae and *Toxocara canis* were predominantly detected in idiopathic LETM. Looking on relapse, idiopathic LETMs recurred at the same site as the previous lesion, while NMOsd exhibited space dissemination in cord level.

LETM comprises a very heterogeneous spectrum of diseases. Depending on etiologies, there are distinct clinical, radiological, and immunological characteristics.

DEVIC´S SYNDROME, SYRINGOMYELOBULBITIS AND POSITIVE ANTI-AQUAPORIN -4 ANTIBODIES IN THE CSF DURING A SJOGREN´S SYNDROME

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Introduction: During Devic´s syndrome, the evolution of extensive myelitis to medullar cavity is a classical finding. We report a situation where the medullar cavity associated to bulbar extension (syringomyelobulbia) was symptomatic of a medullar relapse.

Case report: A 56 year-old woman, who experienced a benign optic and medullar relapse at 4 months intervals was diagnosed as having Devic´s syndrome. Two months later, she was hospitalized for severe acute myelopathy. Neurological exam found a right Brown-Sequard syndrome, associated to syringomyelitis syndrome. Spinal imaging during the relapse showed an extended syringomyelobulbia while brain imaging was normal. The paraclinical assessment also allowed maintaining a primary defined Gougerot Sjogren´s syndrome. Anti-aquaporin 4 antibodies were positive in the cerebrospinal fluid (CSF). Corticosteroids, plasma exchange and Mitoxantrone gave a partial improvement.

Discussion / conclusion: Presence of anti-aquaporin -4 antibodies in the CSF associated to an auto-immune disease (Sjogren syndrome) and symptom improvement after plasmapheresis are in favour of an inflammatory and non-degenerative nature of this extensive myelopathy.

The authors discuss throughout this case, the pathogenic hypotheses of formation of intra-medullar cavitation during the inflammatory myelopathy and the possible role of Ac anti-aquaporin-4.

BALÓ S CONCENTRIC SCLEROSIS - CASE REPORTS

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Balò's concentric sclerosis (BCS) is a rare primary demyelinating disease of central nervous system and is considered to be a variant of Multiple sclerosis. It is characterized by a severe, rapidly evolving course with CNS lesions consisting of concentric rings of demyelination alternating with myelination in the white matter. We report 3 patients with BCS from Slovakia diagnosed on MRI results. Two patients with contrast enhanced ring lesions, had simultaneously multiple small white matter lesions in both the hemispheres. Inspite of first severe attacks of the disease, these patients had a good response to corticosteroids and had a benign prognosis during a follow-up period of next two years.

DETERMINATION OF REGIONAL CALLOSAL AND CINGULATE GYRUS ATROPHY IN EARLY STAGES OF RELAPSING-REMITTING MULTIPLE SCLEROSIS

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Objectives: To determine the degree and distribution of atrophy in five segments of the corpus callosum (CC) and the cingulate gyrus (CG) by quantitative volumetric analysis.

Methods: Twenty-eight patients with early stages of relapsing-remitting multiple sclerosis (RRMS) (7 males; mean age 30.8 years ± 8.8; mean disease duration 2.96 years ± 2.3; mean, EDSS 0.8 ± 0.66) and thirty healthy controls (HC) (7 males; mean age 31.6 years ± 6.1) underwent brain exams in a 3T scanner (Phillips Achieva, Best). 3DT1 sequences (TE/TR: minimum / 450-650ms, slice: 1mm, matrix size: 240 x 240) were processed using FreeSurfer software to obtain volumetric measurements and automatic CG and CC segmentations. ANOVA tests were applied and a $p < 0.05$ was considered significant.

Results: The RRMS presented significant reduction in the CC volume (mean 2.99cm^3 ± 0.55) compared to the HC (mean 3.41cm^3 ± 0.36). All but one segment of the CC (corresponding to genu and rostrum) were significantly smaller in RRMS and the three posterior segments (posterior midbody, isthmum and splenium) presented more significant differences. Although the global volume measurements of the CG and its segments were slightly decreased in RRMS, it did not reached a significant level.

Discussion: Patients with early stages of RRMS can already present signs of brain degeneration, reflected by tissue atrophy. The chronic aggression to myelin and white matter can precede the permanent neuronal loss, so, probably for that reason the predominant tissue atrophy is seen earlier in highly myelinated areas than in the cortical gyri.

CENTRAL NERVOUS SYSTEM IMAGING IN MULTIPLE SCLEROSIS

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Introduction: Multiple sclerosis (MS) is a demyelinating disease of central nervous system characterized clinically by a variety of neurological deficits. The diagnosis and management of patients with MS requires magnetic resonance imaging (MRI). The aim of this study is to describe magnetic resonance imaging features in the MS.

Methods and materials: It is a retrospectively collected data from patients who presented at the radiology departement of Ibn Tofail Hospital in marrakech, Morocco with MS from 2000 to 2007.A group of 66 consecutive patients diagnosed with a MS was selected.

Results: Brain lesions were hyperintense on T2 and FLAIR sequences in 98% of patients. Hypointensities on T1weighted images lesions were observed in 50%. The lesions were located in the periventricular zone (91%), in juxtacortical regions (82%), in the brain stem (51%), and in the cerebellum (33%). The brain atrophy was found in 14% of the cases. Spinal cord lesions were observed in 83% of cases as T2 hyperintensities. T1 hypointense lesions of the spinal cord were found in 15% of cases. Spinal lesions were located at the cervical level in 97%. The spinal atrophy was observed in 15%.

Conclusion: MRI is a sensitif tool for the diagnosis of the MS . Hyperintensities on T2 or FLAIR sequences are the main finding in patients with MS but are not specific . Cerebral atrophy occurs very early in the course of the disease. The correlations between clinical findings and radiological abnormalities identified on MRI conventional sequences remain poor.

POST-MALARIA MYASTHENIA GRAVIS CASE REPORT

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Objective: To document malaria as a possible predisposing factor for myasthenia gravis(MG).

Background: To the best of our knowledge this is the first case of MG following malaria which is a common infectious disease in our region.

Design and methods: We report a 9 year girl admitted to a sudanese rural hospital with high grade fever,neck stiffness & headache,followed 3 days later by complete drooping of the left eyelid with restriction of the gaze medially.She was referred to a specialized children hospital in the capital Khartoum where she was diagnosed as a case of cerebral malaria with signs of meningism as documented by a positive blood film for malaria(+ve BFFM).She received quinine therapy & IV antibiotic(ceftrixone),her general condition&eye signs improved partially.No generalized fatigue or limb weakness&no bulbar symptoms.Three weeks after admission in Khartoum children hospital,reexamination revealed no papilledema,partial unilateral left eye ptosis(+ve Fatiguable ptosis),weak frontalis,strong orbicularis oculi(OOc)&no ophthalmoplegia.Limb muscle bulk,strength and reflexes were normal except for weakness of neck flexors,fingers extensors&knee flexors(power grade4 in all of them).

Investigations results: Repetitive nerve stimulation studies at 3 Hz of the left facial/nasalis showed decremental response of (-15%).SFEMG test was done using concentric needle performing voluntary activation technique.Jitter was increased in left frontalis(36µs)&left extensor digitorum communis(38µs)but normal in left OOc(28µs).Acetylcholine receptor&MuSK antibodies were negative.She has been treated with pyridostigmine 30mg qds.Seven days later she showed remarkable improvement.She was almost back to normal.

Conclusion: It appears that we are dealing with a rather rare presentation of post-malaria MG.This patient is on regular follow up,doing well with no recurrence of symptoms.

SINGLE-FIBER ELECTROMYOGRAPHY (SFEMG) STUDY IN CHILDREN WITH MYASTHENIA GRAVIS

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Objectives: This study aimed at estimating the jitter in children with myasthenia gravis[MG]:using concentric needle electrode[CN],performing the two standard methods of stimulation[VA-voluntary activation&AS-axonal stimulation]&targeting various muscle groups;Extensor Digitorum Communis muscle(EDC),Orbicularis Oculi(OOc),frontalis&Tibialis Anterior.

Background: No available data concerning jitter measurement in Sudanese myasthenic children,in addition to scarcity of data worldwide.

Design/methods: Prospectively 20 children with MG(6 males&14females,mean age11.2±5.0years,range 4-18 years)had participated in jitter estimation.The VA technique was used in the majority of patients.Jitter values were expressed as the mean consecutive difference(MCD)of 30potential pairs in **µs.**

Results: RNS(repetitive nerve stimulation)was positive in13 out of 18 tested patients.Performing VA the mean MCD of 20 EDC muscles was 53.4±13.4µs(range31.1-83.2µs),the mean MCD for individual potential pairs was 53.3±39.4µs(range11.7-665.4µs),the mean%of recordings with abnormal fiber pairs was42±17(range13-94)&the mean%of recordings with blocks was23±17(range0-64).Using AS the mean MCD of 4 EDC muscles was36.5±9.5µs(range22.4-42.1µs),for individual pairs was34.8±26.5µs(range9.8-176.4µs),the mean%of recordings with abnormal fiber pairs was 31±19(range3-46)&the mean%of recordings with blocks was17±13(range0-33).The mean MCD of 17 VA-OOc muscles was60.8±34.3(range28.2-165.4µs),for individual pairs was58.8±51.1µs(range8.4-437.8µs),the mean%of recordings with abnormal fiber pairs was45±28(range4-92)&the mean%of recordings with blocks was26±25(range0-80).Regarding VA-Frontalis,the mean MCD of 15 muscles was58.0±15.7µs(range28.9-87.1µs),for individual pairs was55.1±34.7µs(range10.5-242.0µs),the mean%of recordings with abnormal fiber pairs was52±23(range13-87)&the mean%of recordings with blocks was31±21(range 0-67).Finally the mean MCD of 11 VA-Tibialis Anterior muscles was46.8±14.7µs(range28.6-82.3µs),for individual pairs was47.9±31.0µs(range7.2-226.2µs),the mean%of recordings with abnormal fiber pairs was31±21(range5-71)&the mean%of recordings with blocks was17±14(range0-45).

Conclusion: The mean MCD in myasthenic children using both VA&AS methods had been calculated in different muscles.What characterizes this study is that the VA method had been used in the majority of myasthenic children.

TWO SISTERS WITH MASSIVE LIPID STORAGE IN MUSCLE AND CARNITINE DEFICIENCY

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Objective: To report two sisters with a metabolic myopathy.

Case report: We present two sisters with lipid storage myopathy (LSM) the first was a 22y/o extremely thin and weak girl, that since two years presented progressive upper arm, trunk, lower limb weakness, she had myalgias, exercise intolerance episodes of hypoglicemia (31 mg/dl), vomiting, loss of weight (10kg) high CK (15.000 U/L); she was fed by nasogastric tube and became virtually quadriplegic. CK decreased to 302 U/L, aldolase (21,8 U/L) and gamma-GT were elevated. Muscle MRI revealed oedema and atrophy of upper girdle muscles. A psychiatric consultation excluded anorexia nervosa. The second sister was a 28 year old plump female, that since 4 years had a progressive history of lower limb weakness and was diagnosed by a rheumathologist as a “polymyositis” , however she did not respond to IVIg, methotrexate or steroids.

Materials and methods: Muscle was investigated by appropriate morphological and biochemical investigations. Acylcarnitine were analyzed in serum.

Results: In the first sister the diagnostic muscle biopsy showed massive lipid storage. There was carnitine deficiency both in plasma 6,8 nMol/ml (normal 36.2 -72.9) and in muscle 4.3 nMol/mg protein (control 10.5-29.4) but acylcarnitine profile was normal. In the other sister a repeated muscle biopsy showed LSM low muscle carnitine: 1,77 nMol/mg protein. Carnitine riboflavin supplementation of first case reverted muscle weakness, weight increased, nasogastric tube was removed.

Conclusion: We show the importance of accurate biochemical studies in severe muscle weakness of unexplained origin.

PRIMARY ALDESTERONISM AND HYPOKALEMIC PERIODIC PARALYSIS: CASE REPORT

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Primary aldosteronism is a disorder typically characterized by resistant hypertension hypokalemia and metabolic alkalosis. Muscle cramps, excessive muscle weakness and muscle paralysis can be found due to hypokalemia. A 61 year old hypertensive man admitted to our clinic with intermittant paralysis. Laboratory findings showed hypokalemia and elevation of the serum creatinine phosphokinase levels suggesting that the patient had hypokalemic paralysis. Primary aldosteronism due to adenoma was found in further evaluations. Further studies aldosteronism may be needed for patient presenting with hypokalemic weakness and high blood pressure.

MYASTHENIA GRAVIS; SINGLE ENTITY, VARIABLE CLINICAL FEATURES: 10 YEARS OF CLINICAL EXPERIENCE IN A TERTIARY CARE CENTER

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Aims: The purpose of this study is to review 10 years experience of a tertiary care center documenting the data of 132 Myasthenia Gravis (MG) patients. Special attention has been focused on two subgroups; thymoma associated and pure ocular MG patients.

Methods: Patients evaluated between 2000-2010 and followed at least one year were included. The demographic properties, course of the disease, immunological parameters, treatment responses were reviewed. The effect of thymectomy has been retrospectively determined by Myasthenia Gravis Foundation of America (MGFA) Postintervention Status.

Results: The mean age of onset was 38.64±17.61 (10-75) years. 37.9 % of patients presented with isolated ocular symptoms. 62 % of these patients were generalized. The mean time to generalization was 12.67±11.9 months. 16.13 % were generalized after the second year of disease. It is noteworthy that three patients generalized in a time period as 120, 156 and 240 months. In the pure ocular MG subgroup, six patients had thymoma whereas two had thymic hyperplasia. 15.79 % of seronegative patients had thymic hyperplasia while one of them had thymoma. Twenty-five patients with thymoma had thymectomy. 44 % of patients were evaluated as Minimal Manifestations-3, 16 % as Pharmacologic Remission and 8 % as Complete Stable Remission after two years of follow-up.

Conclusion: Our study demonstrates that ocular onset MG patients can develop generalized form in an unpredicted time period varying between 1-240 months. The presence of thymus pathology in our seronegative and pure ocular patients showed the necessity to scan these groups for thymic pathology.

SECONDARY DYSKALAEMIC PARALYSIS: FOUR CASES

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Dyskalaemic paralysis (DP) are rare disorders characterized by acute muscle weakness which occurs when serum potassium level falls below 3 mEq/l or exceeds 7 mEq/l. Primary genetic DP are more common than secondary DP. We report four patients with secondary DP of various etiologies.

Our patients, three men and one woman, aged 13, 17, 26 and 43 years, presented an acute flaccid tetraplegia. Electrophysiological examination was normal in all cases. Hypokalaemia was found in 3 cases and one patient had hyperkalaemia. Among the three cases with hypokalaemia, one patient had chronic diarrhea with diagnosis of celiac disease, the second patient had a familial history of distal tubular acidosis disease, and the third had congenital adrenal hyperplasia syndrome. The case with hyperkalaemic paralysis was diabetic and had hyperglycemia with hypoinsulinisme.

Correction of electrolyte disorders led to a complete recovery in all cases.

DP are uncommon but potentially life-threatening. The neurological symptomatology is more frequent in hypokalaemia than in hyperkalaemia, in which cardiac complications are usually the presenting form. Sporadic cases are associated with several etiologies, like renal disorders, endocrinopathies and gastro-intestinal potassium losses in hypokalaemia. Spironolactone intake associated with renal failure is the most common cause of secondary hyperkalaemic paralysis.

Serum potassium level has to be assessed in case of acute flaccid tetraplegia, and an etiological research should be performed, guided by clinical and familial context. It is important to recognize such syndromes and treat them appropriately, in order to improve life-prognosis and optimize clinical recovering without sequellae.

MUSCULAR DYSTROPHY: HISTOLOGICAL AND IMMUNOHISTOCHEMICAL STUDY - EXPERIENCE OF PATHOLOGY DEPARTMENT OF HOSPITAL OF SPECIALTIES- ABOUT 226 CASES

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Aim: Muscular dystrophies are hereditary degenerative diseases of skeletal muscles. Their diagnosis is confirmed by histological and immunohistochemical examination of muscle biopsies, and genetic analysis. The aim of our study is to determine the epidemiological profile of muscular dystrophy in our population.

Material and methods: This is a retrospective study of 226 cases of muscular dystrophy, collected at the Laboratory of Pathology of the Hospital of Specialties in Rabat over a period of 12 years (1999-2010).

We studied surgical muscle biopsies by using standard staining (HE, trichrome, PAS), methods of histo-enzymology (SDH, NADH). The immunohistochemical examination was performed in all cases, using anti-dystrophin 1, 2 and 3, anti-sarcoglycan α, β, □, □ and anti-merosin. The anti-dysferlin antibody was used from 2007.

Results: Our series was composed of 144 male patients and 82 female with a mean age of 28.07 years. On the histological and immunohistochemical study, we found 38.05% of dystrophinopathies; 27.87% of sarcoglycanopathies essentially □ type (24.77%), 3.53% of dysferlinopathy, 3.09% of congenital muscular dystrophy due to deficiency of merosin.

In 27,5% of cases, no protein deficiency has been identified.

Conclusion: The immunohistochemical panel that we have allowed us to classify muscular dystrophies in 72.56% of cases. The design of new antibody market and the development of molecular biology will broaden the scope of the diagnostic.

MUSCLE DYSTROPHY DUE TO DYSFERLIN DEFICIENCY: A PHENOTYPE STUDY OF 17 MOROCCAN FAMILIES

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Dysferlin deficiency is responsible for different phenotypes of muscle dystrophies including limb girdle syndrome and distal myopathy. This work aims to give a phenotype description of dysferlin deficient patients belonging to 17 Moroccan families.

All patients underwent clinical evaluation for muscle impairment distribution and orthopedic signs, CK dosage, electroneuromyography and muscle biopsy with immunocytochemistry for dystrophin, sarcoglycans and dysferlin.

Eighteen patients aged 14 to 57 years were examined. There were 11 males and 7 females. Age at onset was 20,9±7,4 years (range: 12 to 35). 13 families had an established consanguinity, 9 families had more than 1 affected member and 4 families had isolated cases. The phenotypes were as follows: Myoshi type in 7 patients, limb girdle syndrome was isolated in 4, associated to lower limbs distal muscles involvement in 4, to biceps brachialis muscles deficit in 2 and to tibialis anterior impairment in 1 patient. CK level was 1.5 to 6 X normal value. All patients had dystrophic changes on muscle biopsy with absence of dysferlin where as dystrophin and sarcoglycans were normal on immunocytochemistry. Functional disability was variable, 2 patients were wheel chair bound at the ages of 23 and 38 years respectively.

Dysferlin deficiency was identified in 41.5% of muscle dytrophy families with limb girdle and/or distal muscles impairment in our series. It seems to represent the second cause of muscle dystrophies in Morocco after sarcoglycanopathies. A screening for the responsible dysferlin gene mutations is necessary to identify a probable founder mutation in our population.

CARDIAC MANAGEMENT IN NEUROMUSCULAR DISEASES: A MOROCCAN EXPERIENCE AND A LITERATURE REVIEW

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Introduction: Neuromuscular Diseases are a heterogeneous molecular, clinical and prognosis group. Progress has been achieved in the understanding and classification of these diseases.

Cardiac involvement in neuromuscular diseases, namely conduction disorders, ventricular arrhythmias and dilated cardiomyopathy with its impact on prognosis, is often dissociated from the peripheral myopathy. Therefore, close surveillance is mandatory in the affected patients. In this context, preventive therapy (beta-blockers and angiotensin converting enzyme inhibitors) has been recently recommended in the most common Neuromuscular Diseases, Duchenne Muscular Dystrophy and Myotonic Dystrophy.

Methods: We report a series of patients with neuromuscular diseases in whom we assessed cardiac involvement and initiated a therapy. From January 2007 to June 2011, 105 patients were referred to cardiology visit by a neurologist or peadiatrist.

Results: There were 49 female and 56 male with a mean age of 28 years old. Limb-Girdle muscular dystrophies, Myotonic Dystrophy (MD), and Duchenne / Becker Muscular Dystrophy (DMD, BMD) are the major neuromuscular diseases in our series. Cardiac symptoms were found in 54 patients, ECG was often abnormal (96 patients) and 10 patients had a left ventricular dysfunction. Therapy with beta-blockers and angiotensin converting enzyme inhibitors was initiated in 37 patients, 5 patients had Cardiovascular Implantable Electronic Devices.

Conclusion: A close collaboration between Cardiologists and referral physicians is mandatory for a better management of cardiology involvement in neuromuscular diseases.

CAN TEMPERATURE PLAY AN IMPORTANT ROLE IN ALS GENESIS?

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Objectives: Our aim is to investigate if changes in environmental temperature play a role in onset of ALS in Argentina.

Methods: Medical records of 241 ALS patients (El Escorial criteria) from 1994 to 2010 were reviewed. Patients were questioned about month and year of disease onset, first symptom and place of residence. Data about temperature were taken from archives of National Weather Agency.

Data were divided in two groups: warm (over 17°C) and cold (≤ 17C°) according to the mean temperature for geographical distribution, month and year of onset of symptoms.

Results: Mean age was 55,35 +/- 12,65; 63% were male. Symptoms began on upper limbs in 36%, 30% lower limbs and 25% bulbar. By the time the illness started, 62% of the patients lived in City of Buenos Aires, 27% in the state of Buenos Aires and 11% in the remaining states.

We observed a bimodal peak curve in the onset of ALS. One peak was in December-January (warm weather) and the other peak was in June (cold weather). In 60% of patients the disease began in warm weather.

Bulbar/spinal onset ALS was 28,3%/ 71,7% (warm) and 27,6%/ 72,4% (cold).

Conclusion: Onset of ALS was observed more often in December-January and June. In our study group 60% started their disease in a warm and 40% in cold weather. This may determine two populations of patients, those who start in warm or colder weather.

BRAIN MAGNETIC RESONANCE SPECTROSCOPY FINDING IN PATIENTS WITH MITOCHONDRIAL CHRONIC PROGRESSIVE EXTERNAL OPHTHALOMOPLEGIA

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Background: Mitochondrial chronic progressive external ophthalomoplegia (CPEO) is the most common form of mitochondrial myopathies. Some rare previous reports suggest that Magnetic resonance imaging (MRI) and MR spectroscopy (MRS) can be helpful in the diagnosis of CPEO.

Objective: To identify the most common brain MRI and MRS findings in patients with CPEO

Design: Case-control study

Patients: Two groups were enrolled in this study; the 1st group contains 5 patients with CPEO and the second group contains 6 matched healthy controls.

Results: Brain MRI morphologic abnormalities were found in all 5 patients. The most frequent abnormalities were white matter hyperintensity and supratentorial cortical atrophy. On MRS study no pick of lactates was identified, but we identify in 3 patients a reduction of the NAA/creatin ratio in the white matter hyperintensity. The MRS of the other metabolites (creatine, choline, NAA..) as well in normal and abnormal brain areas were comparable between patients and controls.

Conclusions: To date, no pathonmonic correlation between specific genetic defect and neuroimaging findings have been described. However, certain neuroimaging results can give important clues. MRS may demonstrate high levels of lactate or succinate. When found, these results are suggestive of a mitochondrial disease. MRI and MRS studies may also show non-specific findings such as delayed myelination or non-specific leukodystrophy picture. Once a diagnosis has been established, these non-invasive tools can also aid in following disease progression and evaluate the effects of therapeutic interventions.

MIYOSHI MYOPATHY DUE TO A NOVEL HOMOZYGOUS DYSFERLIN MUTATION 5907 G>C

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Objective: To report a novel mutation in the DYSF gene causing miyoshi myopathy.

Background: Dysferlinopathies encompass a group of autosomal recessive muscle disorders, limb girdle muscular dystrophy type 2b, miyoshi myopathy and distal myopathy with anterior tibial onset. Mutations at position 5907 have not been reported.

Methods: A 19-year-old Saudi female presented with 6 years of lower extremity weakness that began with toe standing s. She underwent an evaluation that included a clinical examination, serum CK, EMG and NCS, muscle biopsy, dysferlin monocyte testing (I. Illa, Barcelona) and DYSF gene sequencing (Athena Diagnostics).

Results: She had a typical miyoshi phenotype with posterior compartment lower extremity and biceps muscle weakness. The serum CK was greater than 10,000 IU/l. EMG was suggestive of an irritative myopathy. An open muscle biopsy revealed the absence of sarcolemmal staining by 2 anti-dysferlin antibodies. Monocyte testing demonstrated a complete absence of dysferlin. Genetic testing revealed a homozygous mutation 5907 G>C that resulted in a Tryptophan > Cysteine at codon 1969. No other abnormal sequence variants were identified.

Conclusions: Dysferlinopathy with a miyoshi myopathy phenotype may be caused by a homozygous mutation 5907 G>C resulting in an amino acid change tryptophan> Cysteine.

CHALLENGES IN THE MANAGEMENT OF SEVERE GENERALIZED MYASTHENIA GRAVIS IN RESOURCE-LIMITED SETTINGS: CASE REPORT OF MYASTHENIA GRAVIS IN PREGNANCY

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Background: Myasthenia gravis is an autoimmune neuromuscular junction disease, which can exacerbate during pregnancy. The management of severe generalized myasthenia gravis usually requires the use of intravenous immunoglobulin or plasma exchange, and these are usually inaccessible in resource-limited settings.

Case: We report the case of a 31-year old woman who presented with ptosis, generalized weakness, dysphagia, dysphonia and respiratory difficulties on a 13-week pregnancy. The pyridostigmine test was positive. Serum acetylcholine receptor antibodies were positive (titer at 0.4nmol/l). ENMG revealed a decrement of 60% on repetitive stimulation. She was classified as severe generalized myasthenia gravis and treated with oral anticholinesterase and corticosteroid therapy. During a 6-week period, there were frequent exacerbations with refractory bulbar dysfunction and respiratory difficulties. In spite of resuscitative measures and a nasogastric tube for feeding and medications, the severe course of her condition led a therapeutic termination of her pregnancy. There was gradual remission of her symptoms within the first week after this intervention and she gradually became autonomous.

Conclusion: Myasthenia gravis has variable effects on pregnancy, with a frequent worsening of the clinical symptoms. The management of severe exacerbations in resource-limited settings sometimes requires a therapeutic termination of pregnancy for maternal survival.

CONGENITAL MUSCULAR DYSTROPHY: CLINICAL AND PATHOLOGICAL STUDY OF 18 MOROCCAN FAMILIES

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The congenital muscular dystrophies (CMD) are an heterogeneous group of inherited muscle disorders mostly autosomal recessive.

We have undertaken a detailed study of the clinical features, muscle pathology with immunocytochemistry and brain imaging in 18 families of having CMD in relation to the merosin status collected in the service of neurophysiology (from September 1998 to September 2010).

We report a case series of 18 families of CMD. There was twelve females and seven males. Parents consanguinity was found in 16 families with similar cases in siblings in seven cases. The clinical picture was that of congenital hypotonia with muscle weakness, delayed motor acquisition and tendon contractures. Immunocytochemistry showed that merosin was absent in 14 cases (80%) and present in 4 cases. In the merosin-deficient cases, the maximum motor achievement was independent walking in 3, walking with support in 3 and sitting unsupported in 6. In contrast, all of the merosin- positive cases achieved independent ambulation. In addition, 14 of the merosin-deficient cases had a high creatine kinase level, and tow merosin-positive cases had the less degree of elevation. Magnetic resonance imaging (MRI) of the brain was carried out on 16 of the children. All four merosin-positive cases had normal scans whereas all eleven of the merosin-deficient cases who underwent brain MRI had significant changes in the white matter.

This study demonstrates that children with merosin-deficient CMD had a more severe clinical phenotype and associated white matter changes on brain imaging.

HYPOKALEMIC PARALYSIS REVEALING CONN ADENOMA

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Introduction: Hypokalemic paralysis is a rare neurological manifestation. It is primitive in most cases, or secondary to a heterogeneous set of disorders such as Addison´s disease, renal tubular necrosis, villous rectum adenoma and Conn adenoma.

Work purpose: We report a case of hypokalemic paralysis, revealing a Conn adenoma.

Case report: A 37 year old woman , without medical history, showing for 5 years recurrent episodes of limb weakness that last up to 15 days, cramps and distal paresthesia. The physical examination found a distal and proximal tetraparesis and high blood pressure . On paraclinical assessment : a profound hypokalemia, a hyperaldosteronemia, a decreased plasma renin, an electric left ventricular hypertrophy and a myogenic pattern in electromyogram.

Abdominal CT revealed Conn adenoma which was confirmed by histology.

The evolution was marked by symptoms improvement after hypokalemia adjustment and absence of relapse after surgery.

Discussion and conclusion: Conn adenoma is a rare condition that often affects 30 to 50 year old women. This is the most common cause of secondary hypertension.

It is most often hardly symptomatic, revealed by hypertension or by its complications and / or by hypokalemia signs (nocturnal polyuria, muscle cramps, abnormal heart rhythm). It rarely happens that hypokalemia is deep enough to cause weakness.

It is recommended that conn adenoma is an etiology that should be sought in case of hypokalemic paralysis especially in presence of hyperaldosteronism signs (hypertension ,hypernatremia) due to its curability.

SCREENING FOR LARGE DELETIONS OF MITOCHONDRIAL DNA IN MOROCCAN PATIENTS WITH MITOCHONDRIAL MYOPATHIES

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Purpose: To investigate the contribution of large deletions of mitochondrial DNA (mtDNA) in Moroccan patients with mitochondrial myopathies.

Patients and method: 19 patients with clinical, pathological and biological features of mitochondrial myopathies were included in this study. Kearns-Sayre syndrome (KSS) was expected in six patients, mitochondrial encephalomyopathy, lactic acidosis, and stroke-like episodes (MELAS) in four patients. The remaining patients did not have a specific clinical feature.

DNA was extracted from muscle biopsy using the phenol-chloroform standard method. Large deletions were screened using long fragment PCR with two pairs of primers in order to amplify almost the entire coding region of mtDNA (13Kb and 15Kb).

Results: The 5 Kb deletion commonly found in KSS, was identified in 4 patients (with muscle weakness, ptosis and progressive external ophthalmoplegia). This result confirmed the diagnosis of KSS. Multiple deletions were also characterized in one patient with weakness of upper and lower limbs, Babinski´s syndrome, a bilateral cataract and a high level of lactate at rest. Muscle biopsy showed ragged red fibers (RRF) in all patients.

Conclusion: This is the first report of large deletions in mtDNA from Moroccan patients with mitochondrial myopathies. This study will contribute to early diagnosis, genetic counselling and prevention of mitochondrial myopathies.

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DL-3-N-BUTYLPHTHALIDE EXTENDS SURVIVAL BY ATTENUATING GLIAL ACTIVATION IN A MOUSE MODEL OF AMYOTROPHIC LATERAL SCLEROSIS

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Amyotrophic lateral sclerosis (ALS) is a lethal neurodegenerative disease characterized by progressive muscular atrophy, paralysis and bulbar symptoms. Transgenic mice over-expressing human mutant Cu/Zn superoxide dismutase-1 (SOD1) mimicked the pathological phenotype of ALS. DL-3-n-butylphthalide (DL-NBP) has demonstrated neuroprotective efficacy in cerebral ischemia, vascular dementia, and Alzheimer's disease. In the current study, we examined the therapeutic efficacy of DL-NBP in Tg(SOD1-G93A) transgenic mice, a well-studied model of ALS. Following the symptomatic onset of disease, oral administration of DL-NBP significantly improved motor performance, extended the survival interval, attenuated motor neuron loss, and delayed motor unit reduction compared to vehicle controls. These observations were further corroborated by the significant reduction in immunoreactivity of CD-11b and glial fibrillary acidic protein (GFAP), markers for microglia and astrocytes, respectively. Additionally, downregulation of NF-κB p65 and TNF-α protein levels and upregulation of Nrf2 was found in the spinal cord of Tg(SOD1-G93A) mice treated by DL-NBP. These results suggest that DL-BNP might be a promising compound in the treatment of ALS.

DUCHENNE/BECKER MUSCULAR DYSTROPHY (DMD/BMD) - IMPACT ON QUALITY OF LIFE IN FIRST DEGREE FEMALES. FIRST PILOT STUDY IN BULGARIA

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Objective: To explore the burden of carrying DMD/BMD mutations.

Background: This is the first study to explore disease impact on first degree female relatives of DMD/BMD boys in Bulgaria. The severity of the disease and lack of cure has an impact not only on the patients and their parents but on the sisters with the risk of being carriers.

Methods: Sisters of DMD/BMD boys were asked 4 fixed study specific questions in a scale of 1-10 (1, no impact to 10, worse) and 1 open question in a mail survey. Further both mothers and sisters were asked questions on prevention and personal choices.

Results: 75% of the surveys were completed in a 3-month period (n=12 sisters and n=18 mothers). Unanimous agreement reached on the need for carriers test (sisters - 100%; mothers 94.4%); decision for prenatal diagnosis (sisters - 91.7%; mothers - 94.4%) and pregnancy termination if fetus affected (sisters - 100%; mothers - 83.3%). Main negative impact reported on family planning (8.1) and negative emotions (8.7) while the family supports (6.7) and caregiver burden (6.8) had lower scores. The response of the sisters may have been influenced by the number of years spend with their sick brothers (19.1 from the average brother's life of 20.6 years). Important personal stories were collected in the open questions and will be evaluated separately.

Conclusions: Some of the outcomes may not be changing in a large study given the unanimous agreement however collected comments provide a good basis for the next study.

SINGLE CASES OF POLYDERMATOMYOSITIS

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Introduction: Polydermatomyositis (PDM) are autoimmune inflammatory diseases, inwhich the involvement of muscles jeopardizes the functional prognosis (motor impairment), and, when undiagnosed or left untreated could sometimes be life threatening (cardio-respiratory dysfunction). The aim ofthis study is to review single case presentations of PDM seen at aDepartment of Internal Medicine.

Materials and methods: The study is about 4 female patients with a mean age of 31 (21-41), part of a cohort of 15 patients (20%) seen between January 1996 to December 2010.

Results: Revealing signs were muscular in 3 cases, cutaneous in 3, pulmonary in 1.The diagnosis was established based on labs with elevated CPK (7 timesnormal value ranging from 5-15), abnormal EMG changes, and pathology findings. The immune system assessment revealed anti-JO in 1 case, and anti-phospholipids antibodies in another case. The particular association oflung disease and abnormal skin representing antisynthetase syndrome was seen in 1 case, myocardial involvement in 1, cutaneous ulcerations in 1 case,kidney involvement in 1 case, and a bilateral synovitis on the knees in 1 case.In addition to specific therapies, basic treatment relies on steroids and requires the use of polyvalent immunoglobulins in 2, andimmunosuppressants in 2 cases respectively. The outcome toward abalancing of heart involvement in 1 case, motor impairment in 1 case, anddeath from a multi-organs failure (antisynthetase syndrome).

Conclusion: PDM are heteregenous auto-immune diseases associating primarily cutaneous and muscular abnormalities, and other organs (kidneys, joints, lungs) leading to diverses entities, such as the antisynthetase syndrome, with evolving profiles and variable prognoses.

DOUBLE TROUBLE IN A PATIENT WITH MYOTONIA

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Introduction: Non-dystrophic myotonias (NDMs) are characterized by muscle stiffness during voluntary movement due to delayed skeletal muscle relaxation caused by mutations in the chloride (CLCN1) or sodium (SCN4A) skeletal muscle channel genes. Late onset acid maltase deficiency (AMD) is characterized by progressive respiratory and proximal muscle weakness; electrical but not clinical myotonia can be observed.

Case report: A 31-year-old man with a dominant sodium channel NDM presented with severe dyspnea, orthopnea, and progressive limb-girdle weakness since age 27. The diagnosis of sodium channel NDM was established at age 13 based on autosomal dominant inheritance, clinical myotonia without clear warm-up, not exacerbated by cold/potassium/high carbohydrate meals, and not associated with weakness. Needle electromyography showed diffuse myotonia. Short and long exercise tests and limited mutation analysis of CLCN1 and SCN4A (T1313M, R1448C) were normal. His current examination shows eyelid and grip myotonia, percussion myotonia, lordotic gait, and symmetric grade 4 limb-girdle weakness. Ultrasound-guided phrenic nerve conduction revealed absent diaphragmatic movement and unevocable diaphragmatic motor responses. Laboratory results included a forced expiratory volume in 1 second of 1.64 L (34% predicted) and a serum creatine kinase of 1, 600. Short exercise nerve conduction with cooling was normal (Fournier pattern 3). DNA testing for myotonic dystrophy type 1 (DM1) and type 2 (DM2) was negative. Muscle biopsy showed central vacuoles and increased periodic acid-Schiff staining, consistent with acid maltase deficiency. Muscle acid maltase was 0.37 µmol/gm (normal: 1.74-9.98 µmol/gm). Patient is receiving Lumizyme®.

Conclusion: This is a unique case of concurrent rare neuromuscular disorders.

CLINICAL FEATURES AND LONG-TERM PROGNOSIS OF SYMPTOMATIC PATIENTS WITH THE A3243G MUTATION OF MITOCHONDRIAL DNA

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Background: To investigate the clinical phenotypes and the outcomes of patients with mitochondrial disease and the A3243G mutation of mitochondrial DNA (mtDNA) in a Taiwanese population, and to compare these with previous reports.

Methods: We retrospectively studied 22 consecutive patients with mitochondrial disease and the A3243G mutation of mtDNA in Chang Gung Memorial Hospital between 1988 and 2009. All of them underwent a detailed demographic registration, neurological examinations, a muscle biopsy, and mitochondrial DNA analysis. Modified Rankin scale, the presence of recurrent strokes or seizures, critical medical complications, and death were monitored during the follow-up period.

Results: Of the 22 patients, seizures and stroke-like episodes were found in 12 (55%). Visceral involvement, including cardiomyopathy, nephropathy, and pulmonary hypertension, were noted in 5 (23%). Patients with seizures had a high frequency of status epilepticus (92%) and a younger age of onset (21.3 ± 7.2 years). Both the Kaplan-Meier survival analysis and the Cox-regression model showed a marked deterioration in patients with seizures after 7 years of follow-up.

Conclusion: Our study found that seizures and status epilepticus are the most important predictive values for a poor outcome in patients with the mtA3243G mutation of mtDNA. Age of onset and visceral organ involvement had no prominent influence on the prognosis. Some medical complications could be well-controlled or even reversed after management.

CONTRIBUTION OF ANTI-RYANODINE RECEPTOR ANTIBODY TO IMPAIRMENT OF EXCITATION-CONTRACTION COUPLING IN MYASTHENIA GRAVIS

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Objective: The aim of this study was to elucidate the relationship between the impairment of excitation-contraction (E-C) coupling and anti-ryanodine receptor (RyR) antibody in patients with myasthenia gravis (MG).

Methods: Masseteric compound muscle action potential (CMAP) and mandibular movement-related potentials (MRP) were recorded simultaneously after stimulating the trigeminal motor nerve with a needle electrode. The E-C coupling time (ECCT) was calculated as the latency difference between CMAP and MRP. For each patient, we selected a representative data set when there was no abnormal decrement in response to repetitive nerve stimulation. The 26 data sets were divided into an anti-RyR-positive group (n=12) and an anti-RyR-negative group (n=14).

Results: Masseteric ECCT was significantly longer (p=0.017) in anti-RyR-positive group (median, mean, range; 3.6, 3.8, 3.0-5.9 ms) than in anti-RyR-negative group (3.1, 3.1, 2.7-4.0) although there were no significant differences in masseteric CMAP amplitude and %decrement between the two groups. The bite force was significantly lower in anti-RyR-positive group than in normal controls.

Conclusions: Presence of anti-RyR antibodies is associated with significantly prolonged masseteric ECCT compared to absence of the antibodies in MG. Anti-RyR antibody contributes to E-C coupling impairment in the masseter muscle in patients with MG.

EPIDEMIOLOGY AND PREVALENCE OF GBS ASSOCIATED RISKS IN SINGAPORE

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Singapore is a small country, with an estimated population of 4.8 million in 2009. Each year, there are reported incidences of Guillain-Barré Syndrome (GBS), however its prevalence is uncertain**.**

A prospective data collection was done between February 2010 and May 2011. The GBS patients that were admitted to two major public hospitals, that covers a third of Singapore's population, were enrolled in the study. The diagnosis was confirmed by neurologists using a standard criterion and the Brighton case definitions. Information on sex, age, and onset of symptoms and immunization exposures were recorded. Vaccination information were verified using vaccination records and phone calls to the clinics. A total of 42 patients were diagnosed with GBS, Brighton scale was variable, and with more patients having GBS 4A compared to MFS 4A. The ratio of men to women is 2:1 with the mean age of 49.8. The youngest patient was 19 and the oldest was 80 years old. On an average, an interval of 5.6 days elapsed before patients start to seek treatment. 17% had URTI symptoms with only 2% complained of diarrhea prior to the onset of GBS. 5 patients had exposure to H1N1 vaccine; 1 received meningococcal, and another received oral polio and tetanus toxoid together with the H1N1 vaccine. 5 had travel history to Asia This data was collected in collaboration with the International Collaborative Case Series Safety Monitoring for Pandemic 2009 H1N1 vaccines.

A REGIONAL COLLABORATIVE DATABASE OF PATIENTS WITH MYASTHENIA GRAVIS IN SOUTH EAST ASIA

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Background: In 2009, a group of South East Asian neurologists, Special Interest Group in Myasthenia gravis in Asia (SIGMA), created a collaborative patient database to improve management of MG throughout the region.

Aim: To study the demographics, clinical features, diagnostic methods, treatment and clinical outcome of MG patients in South East Asia. We present the preliminary data.

Method: After obtaining informed consent, each patient's data is entered into a designated web-portal that has been configured to analyse the information automatically.

Results: Four hundred and twelve patients have been recruited from Thailand, Singapore, Malaysia, Philippines and Indonesia. Two-thirds are females; peak age group is 50-59 years. Fifty-eight percent have generalized MG, a quarter of whom started with ocular MG. At time of recruitment, 58 % had good disease control. Acetylcholine receptor antibody test, because of uneven availability, was not performed in 51% of patients. Of those tested, 83.7 % were seropositive and 16.3% seronegative. Repetitive stimulation tests, done on 248 patients, were positive in 79% and negative in 21%. Thymus gland data was available in 180 patients: 37% had thymoma, 19% thymic hyperplasia and 14% thymic atrophy. Eighty-six percent of patients are on pyridostigmine, 56% prednisolone, 45% azathioprine 6% mycophenolate, 0.5% cyclosporine and 0.7% methotrexate. In the last one year, 12% had received plasma exchange or intravenous immunoglobulins.

Conclusion: We demonstrate the feasibility and efficacy of an international regional internet database of MG patients. While recruitment is on-going,the data would be used to enhance patient care and address research questions.

A CASE OF STIFF-PERSON SYNDROME TREATED BY CELLCEPT

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Background: Stiff-Person syndrome (SPS) is a rare neurological disorder characterized by stiffness, more prominent in axial muscles, with co-contraction of agonist and antagonist muscle groups and painful spasms precipitated by sensory stimuli.

Case presentation: A 44-year-old woman presented with a 7-year history of progressive muscle stiffness and painful spasms that occurrence were preceded by sudden movement, loud noise or emotional stress.

Her physical examination found spontaneous spasticity and rigidity of the proximal limb muscles, axial musculature and abdominal muscles that begin gradually and progress slowly. Walking is slow and labored, deep tendon reflexes were normal, cognitive function, cranial nerves, muscle strength, sensation, coordination and sphincter function are normal.

Results of routine laboratory tests were normal. Chest X-rays and abdominal and pelvic ultrasonography revealed no abnormalities. Auto-antibodies to glutamic acid decarboxylase (GAD) and anti-amphiphysin antibodies tests were negative.

Her EMG findings were consistent with SPS.

With the high suspicion that the clinical case could be a SPS, oral diazepam was administered in high doses after which we observed initially a dramatic remission. Few months later muscle stiffness and spasms reappear and became frequent,so we have introduced Imurel, we have done plasma exchange then we Used intravenous immunoglobulin but there was no clinical improvement. Finally we stopped Imurel and we start Cellcept 500mg daily and we observed the disappearance of spasms from the first week of treatment.

Conclusion: Our case report reveals some of the characteristic features of SPS however the use of Cellcept is not usual in this neurological disorder.

MYASTHENIA GRAVIS IN THE REPUBLIC OF GEORGIA

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A study of 483 Myasthenia Gravis patients during the period 1983-2006 has shown that the prevalence of MG in country is 3.1/100 000. In urban population 4/100 000, rural - 3.1/100 000/ Gender: F>M (1.3:1). A later onset of the disease (46-50) was observed in males. In women three peaks of MG onset could be determined (16-20, 26-30, 41-45). The maximal rate of evidence was made over period 1986-1995 and average of 11 cases annually. The average duration of MG was 1.4 ± 0.2 years in men and 3.5 ± 0.8 in women. The lifetime period lasted from some months to 54 years. The average annual mortality rate was 0.38/100 000. Thymoma was considered in 30.3% of patients with MG.

In families of Myasthenic patients there is an extremely high rate of collagenoses, allergic diseases, diabetes, thyroid diseases and malignant tumors.

In is suggested that the process if urbanization of the population and urban living conditions affect the development of the disease. Among signs that can be helpful in doubtful cases may be the residence places of patients - the patients from lowlands, with comparatively dry climate, elevated mineralization of underground water and also coincidence of the time of their appearance with the “age peaks” characteristic of myasthenia patients in Georgia.

THE ATTENTION TO DUCHENNE MUSCULAR DYSTROPHY

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Introduction: Duchenne muscular dystrophy (DMD) is a major genetic neuromuscular disease in childhood. Death eventuates commonly by the beginning of the third decade of live. Early diagnosis involves mainly a high degree of clinical suspicion, leading to biopsy or genetic assessment for confirmation.

Objective: This article provides a brief view on the state of this disease in Brazil, focusing on current diagnostic approach and the main challenges on the attention to patients with neuromuscular disorders.

Methods: We selected articles indexed in MEDLINE, PubMed, LILACS, BIREME, SCIELO and master degree and doctorate research databases looking for the average age of diagnosis, specialized clinical centrals and the general population knowledge of the disease.

Results: There is a severe delay on DMD diagnosis in Brazil, from 4 to 9 years after the first symptoms. In the whole country only two university hospitals had outpatient clinics solely dedicated to the care of DMD and less than 5% of the general population had heard about DMD.

Conclusion: The reported situation is caused by poor lay education, lack of genetic counseling services, professional unpreparedness and low investments in researches among others. Generally, such scenario does not differ from worldwide - with some particularities, though - and generates a costly care when DMD patients need respiratory aid. However, important progress is expected as methods of spreading essential information and new specialized centers are developed in the country.

FACTORS ASSOCIATED WITH SELF-PERCEIVED QUALITY OF LIFE IN PATIENTS WITH MYASTHENIA GRAVIS: A MULTICENTER COOPERATIVE STUDY

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Purpose: To determine clinical factors negatively affecting self-perceived quality of life (QOL) and frame a decision tree model to predict good QOL in patients with myasthenia gravis (MG).

Methods: We evaluated 327 consecutive patients with MG seen at 6 neurological centers (East Japan MG study group). All patients completed a 15-item, MG-specific QOL scale (MG-QOL15) and the Beck Depression Inventory-Second Edition (BDI-II). Disease severity was determined according to the MG Foundation of America (MGFA) quantitative MG score (QMG) and the MG composite scale (MG composite). Multivariate regression analysis was used to determine independent clinical factors positively correlating with MG-QOL15 (i.e., negatively affecting self-perceived QOL) and tree regression analysis to simply predict good QOL in MG patients.

Results: Multivariate regression analysis revealed disease severity (QMG, $p< 0.0001$; MG composite, $p< 0.0001$), current dose of oral prednisolone (PSL) ($p=0.004$) and BDI-II ($p< 0.0001$) as independent factors negatively affecting QOL. When entering MGFA postintervention status and dose of oral PSL as variables into analysis, the regression tree model picked patients under minimal manifestations (MM) or better status first, followed by patients under those states with PSL ≤5 mg/day as likely to show good QOL. Mean MG-QOL15 of patients under MM status with PSL ≤5 mg/day was low, almost identical to that under complete stable remission (CSR) status.

Conclusions: Disease severity, dose of oral corticosteroids and depression are major factors negatively affecting QOL in MG patients. Achieving MM or better status with PSL ≤5 mg/day may represent a practical goal in the treatment of MG.

INCREASED HASSALL´S CORPUSCLES IN THYMIC HYPERPLASIA OF MYASTHENIA GRAVIS PATIENTS

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Objective: The thymus has been implicated as a possible site that triggers autoimmunity in myasthenia gravis (MG). The thymic medulla represents a key site for the inducer of T cell tolerance. Although, Hassall's corpuscles (HC) have been proposed to act in both the removal of apoptotic thymocytes and the maturation of developing thymocytes within the thymus, the exact role of HC remains unclear. To address this point, we examined the marker and the number of Hassall's corpuscles.

Methods: Immunohistofluorescence analysis of Involucrin along with CD4 and CD8 was performed in thymic sections of MG (+) (n = 23) and MG (-) patients (n = 27). The cortico-medullary architecture of the thymus could be visualized by the predominant localization of CD8+CD4- and CD4-CD8 thymocytes in the medulla and CD4+CD8+ thymocytes in the cortex.

Results: Involucrin was expressed in accordance with the epithelial cells of Hassall's corpuscles. The number of Involucrin (+) cells in the medulla of MG(-) children and MG(+) hyperplasia was larger than those in other groups. There was a significant difference in the size of Involucrin (+) cells between MG (+) hyperplasia and all other groups.

Conclusion: The number and size of Hassall's corpuscles were increased in thymic hyperplasia of MG patients.

THE FREQUENCY OF GENERALIZATION IN OCULAR MYASTHENIA GRAVIS

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Objectives: To verify the frequency and risk factors of generalization in patients with ocular myasthenia gravis (MG), and to elucidate the effective initial treatment to avoid generalization.

Methods: We used the data from the nationwide epidemiological survey of MG in Japan, 2006. A total of 613 patients who showed exclusively ocular symptoms at a point of primary diagnosis, with more than 5 years' follow-up, were included in the study. We calculated the frequency of generalization and screened for the risk factors and initial treatment.

Results: 156 patients (25.4%) shifted to the generalized form. Childhood-onset patients (0-9 years) had a low generalization rate (10.0%) whereas elderly-onset MG (65 years or older) had a high rate of 35.6%. Thymoma-associated MG had a higher rate (42.9%) as opposed to 21.3% in non-thymomatous patients. MG with anti-acetylcholine receptor (AChR) antibodies showed a generalization rate of 29.7%, which was higher than 18.4% in patients without antibodies. Patients who received steroids in the first year after onset revealed a significantly lower rate of generalization (12.7% vs 23.0%).

Conclusion: We found that approximately one-fourth of patients with ocular MG shifted to the generalized form. Elderly-onset, association of thymoma, and positive anti-AChR antibodies were thought to be risk factors of generalization. Initial steroid treatment seemed to avoid the shift to the generalized form.

JITTER ESTIMATION USING CONCENTRIC NEEDLE ON VOLUNTARILY ACTIVATED EXTENSOR DIGITORUM COMMUNIS & TIBIALIS ANTERIOR IN HEALTHY CONTROL & MYASTHENIC PATIENTS

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Introduction: Single fiber electromyography(SFEMG)is the most sensitive clinical neurophysiological test for neuromuscular junction disorders,particularly myasthenia gravis(MG).

Design: Prospective case-control study.

Background and aims: There is scarcity of data concerning jitter measurement in human tibialis-anterior muscle.In this study we aimed at comparing jitter values between the Right(Rt)&Left(Lt)voluntarily activated extensor digitorum communis(EDC)&tibialis-anterior muscles using concentric needle(CN)in the same subject[control&myasthenic patients].

Methods: 45myasthenic patients(21males& 24females,mean Age 39.1±16.9 years)&62controls(20 males&42 females,mean Age 43.2±14.0years)were included in the study.Jitter values were expressed as the mean consecutive difference(MCD)of 30 potential pairs in µs.Paired t-test was used for comparison.

Results: In the control group the mean MCD±SD with(upper 95% Confidence Limit-95%CL)for [Rt&Lt EDC together,Rt EDC,Lt EDC] were[27.6±3.4(33),27.5±3.4(33.5)&27.6±3.3(32)µs respectively].The mean MCD for all potential pairs were[26.9±9.3(45),26.7±9.0(44)&27.1±9.6(46)µs respectively].In the patient group the mean MCD were[49.3±23.5,46.8±18.4&52.0±27.8µs respectively]& the mean MCD for all potential pairs were[46.9±34.8,44.2±30.5&49.7±38.6µs respectively].

Concerning tibialis-anterior In the control group we didn´t examine the left tibialis-anterior but only the[right tibialis-anterior]for which the mean MCD&the mean MCD for all potential pairs were[30.0±3.1(95%CL:36)&30.3±10.5(95%CL:50)µs respectively].

In the patient group the mean MCD for[Rt&Lt tibialis-anterior together,Rt tibialis-anterior,Lt tibialis-anterior]were[60.5±30.4,58.1±28.1&64.1±33.9µs respectively]&the mean MCD for all potential pairs were[56.7±44.5,55.1±41.3&59.4±49.4µs respectively].

It appears that tibialis-anterior jitter values were negatively correlated with age in control group while EDC showed no correlation with age.Tibialis-anterior showed statistically significant higher MCD values than EDC.No significant difference was found between MCD values of Rt&Lt(EDC&tibialis-anterior)in control&patient groups.

Conclusion: This study was unique in estimating tibialis-anterior jitter values in myasthenic patients(not routinely done by neurophysiologists),comparing between right&left [EDC&tibialis-anterior] and between EDC&tibialis-anterior jitter values[recruiting large number of both controls&patients].

BLURRING OF VISION AS A SOLE PRESENTATION FOR MYASTHENIA GRAVIS

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Objective: To document that blurring of vision alone could be the presenting symptom for myasthenia gravis.

Background: To the best of our knowledge this is the first case of ocular MG presented with blurring of vision without associated double vision or eye lid weakness.

Design and methods: A 28 year old man was referred to our neurophysiology clinic by an ophthalmologist.He was complaining of a 2 year history of feeling of unease and blurring of vision when he concentrates and focuses on reading for a long time.His symptoms usually disappear when he stops reading.No history of drooping of eyelids,double vision,bulbar symptoms or generalized fatigue. **Examination** revealed no neurological abnormality.He was extensively investigated by many ophthalmologists who confirmed normal visual functions[visual acuity,visual field,error of refraction,accommodation] and fundoscopy.

Results: He was referred to us for neurophysiological investigations: Repetitive nerve stimulation studies at 3Hz of the deltoid muscle showed decremental response of **-56%**. ***Single fiber electromyography*(SFEMG)** revealed significant increase in concentric needle jitter values.[Mean MCD] were found to be as follows:[52 **µs]** for voluntarily activated orbicularis oculi(OOc), [50 **µs]** for axonaly stimulated OOc, [36 **µs]** for voluntarily activated EDC, [24 **µs]** for axonaly stimulated EDC, [30 **µs]** for voluntarily activated frontalis & [45 **µs]** for voluntarily activated tibialis anterior muscle in addition to[>10% of fiber pairs being abnormal&>10% of fiber pairs having block] in each muscle.Serology for(acetyl choline receptor and MuSK antibodies) and CT chest to exclude thymoma were planned to be done.

Conclusion: Blurring of vision as a sole presentation for ocular myasthenia gravis is rare.This patient will be treated and followed up regularly.

THE IMPACT OF ORAL CORTICOSTEROIDS ON SELF-REPORTED DEPRESSIVE SYMPTOMS IN MYASTHENIA GRAVIS PATIENTS: A MULTICENTER COOPERATIVE STUDY

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Objective: To examine the causal background factors for depressive state in myasthenia gravis (MG) patients.

Methods: We evaluated 287 consecutive cases of MG seen at 6 neurological centers. All MG patients completed the Japanese version of the Beck Depression Inventory-Second Edition (BDI-II). Disease severity was determined according to the MG Foundation of America (MGFA) quantitative MG score (QMG), the MG activities of daily living profile (MG-ADL) and the MG composite scale (MG composite). Clinical state following treatment was categorized according to MGFA postintervention status. We statistically examined associations between quantitative clinical parameters of MG and BDI-II score.

Results: BDI-II score of MG patients (11.0 ±8.1) did not differ substantially from and overlapped with that reported as the Japanese standard (8.7 ±6.4). Mean +2SD of the Japanese standard is 21.5 points, approximately equal to the cut-off level indicative of moderate or worse depression (>20 points) in the original English version. We thus defined BDI-II >21.5 as depressive state, with a frequency of 13.6% in MG patients. Multivariate logistic regression analysis revealed current dose of oral prednisolone (odds ratio (OR) =1.09; p =0.01), unchanged (U) MGFA postintervention status (OR =3.55; p =0.02), time since onset (OR =0.93; p =0.03) and MG composite (OR =1.16; p =0.046) as independent factors associated with depressive state in MG.

Conclusions: Dose of oral corticosteroids appears to represent the major cause of depressive state in MG. Unchanged status despite treatment and early disease stage are also significant background factors for depressive state, along with disease severity.

DYSFERLIN AND CALPAIN IMMUNOBLOTTING ON MUSCLE TISSUE OF IMMUNOHISTOCHEMICALLY CONFIRMED CASES OF DYSFERLINOPATHY

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Introduction: Dysferlinopathies are a common Autosomal recessive Limb Girdle Muscular Dystrophy.

Objective: To comparatively analyze the dysferlin and CAPN3 protein profiles by Western blotting in muscle biopsies from 30 immunohistochemically(IHC) confirmed cases of dysferlinopathies.

Material and methods: Thirty patients clinically diagnosed to have Dysferlinopathy underwent muscle IHC. These were taken up for Western Blot studies.

Results: Twenty(71.4%) men and ten(28.6%) women were included in the study. Mean age at time of evaluation was 27.9±7.7 years(range14-45). All had presented with progressive muscle weakness. Consanguinity was seen in 15(50.0%) families. Eight of the 30 patients had positive family history. Mean age of onset of muscle complaints was 21.4±6.0 years (range11-37. Mean duration of illness was 6.4±4.2 years(range1 -15). In 22 patients the onset was between 15 - 30 years, Disease typically started with calf weakness and atrophy in one or both legs in 14(46.6%) and in others it was limb girdle type.. Of the 30 IHC confirmed cases of dysferlinopathy, on blots there was a total absence of Dysferlin in 27 samples and presence of full-length dysferlin protein in three. Total absence of CAPN3 in three cases. This was further confirmed by status of the myosin protein as an internal control.

Conclusion: Immunoblotting confirmed Dysferlin deficiency in 90% of the cases of Immunohistochemically confirmed cases of Dysferlinopathy. It is important to perform Western blotting to identify secondary deficiency of Calpain or Dysferlin before directing for genetic studies as this will be cost effective particularly in developing countries.

A TREATABLE MYOPATHY DUE TO ARGININE: GLYCINE AMIDINOTRANSFERASE (AGAT) DÉFICIENCY

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Creatine deficiency syndromes represent a recently recognized group of inborn errors of creatine metabolism including deficiencies of two enzymes involved in creatine synthesis: arginine-glycine amidinotransferase (AGAT) and guanidinoacetate methyltransferase (GAMT), and a creatine transporter deficiency.

AGAT deficiency has been described so far in only 2 families worldwide.

We report on two familial cases of myopathy with AGAT deficiency and describe their clinical, biochemical, magnetic resonance spectroscopy features and their response to creatine supplementation.

These 8 and 5-year-old sisters were born full-term to first-cousin parents and had moderate developmental delay in childhood. They began walking at 20 months of age and speaking in monosyllables at 5 years. Examination showed a mild cognitive impairment, an important language delay and a proximal muscular deficit . Electromyography revealed myopathic pattern. Muscular biopsy did not show dystrophic pattern or structural abnormalities . This unusual picture of myopathy with language delay led us to suspect a metabolic disorder particularly creatine deficiency. Investigations revealed undetectable guanidinoacetate in plasma and urine . Brain spectroscopy showed a markedly reduced level of creatine.

Six months after commencing treatment with oral creatine monohydrate 200mg/kg/day, the parents´ impression of improved strength was demonstrated by increased MRC scale and by Gowers sign disappearance. Similarly, there was a mild improvement in language and cognitive function.

AGAT deficiency should be considered in all patients with langage retardation with or without myopathy of unkown aetiology . Early diagnosis is crutial as creatine supplementation is mandatory to cure the myopathy and improve language and cognitive functions.

A CASE OF THYMOMA THAT MIMICKED NON-HODGKIN LYMPHOMA

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Thymoma is a tumor originating from the epithelial cells of the thymus. Thymoma is an uncommon tumor, best known for its association with the neuromuscular disorder myasthenia gravis. **Rarely thymoma is aggressive that may mimic lymphoma.** We herein report one such case. The patient is a 33 y/o man who had admitted due to fever, severe weight loss, cough and dysphagia about 9 years ago. A huge mediastinal mass (17 * 12 cm) was detected. In regard of pathologic report (many small lymphocyte, starry sky appearance and CD20 positive) NHL - Burkitt Type- had diagnosed and treatment (8 sessions of CHOP and radiotherapy) was done. Patient's complaints had relieved. But a 4*4cm fibrotic mass had remained. About 2 month ago he has developed dysphagia and dysarthria. We admitted him with suspicion of Para neoplastic or metastatic phenomena of NHL. All W/U was in favor of MG. So we decided to reevaluate mediastinal mass and open chest biopsy was done. Pathologic appearance confirms above findings. **But CD5 and cytokeratin were positive. A diagnosis of thymoma type B1 was done.** Thymectomy was done by an expert thoracic surgeon (because of high risk of adhesion due to previous radiotherapy). Patient's complaints were controlled with suitable management. **We decided to introduce this case because of rarely reported similar clinico-pathological appearances of thymoma and lymphoma, and most importantly different approaches to these tumors.**

DEFINING THE TECHNICAL FACTORS TO ENHANCE THE SUCCESS OF CLINICAL TRANSPLANTATION OF MUSCLE-PRECURSOR CELLS IN SKELETAL MUSCLES

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Introduction: Our studies in nonhuman primates and recent clinical trials showed that allotransplantations of muscle precursor cells (MPCs) need two conditions: an adequate protocol of cell injection and an appropriate control of acute rejection. We wanted to progress in defining technical parameters that may be useful in planning cell transplantation clinical trials in myology.

Methods: Adult macaques were used as hosts of MPC allotransplantations under tacrolimus immunosuppression. We tested different needle sizes, inter-injection distances, amounts of cells per injection, volumes of cell suspension per injection and muscle pretreatments.

Results: Without muscle pretreatment, an inter-injection distance of 1 mm increased the engraftment up to 4-fold compared to 2 mm. 18G needles produced better engraftment than 22G-27G needles for a same inter-injection distance, but caused fibrosis. At least 100,000 cells were required per injection. There were no significant differences by injecting 2, 5 or 25 µl of cell suspension, but the lower volume reduced the amount of fluid injected and the leakage. As muscle pretreatments, injection of myotoxins (local anesthetics and phospholipases) did not substantially increase the engraftment. Electroporation was efficient under specific conditions.

Conclusions: 22G to 27G needles should be the choice for MPC transplantation, using an inter-injection distance of 1 mm. At least 100,000 cells should be delivered per cm of injection, and a volume of 2 µl of cell suspension should be preferred. Muscle pretreatment by electroporation seems promising to improve engraftment, but more studies are needed to determine the feasibility of the technique.

SPINAL MUSCULAR ATROPHY: A CLINICAL AND GENETIC STUDY OF 32 MOROCCAN CASES

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Spinal muscular atrophy (SMA) is an hereditary autosomal recessive motor neuron disease which can occur at any age. The molecular diagnosis is based on SMN gene deletion detection.

This is a retrospective study of 32 cases diagnosed in our department, during a period from 1998 to 2008. the history of consanguinity was found in 13 patients (40.6%) in our series.

The mean age of our patients at time of examination was 15.4 ± 2.5 years ranging from 8 months to 67 years. The patient aged 67 years had disease onset at age 57 years. Twenty two patients were males (69%). The patients repartition according to SMA subtypes was as follows:

Type I in 3 cases (9%),

Type II in 11 cases (34.3%),

Type III in 14 cases (43.7%) and

Type IV in 3 (9%).

The SMN1 gene deletion was present in 30 cases (94%). The electroneuromyography examination showed patterns of motor neuron impairment in 30 cases (94%). The exon 7 of the SMN1 gene was deleted in 30 cases (94%). There was no exon 7 deletion in 2 cases (a case of type II and a case of type III). The exon 8 was deleted in 9 cases (82%) among 11 cases.

In this series, the clinical, electrophysiological, and genetic findings were concordant with those of other reported series except the higher rate of III and IV subtypes.

THE RELATIONSHIP BETWEEN SERUM SOLUBLE C5B-9 LEVEL AND SEVERITY OF GENERALIZED MYASTHENIA GRAVIS AT KING CHULALONGKORN MEMORIAL HOSPITAL, THAILAND

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Introduction: Nowadays, no laboratory tests for predicting outcomes in myasthenic patients who develop respiratory failure.

Objective: To determine the relationship between the level of serum soluble C5b-9 and severity of generalized MG (GMG).

Methods: A pilot cross-sectional analytic study was conducted with in-patients diagnosed with generalized myasthenia gravis. The disease severity forall patients was evaluated once a day with a quantified myasthenia gravis strength score (QMGSS). C5b-9 levels were measured by drawing blood twice a week for the first two weeks and then once a week thereafter. Demographic data was indicated as percent and mean. Generalized estimating equations (GEE) were taken to determine the relationship between serum soluble C5b-9 level and severity of generalized myasthenia gravis.

Results: A total of 9 patients were recruited for this study. 7 of the patients (77.7%) were female. The mean for all patients was 47.4 years. The mean duration of the disease among the patients was 9.8 years. All of the patients tested positive for the AchRAb. The mean baseline C5b-9 level for the healthy group was 92.45ng/ml. The mean baseline C5b-9 level of the GMG group was 254.89 ng/ml. The mean baseline QMGSS was 22.78. The coefficient value from GEE was -.273 (p-value 0.829)**.** Finally, no relationship was found between serum soluble C5b-9 level and severity of generalized myasthenia gravis.

Conclusions: There is no relationship between serum soluble C5b-9 level and severity of generalized myasthenia gravis, and infection does not show to interfere with C5b-9 levels.

OCULAR INVOLVEMENT IN STEINERT'S DISEASE

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Introduction: Steinert myotonic disease is the most common form of muscular dystrophy in adults, with autosomal dominant transmission. Ocular involvement is characterized by: characteristic cataracts, ptosis, and sometimes epithelial corneal dystrophy,hypotonia,or retinal-degeneration.

The aim is to study the clinical ophthalmic characteristics of 10 patients with Steinert´s disease.

Method: Ophthalmic examination of 10 patients with Steinert's disease (20 eyes), addressed by the consultation of specialized neuromuscular disorders.

Results: 5 men and 5 women. The average age is 32.4 (15-55). The average VA is 7/10. Mean IOP is 10.9 mmHg (8-16). 16 eyes had abnormal lenticular (80%): white dots (65%), posterior subcapsular cataract (25%). One patient required surgery for his cataract by phacoemulsification technic. Ptosis was found in 30% of eyes and did not require surgical correction. A bilateral retinal disease was found in the Fundus examination in 2 patients, mild in one patient: small RPE atrophy above macula, but more severe in another patient: reticular dystrophy of the EP macular to the left and surrounding the macular region to the right.

Discussion: The cataracts typical of Steinert's myotonic dystrophy was found in 80% of cases. The ptosis is the second most frequent characteristic. Macular dystrophy Steinert´s disease is rare : epi-retinal membrane, intra retinal cysts, pigment accumulation , but also reticular dystrophy or butterfly wing of the EP retina.

Conclusions: Ophtalmic involvement during the Steinert´s disease is frequent and sometimes quite characteristic, hence monitoring ophthalmologic function is needed in patients with or suspected of having the disease.

CONGENITAL MUSCULAR DYSTROPHY: A CASE REPORT

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Introduction: The congenital muscular dystrophies (CMDs) are a group of genetically and clinically heterogeneous hereditary myopathies with preferentially autosomal recessive inheritance.

Case: A 7-year-old girl consulted for hypotonia and muscle weakness from birth, which predominates at the limbs girdles, especially legs, and at the axial level.

She had no similar cases in her family.

Sitting position was acquired at the age of three years, and standing was not acquired yet.

Clinical examination found facial diplegia, flexion contractures of the hips, knees and elbows; and abolished deep tendon reflexes. Her cognitive ability was normal.

Further explorations found that:

CK level is normal (50 U/L).

EMG: suggesting a myogenic lesion.

Biopsy: Inequality caliber of fibers and especially fibrosis. The immunocytochemical study showed an absence of merosin.

Conclusion: The diagnostic approach of a CMD must be extremely rigorous. The presence or absence of clinical signs of central nervous system , the rate of plasma creatine kinase, analysis of merosin and alpha-dystroglycan from the muscle biopsy are the first essential steps. The advantage of cerebral and muscular magnetic resonance imaging (MRI), and of fibroblasts' culture is to be discussed to target the molecular confirmation of the diagnosis and genetic counseling.

INTERSTITIAL MYOSITIS IN PATIENTS WITH MYALGIA AND CK-EMIA

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In patients with myalgia and/or increased creatin kinase levels (CKemia) who do not have muscular weakness, the diagnosis of the underlying muscle disease might be difficult. The objective of the study was to analyse inflammatory changes in patients with isolated myalgia or CKemia. For this purpose, a retrospective analysis of 71 patients was performed. Muscle biopsies were analyzed using routine histopathology and immunohistochemistry for CD3+, CD4+, CD8+, CD68+, MHC class I, perforin, and MRP 8. Four groups of patients based on clinical presentation were divided: 1) myalgia without further clinical or laboratory abnormalities (n= 24), 2) asymptomatic CKemia (n= 16), 3) myalgia and pathological EMG findings (n= 9), or 4) an indication for malignant hyperthermia susceptibility testing (n= 22). Immunohistochemistry for CD3+, CD4+, CD8+, CD68+, MHC class I, perforin, and MRP 8 could not detect relevant abnormalities suggesting myositis in groups 1, 2, and 4. However, in group 3, significant increases in mean numbers of perimysial macrophages ($p < 0.01$), CD3+ ($p < 0.05$), and CD8+ T-lymphocytes ($p < 0.01$) could be found. This increase of inflammatory cells was restricted to the perimysium, inflammatory changes did not fulfil the criteria for dermatomyositis, polymyositis, or inclusion body myositis. In conclusion, muscle biopsy is likely to detect myositis in patients with myalgia only if pathological EMG findings are present. As the increase of inflammatory cells is predominantly found in the perineurium, we suggest the descriptive term of 'interstitial myositis' for this group.

MORPHOMETRIC ANALYSIS OF MOTOR END-PLATES IN PATIENTS WITH CIBENZOLINE SUCCINATE INTOXICATION AND LAMBERT EATON MYASTHENIC SYNDROME

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Cibenzoline succinate (CS) is used to treat tachyarrhythmia, and myasthenic syndrome is known as one of its side effects. A patient with CS intoxication shows disturbance of neuromuscular transmission becase CS can block calcium ion influx into nerve terminals. Lambert Eaton myasthenic syndrome (LEMS) also leads to the dysfunction of neuromuscular transmission due to anti-voltage-gated calcium channel antibodies. We herein studied the morphomeric changes of the motor end-plates in the biceps brachial muscles biopsied from a patient with CS intoxication and 5 patients with LEMS. The Harvey Marsland test showed waning under low frequency stimulation in the patient with CS intoxication. There was no decrease in the acethycholine receptor expression at the motor endplate stained with α-bungarotoxin labeled with peroxidase, and no deposit of compliment C3 in either the CS intoxication or the LEMS patients. Electron microscopy revealed enlarged nerve terminals in both the CS intoxication and LEMS patients. The primary and secondary postsynaptic folds were well preserved, but the membrane density decreased in both the CS intoxication and LEMS patients.

In conclusion, the fine structural changes of motor end-plates in CS intoxication resembled those in LEMS. Inhibiton of calcium influx into the nerve terminal could lead to a decrease of the acethylcholine release into the primary synaptic cleft and hypertrophy of the nerve terminal.

CEREBROSPINAL FLUID PROTEINOGRAM AS LABORATORY DISEASE PATTERNS OF INFLAMMATORY DISEASES OF THE NERVOUS SYSTEM

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A total of 12057 CSF samples were evaluated and concentrations of wide range of proteins were analysed in patients with various neurological disorders. Comparison of clinical data of patients enabled elucidation of biological role of CSF proteins evaluated; and, specific clinical syndromes of CSF proteinogram were defined. CSF proteinogram was introduced to routine clinical practice in our laboratory for diagnostics of neuroinfective and autoimmune diseases of CNS and PNS; In present, the CSF proteinogram includes IgG, IgA, IgM, FLC, acute phase reactants, C3c, C4, IL 6, IL8, IL 10, beta2-microglobulin, NSE, S100. Qualitative analysis of CSF proteins includes isoelectric phocusing (IEF) in classes IgG, and as a novel and promising parameters OCB´s of IgA, IgM and free light chains (FLC) Kappa and Lambda.

THE PROBABLE ROLE OF SEVERAL INFECTIVE AGENTS IN MULTIPLE SCLEROSIS

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Study purposed to investigate the role of several infective agents in multiple sclerosis.

Patients and methods: Fifty nine patients with MS have been investigated. Among them the first group -19 patients with primary progressive MS, the second group-24 patients with relapse remitting MS and the third group-16 patients with secondary progressive MS. Several infections (Chlamydia pneumoniae, mycoplasma hominis, herpes virus 6) were detected in 4ml CSF. DNA was isolated from CSF and PCR method according to kit instruction (Amplification >15 kb, temperature over 65°C- Maximbio, USA). The length of the DNA was detected by agarose gel electrophoresis. CSF oligoclonal bands were detected by agarose gel electrophoresis with Coomassie Blue staining.Statistics performed by SPSS-11.0.

Results: Chlamydia pneumoniae found to be positive in CSF of 11 (45%) patients with relapse remitting MS and in 7 (43%) patients with secondary progressive MS. Mycoplasma hominis was positive in CSF of 2 (8%) patients with relapse remitting MS. Herpes virus 6 was positive in 1(5%) patients with primary progressive MS and in 1(5%) patient with secondary progressive MS. Positive correlation was found between presence of CSF Chlamydia pneumonie and CSF count of oligoclonal bands ($r= +0.27$, $p< 0.01$).

Multiple logistic regression analysis revealed the significance of infective agents for mean predicted probability of development of relapse remitting MS.

Conclusion: Probably, infective agents play the important role in immunology and clinical course of MS.

SECONDARY HEMORRHAGE AND BLOOD AUTO-AGGRESSIVE REACTION IN CLINICAL STROKE

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Study aimed at establishing the significance of blood immune response for matrix metalloproteinase-9 (MMP-9) expression and for secondary hemorrhage in acute ischemic stroke.

Patients/methods: A total of 35 acute ischemic stroke patients were studied. Patients were selected with initial NIHSS=15. Control comprised 15 age-matched healthy individuals. Visualization performed by CT on admission and on 7th day of stroke. Risk-factors of stroke studied retrospectively.

At 24th hour of stroke the blood immune reaction studied in the mixed culture of autological lymphocytes (MCAL). The number of blast-transformed lymphocytes calculated in light microscope. Plasma levels of MMP-9 detected by enzyme-linked immunosorbent assay (ELISA). Data processed by non-parametric statistics.

Results: Secondary CT scanning found the hemorrhagic transformation of ischemic brain in 6 cases among 14 patients with grave course of disease (NIHSS>15 against NIHSS ≤15 at 7th day) and with significantly high blood level of MMP-9 against other patients ($p< 0.05$) and control ($p< 0.01$). Blood count of blast-transformed lymphocytes in MCAL found to be elevated in patients with grave course of stroke against other patients and control ($p< 0.05$). Spearman´s rank correlation showed the positive relationship between the blood number of blast-transformed lymphocytes in MCAL and blood MMP9 content at 24 hours of stroke ($r= +0.37$, $p< 0.05$). Multivariate logistic regression found the significance of chronic social stress for mean predicted probability of blood auto-aggressive response in clinical stroke ($p< 0.05$).

Conclusion: Blood auto-aggressive response in acute stage of ischemic stroke positively correlates with blood high MMP-9 expression and with secondary hemorrhage.

LONGITUDINAL MYELITIS IN THE COURSE OF BEHÇET'S DISEASE

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Background and aim: Neuro-Behçet's syndrome (NBS) is a neurological complication of Behçet's Disease (BD). Two cases with spinal involvement were presented.

Case 1: A 37 year-old man with BD for 7 years and paraparesis admitted due to recent weakness of both arms. Neurological examination revealed spastic diplegia with hypoesthesia below T6, incontinence, and moderate weakness of both arms.

Case 2: A 48 year-old woman with BD for 18 years admitted with diplopia and left leg weakness. She had left hemiparesis 7 years ago. Neurological examination revealed vertical and right sided gaze paresis, bilateral Hoffman reflex, moderate weakness of both arms and severe paraparesis with hypoesthesia below T12. In both patients, T2-weighted cervical spinal MRI showed cord atrophy and hyperintensity extending from medulla oblongata to the first 2 to 4 cervical segments. Although the first patient experienced adverse effects with colchicine, steroids and azathioprine, he was restarted on “pulse steroid” for 10 days, with subtle benefit on the arms. The Cerrahpasa Behcet Council proposed the use of infliximab which is not approved by the Ministery of Health, yet. In the second patient, treatment with 1g/day i.v. methylprednisolone lead to partial improvement.

Discussion: Spinal involvement is reported in 14% of all cases with BD and as the second most involved site following brainstem in autopsy series. Presented patients showed features of primary progressive course. MRI findings consisted of spinal lesions extending more than the length of one vertebrae. Although total improvement following attacks is rare, high dose steroids may provide remission.

NEUROPSYCHIATRIC INVOLVEMENT IN BEHÇET´S DISEASE. MONOCENTRIC STUDY OF 43 PATIENTS

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Neuropsychiatric manifestations (NP) in Behçet´s disease (BD) are associeted with poor prognosis with 5 to 10% of morbidity and mortality.

The aim of our study is to analyze clinical, biological features, imaging and evolution of Moroccan BD patients with neuropsychiatric events.

It´s a monocentric retrospective study of 292 patients, followed in internal medicine department, between 1995 and 2009. Diagnosis was made according to International Study Group criteria.

NP manifestations were present in 34 patients (14.7%). The average age was 35,5 ± 20 years. Male predominance was evident (sex ratio 2/1). NP manifestations were inaugural in 2 patients (4.6%) and appeared for all the other cases during the first year. The most frequent symptoms were headache in 70% of cases. Cerebral thrombosis and peripheral neuropathy were observed in 20% of cases, each. Inflammatory meningitides, myelopathy and psychiatric manifestations was observed in 2 cases (4.6 %) each. The other events associated with NP manifestations were: cutaneous and mucous in 95%, vascular in 67% and ocular in 46%. Colchicine was used in 86%, corticosteroid in 72%, anticoagulant in 53%, cyclophosphamid in 30% and azathioprim in 9%. After a follow-up of 69 months relapses were essentially vascular in 11.6% and neurological signs improved in 34% of cases. NP manifestations in BD although are not specific can lead to the diagnosis. In our patients, vascular and ocular disease were frequently associated with NP manifestations. Cerebral thrombosis and peripheral neuropathy were the most frequent manifestation. Treatment is not consensual, based on corticosteroids and immunosuppressive agent.

SNEDDON´S SYNDROME: STUDY OF THE 14 CASES

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Introduction: Sneddon's syndrome is a rare affection of unspecified cause, defined by the association of cerebrovascular disease and a livédo racemosa.

Objectives: With through this study,we intend to discuss the aspects epidemiologic, clinical, paraclinic, and therapeutic of this affection

Materials and methods: We report a retrospective study of 14cases hospitalized between February1997 and January2011 in the service of Neurology of the Military Hospital Mohammed V.the patients profited from an examination neurological and somatic complete, as well as assessment etiologic including a cerebral imagery,a cardiovascular exploration,a cutaneous biopsy,an immunological,inflammatory and serologic assessment.

Results: They are12 women and 2men, of average age of 41years.No factor of cardiovascular risk was marked.The symptomatology clinical comprised a livédo with cerebral ischaemic strock "AIC" confirmed with the cerebral imagery, in charge in a case for a vascular dementia and revealed in a case by a cerebral haemorrhage.The cutaneous biopsy, carried out among13 patients, was significant in 23,1%.The antibodies antiphospholipides missed among all our patients.The evolution was favourable among 10 patients under corticothérapie and antithrombosants.

Discussion: The only diagnostic criterion with high specificity in support of clinical symptoms is the histological proof of the so-called "intimal proliferation" of skin and brain arterioles.We will be delayed on the problem nosologic which poses this entity in particular with the syndrome of the antiphospholipides and on its physiopathology.

Conclusion: Occurred of an AIC at the young subject in the presence of a livedo racemosa incite to practise a cutaneous biopsy.The evolution towards a dementia state imposes an early diagnosis and the introduction of an antithrombosant treatment.

RECURRENT LIMBIC ANTI-NMDA ENCEPHALITIS:13 YEARS FOLLOW-UP

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Introduction: Encephalitis associated with anti-NMDA receptors are recently described in the spectrum of paraneoplastic and autoimmune encephalitis. Clinical and laboratory findings are relatively stereotypical and long-term evolution and prognosis are less well studied.

Case report: The authors report the case of a 44 year old man who presented since the age of 31, four episodes of stereotyped neuropsychiatric symptoms consisting of behavioral disorders, memory impairment, temporal lobe epilepsy and dysautonomia without involuntary movements. Biological and radiological investigations showed a meningoencephalitis whose anti-NMDA dysimmune specificity was confirmed in the last episode, given the positivity of these antibodies in the blood and CSF. There was no neoplasia specifically pulmonary or testicular. Evolution was favorable after infusion of corticosteroids, veinoglobulins and long-term treatment of Mycophenolate Mophetil.

Conclusion: This case describes two original aspects:

1- the presence of addictive behavioral disorders specifically pathological shopping precedently undescribed in literature and

2- the long term follow-up (13 years) of this patient - unreported to the best of our knowledge.

ANTI-NEURONAL ANTIBODIES TO POTASSIUM AND CALCIUM ION CHANNELS IN DIFFERENT TYPES OF PERIODIC ATAXIAS

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A great number of movement disorders previously considered as idiopathic or neurodegenerative now is taken as immune modulated. Episodic ataxias (EA) relay to the group of acute or paroxysmal ataxias with often occurred attacks. During the paroxysms, besides ataxia, patient could manifest with dysartria, nistagm, sometimes headache, dizziness, nausea. Attacks could be caused by physical workload, emotional stress and fright. One of the main pathogenic factors in development of such conditions was is a presence in a serum to these patients antibodies (AB) to Yo and Hu antigens. The aim of our research consisted of comparative analysis of AB to these proteins coded by mutations of gene KCNA1 for EA, type I, and CACNA1A for EA, type II and in gereditary spino-cerebellar ataxias (SCA). Under our observation were 37 EA patients, 12 patients with Friedreich's disease, 6 with SCA, type 1, 4 - SCA, type 2, and 5 - SCA type 3. Control group consisted of 46 healthy donors. We use Western blot analysis in order to detect AB agaist proteins Yo and Hu. It was revealed increase of anti-Yo AB coded by gene potassium ion channels and anti-Hu AB coded by gene calcioun channel expressions. In hereditary SCA and control groups we didn't found similar increase of mentioned above AB levels. The presence of high AB titers to the proteins coded by genes of potassium and calcium ion channels helps us to understand new data of etiologic and pathogenic mechanisms of development of different forms of hereditary EA.

NEUROVASCULAR MANIFESTATIONS IN CHRONIC ULCERATIVE COLITIS (ABOUT 3 CASES)

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Introduction: Stroke are fearful complications of inflammatory chronic bowel diseases (IBD).

They show out more frequently in ulcerative colitis and are dominated by cerebral thrombophlebitis.

We report 3 cases of stroke during ulcerative colitis (2 of arterial origin, one of venous origin).

Cases report:

*2 cases of stroke:

- the first was on gastrointestinal relapse , inflammatory microcytic hypochromic anemia with thrombocytosis was detected. the cardiac, immunological assessment was normal.

-The second case is a stroke during 32 weeks gestation pregnancy.

the cardiac, immunological, inflammatory, infectious and blood crasis assessements were normal. The outcome was favorable with anticoagulants and motor rehabilitation.

*one case of cerebral lateral sinus and left sigmoids sinus thrombophlebitis:

during a digestive relapse. The check up found out antithrombin III deficiency and hypochromic microcytic anemia with hypoalbuminemia. The evolution was favorable under anticoagulant therapy and fresh frozen plasma infusion.

Discussion and conclusion: IBD are accompanied by a high risk of thromboembolic events (0,0.5- 6, 7%).

Strokes are more common during ulcerative colitis, dominated by cerebral thrombophlebitis, often noticed in active phase (66%).

Strokes are favored by disturbances of primary hemostasis and coagulation (increased factors V and VIII, fibrinogen, acquired antithrombin III deficiency and transient in protein S and C), abnormal fibrinolysis, disseminated intravascular coagulation, associated vasculitis.

Thrombotic mechanisms in UC are related to the disease's active phase and / or complicated phase ,associated to congenital or acquired thrombophilia.

FRACTALKINE/CX3CL1 IN PATHOGENESIS OF MULTIPLE SCLEROSIS, BEHÇET'S AND NEURO-BEHÇET'S DISEASE

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Objective: The aim of the present study was to determine the role of fractalkine/CX3CL1 in the immunopathogenesis of Multiple Sclerosis (MS),Behçet's Disease (BD) and Neurobehçet's Disease (NBD) comparatively.

Methods: In the present study, 175 patients admitted to the MS, BD and NBD outpatient Clinics of Dermatology and Neurology Departments of Gazi University Medical Faculty and the Department of Ophthalmology of Selcuk University Meram Medical Faculty and 30 healthy controls were enrolled.The healthy control group had the same mean age and sex ratio as the patients. 68 patients were diagnosed with BD according to the criteria recommended by International Study Group for Behçet's Disease, 90 were diagnosed with MS according to McDonald's criteria, and 17 were diagnosed with NBD patients regarding the results of neurologic examinations and neuroradiologic investigations. Fractalkine/CX3CL1levels were measured by an enzyme linked immunosorbent assay (ELISA) method.

Results: There was no significant difference between active and inactive stages of BD, NBD patients and controls; however, serum fractalkine/CX3CL1 level was found to be significantly increased in MS patients during attack.

Conclusion: Our results regarding fractalkine/CX3CL1, which has not been previously studied in BD and NBD patients, suggest that it may play a significant role in immunopathogenesis of MS as a leukocyte extravasation regulator in neuro-inflammation, may even be used in the differentiation between NBD and MS.

FOOD RESTRICTION AFFECTS MICROGLIAL ACTIVATION AND NEURONAL CELL DEATH FOLLOWING INJURY

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In response to traumatic brain injury, activated microglia release numerous cytotoxic substances including proinflammatory factors such as tumor necrosis factor-α (TNF-α), which can initiate a caspase cascade leading to neuronal cell death. The objective of this study was to investigate whether food restriction (FR) lasting 3 months prior to cortical injury can affect microglial activation and neuroapoptosis in the ipsylateral cortex following a stab injury.

In this study 3 month-old male Wistar rats fed *ad libitum* (AL) or exposed to FR (50% of AL) were used. At 6 months of age, the animals were subjected to unilateral cortical stab injuries to the sensorimotor cortex and then further analyzed at different intervals during the recovery period, i.e. 2, 7, 14 and 28 days following injury. Microglial morphology was examined by immunostaining to the cell specific marker Iba-1. Western blot analysis was used for detection of

i) proinflammatory cytokine TNF-α and

ii) apoptotic marker active caspase-3 expression.

Neuronal degeneration was examined by Fluoro-Jade B staining.

Obtained data showed that FR completely abolished microglial activation and induction of TNF-α and active caspase-3 observed in AL animals on the 2nd day following injury. Also, FR suppressed neuronal cell death, observed by degenerating and dying neurons in the AL animals at the same time point of recovery.

Our study revealed that FR used as pretreatment is capable of influencing processes of microglial activation and apoptosis following mechanical cortical injury, suggesting potential treatments which may increase the possibility of a successful recovery following brain injury.

TERMISARTAN INHIBITS TH17 DIFFERENTIATION IN ISCHEMIC STROKE PATIENTS

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Objective: To determine whether telmisartan (TLM) inhibit differentiation of human T helper 17 cell (Th17) in vitro and in peripheral blood of ischemic stroke patients.

Background: Recent studies have identified Th17,which produces interleukin (IL)-17A, plays a crucial role in autoimmune diseases such as multiple sclerosis. In addition, several studies have showed Th17 associated with the secondary inflammation induced by cranial infarction. Termisartan (TLM) plays two main pharmacological roles: as an angiotensin II type 1 receptor bloker (ARB) and a peroxisome proliferator-activated receptor (PPAR)γ agonist. It is commonly used as anti-hypertensive medication. Previous studies showed that a PPARγ agonist and other (ARB) inhibit Th17 differentiation. However, it is not known whether TLM inhibits Th17 differentiation.

Methods: In vitro study: Peripheral blood mononuclear cells (PBMCs) were prepared from healthy volunteers. Naïve CD4+ helper T cells (nTh) were isolated by immunomagnetic cell separation. Isolated nTh cells were stimulated with beads coated with anti-CD3 and anti-CD28 antibodies, IL-1β, IL-6 , IL-23, TGF 1β, and IL-21 for 7 days, with/without termisartan. In vivo study: PBMCs from ischemic stroke patients. *Flow cytometry.* PBMCs from ischemic stroke patients and differentiated T cells were stained by anti-CD4, anti-IL-17A, and anti-FoxP3 and analyzed using FACSCaliber.

Results: In vitro study: Th17 differentiation was significantly inhibited by telmisartain. In vivo study; Population of Th17 was significantly lower in patients taking telmisartain compared with patients not taking telmisartain.

Conclusions: TLM inhibits Th17 differentiation and might regulate a harmful secondary inlamation induced by cranial infarction in ischemic stroke patients.

LEPTIN LEVELS IN MULTIPLE SCLEROSIS AND THEIR ASSOCIATION WITH CLINICAL PARAMETERS: A CASE CONTROL STUDY

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Objectives: The aim of our study was to investigate the serum leptin levels of patients with Multiple Sclerosis (MS) and its correlation with clinical parameters as assessed with MSFC and EDSS scales. We also investigated a probable correlation of leptin levels with specific cytokine profiles (IL2, IFN-γ).

Methods: 28 MS patients and 28 Healthy Controls (HCs) matched for gender, age and BMI participated. 16 (**57,1**%) RRMS patients, 8 (**28,6**%) SP patients and 4 (**14,3**%) CIS.

Mean comparisons were performed using Students' *t* test. Sequential multiple regression analysis was performed to investigate the capability to predict leptin levels from MS positive diagnosis after eliminating the effect of gender. Correlation between serum leptin levels and clinical parameters of MS was assessed using Pearson *r* coefficient. A simple regression analysis was performed to investigate the capability to predict the EDSS score from leptin. Correlation between serum leptin levels and cytokine profiles were assessed using Spearman *rho.*

Results: Leptin levels were significantly higher in MS patients than healthy controls. The independent variable exhibited a large effect size. Positive diagnosis of MS contributed in the prediction of serum leptin by interpreting **20%** of its variance over and above the contribution of gender which interpreted **7%.** Leptin contributes in the prediction of EDSS levels by interpreting **13**% of serum leptin variance. No significant correlation of serum leptin levels with any proinflammatory cytokine profiles.

Conclusion: MS patients have higher serum leptin levels compared with healthy controls. Furthermore, serum leptin levels are probably correlated with greater disability status.

NEUROLOGICAL ASPECTS OF THE ANTIPHOSPHOLIPID ANTIBODIES SYNDROME: STUDY OF 17 CASES

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So far, the question of whether antiphospholipid antibodies (APL) may influence the lupus evolution has not been clearly understood.

The objective of this study is to compare the neurological particularly neurovascular aspects of the primary APL syndrome to lupus associated with APL.

A retrospective study concerning 17 patients was conducted at the Neurology Department of the Ibn Rochd UHC of Casablanca between 1997 and 2010, including 10 patients with primary APL syndrome, 6 patients with lupus associated with APL and 11 patients with lupus without APL.

There were three men and 14 women. The mean age is 32 years old. Vascular events were similar in the 3 groups.

In this study, the authors discuss the epidemiology, pathophysiology of vascular events in lupus and antiphospholipid syndrome.

A COMPARISON OF THE SENSITIVITIES AND SPECIFICITIES OF COMMERCIAL AQP4 ASSAYS AND NMO-IGG TESTING AT DIFFERENT FACILITIES

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Introduction: NMO-IgG is a disease-specific antibody found in sera of a significant proportion of patients with neuromyelitis optica (NMO) and its spectrum disorders and is specific for the CNS water channel protein aquaporin-4 (AQP4).

Objectives:

i) To compare the sensitivities and specificities of commercial kits for AQP4 antibodies utilizing ELISA (Kronus) and cell-based indirect immunofluorescence (IIF; Euroimmun) and

ii) To compare NMO-IgG testing results from different facilities, the Mitogen Advanced Diagnostics Laboratory (Calgary, AB, Canada) and the Multiple Sclerosis (MS) Therapeutics Department of Tohoku University Graduate School of Medicine (Sendai, Japan), with NMO-IgG testing at the Mayo Clinic (Rochester, Minnesota).

Methods: A total of 104 serum samples from patients recruited from the University of British Columbia (UBC) MS Clinic, which were sent for NMO-IgG testing to at least one other facility (Mayo, Japan, and/or Calgary), were screened for NMO-IgG by IIF. Three samples with discrepant results between facilities and/or IIF, including all seropositive and 46 seronegative samples by IIF were assayed by ELISA. The sensitivities and specificities of the IIF and ELISA assays and NMO-IgG testing from Japan and Calgary were calculated and compared using the Mayo results as gold standard.

Results: The sensitivities for Japan (n=19), Calgary (n=15), the ELISA (n=22), and IIF (n=31) were 100%, 80%, 90%, and 80%, respectively, while their specificities were 92%, 80%, 100% and 100%, respectively.

Conclusion: Similar sensitivities and specificities indicate that the ELISA, IIF assay, and NMO-IgG testing at Mayo, Japan, Calgary and the Neuroimmunology Labs at UBC are all comparable.

MULTIPLE SCLEROSIS AND HLA IN MOROCCO

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Objective: Multiple sclerosis (MS) is an autoimmune inflammatory demyelinating disease of the central nervous system that mainly affects young adults. The association between susceptibility to MS and HLA class II genes, in particular the DRB1*15 allele, has been reported in diverse ethnic groups. The aim of our study was to investigate the distribution of HLA-DRB1* and -DQB1* alleles in Moroccan population and their implication in the susceptibility to the disease.

Patients and methods: 45 MS patients were compared to 171 healthy controls unrelated to one another and matched by age, sex and ethnic origin. HLA class II (DRB1* and DQB1*) typing was performed by PCR-SSP and/or Luminex (PCR-SSO). Allelic and haplotypic frequencies, p-values, odds ratio (OR) and 95% confidence interval (CI) were calculated using the software SPSS.

Results: The results show a significant increase of the frequency of DRB1*15 allele (15.6% vs. 8.5%, OR=2.23, 95% CI=1.06-4.7, p=0.033) and a significant decrease of DQB1*03 allele frequency (22.2% vs. 32.3%, OR=0.44, 95% CI=0.23-0.86, p=0.014). In our sample, HLA-DRB1*15-DQB1*06 haplotype seems to induce a susceptibility to MS (9.5% vs. 4.4%, OR=2.43, 95% CI=1.14-5.15, p=0.019).

Conclusions: Our results reveal a role of HLA class II molecules in the predisposition of Moroccan patients to MS. DRB1*15 allele imply susceptibility while DQB1*03 allele seem protective. Although this study needs to be confirmed on a larger sample size, it constitutes the first study of association between HLA class II genes and MS within Moroccan population.

POST-VACCINE DISSEMINATED ENCEPHALOMYELITIS FOLLOWING TETANUS VACCINATION IN PREGNANT WOMAN: A CASE REPORT

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Introduction: Acute disseminated encephalomyelitis (ADEM) is a serious, yet rare complication of the tetanus vaccine. To our knowledge, there had been no reported cases in pregnant women.

Comment: Our patient is a 28-year- old woman who was 10 weeks pregnant. Ten days after receiving the tetanus vaccine, she developed spastic paraplegia and urinary retention, progressing over a period of six days.

The diagnosis of ADEM was made base on her clinical presentation, MRI, and cerebrospinal fluid analysis.

She received high-dose intravenous steroids, followed by an oral taper, and had partial recovery.

Discussion: Neuroradiological and clinical features of post-vaccination ADEM in young women could be mistaken for central nervous system infections and demyelinating diseases.

The time interval from vaccination to onset of symptom and the exclusion of other diagnoses by biological screening form the basis for this diagnosis.

EVALUATION OF NEUROMYELITIS OPTICA IN A DANISH COHORT

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Introduction: Various methods have been used for measuring the aquaporin-4 antibodies (NMO-IgG) in patients with neuromyelitis optica (NMO). The sensitivity and the specificity have varied and there is a need to further develop the methods employed.

Objective: To compare the performance of a radioimmunoprecipitation test (RIPA) and ELISA diagnostic assays for the detection of NMO-IgG.

Methods: Serum samples from 36 Danish patients with CNS inflammation were evaluated. Eleven patients were diagnosed with NMO. The remaining 25 patients were diagnosed with high-risk syndrome of NMO.

All were tested for NMO-IgG with the RIPA test and 7 were tested with ELISA. Specific NMO peptides related to different parts of the human AQP-4 receptor were synthetised and fixed to ELISA plates. The sequence of these 3 peptides were,

1) Biot-Ahx-GPAVIMGNWENH-amideBiot-Ahx-

2) FSKAAQQTKGSYMEVEDN-amideBiot-Ahx-

3) ASMNPARSFGPAVIMGNWENH-amide.

Results: By using the RIPA test 45% of NMO patients were NMO-IgG positive (80% when borderline values were included). In the high-risk group 12% were positive (65% when borderline values were included).

By using the ELISA test only the third peptide showed reaction with 25% NMO-IgG positive in NMO patients and 33% in the high risk group. The positive patients also had other autoimmune diseases.

Conclusion: The sensitivity of the ELISA test for NMO patients was low but the test could characterise patients with more than one autoimmune disease.

MECHANISMS OF CELL DEATH IN MYOFIBERS ATTACKED BY T-LYMPHOCYTES: OBSERVATIONS IN NONHUMAN PRIMATES

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Introduction: In some autoimmune myopathies (polymyositis and inclusion body myositis) and during rejection of myofibers in humans and nonhuman primates allotransplanted with myoblasts, CD8+ lymphocytes focally surround and invade myofibers. However, the mechanism of cell death of these myofibers remains elusive.

Methods: Trying to clarify this issue, we allotransplanted myoblasts in skeletal muscles of macaques immunosuppressed with tacrolimus and we stopped immunosuppression 1 month later to induce a rapid massive rejection of the allogeneic myofibers. Cell-grafted sites were biopsied at 2-week intervals and analyzed by histology.

Results: Loss of allogeneic myofibers was rapid (< 4 weeks) when tacrolimus blood levels fell below 10 ng/ml, simultaneously with a peak of CD8+ lymphocytes infiltration. Several myofibers were necrotic at the peak of lymphocyte infiltration, as revealed by C5b-9 immunodetection. They were surrounded and sometimes invaded by CD8+ lymphocytes. Dystrophin and spectrin immunodetection showed sarcolemmal deletions in sites of CD8+ lymphocyte invasion of myofibers and the collapse of the sarcolemma in C5b9-positive myofibers. Active caspase-3 was immunodetected in several myofibers surrounded by CD8+ lymphocytes and with sarcolemmal deletions but there was no evidence of a complete apoptotic process.

Conclusions: To our knowledge, this is the first evidence that the final collapse of the myofiber segments attacked by CD8+ lymphocytes occurs by necrosis and that this is probably the consequence of sarcolemmal deletions at the sites of lymphocyte invasion. Caspase 3 is activated in at least some myofibers, but this does not appear to lead to a complete process of apoptosis.

A CASE OF VOLTAGE-GATED POTASSIUM CHANNEL ANTIBODY NEGATIVE MORVAN´S SYNDROME IMPROVED WITH PLASMAPHERESIS

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Objective: To describe a patient with Morvan's Syndrome who was voltage-gated potassium channel (VGKC) antibody negative, without co-existing autoimmune disorders who improved with plasmapheresis, implying an immunologic mechanism other than VGKC antibodies is involved in this rare condition.

Background: Morvan's Syndrome is a rare disease characterized by chronic insomnia, peripheral neuromyotonia with dysautonomia such as hyperhidrosis and constipation. This is usually seen in association with positive VGKC antibodies and sometimes with autoimmune disorders such as myasthenia gravis or neoplasms such as small cell lung carcinoma or thymoma.

Design: A 33 year old woman was admitted to the intensive care of our hospital with insomnia, agitation, bradycadia, autonomic instability, visual hallucinations, and neuromyotonia. The examination showed a well developed female in a stuporous state. She had hypertonia and hyperreflexia. The patient had intermittent episodes of bradycardia-tachycardia.

Electrophysiologic, radiologic, CSF, routine chemistry studies were unremarkable.

Results: A complete paraneoplastic work up including VGKC antibodies was negative. The clinical picture led to a diagnosis of VGKC antibody negative variant of Morvan's Syndrome. Plasmapheresis dramatically improved the neuromuscular, dysautonomic as well as the cognitive symptoms. Oncologic work-up including total body PET scan remains unrevealing. After one year, the patient was doing well, and returned to her baseline daily activities.

Conclusions: Since the workup for known antibodies associated with this case of Morvan's Syndrome turned out to be negative, we hypothesize that there is a possibility of the presence of a yet unknown antibody, which may be associated with this rare syndrome.

THE NEUROSTEROID DEHYDROEPIANDROSTERONE SULFATE RESTORES DOPAMINERGIC LOSS AND VOLONTARY MOUVEMENT ABNORMALITIES IN A NEUROLOGICAL DISORDER DUE TO CHRONIC LIVER FAILURE

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Hepatic encephalopathy (HE) is a neuropsychiatric disorder due to acute or chronic liver failure. Patients with chronic HE develop a neurological syndrome with cognitive, psychosocial and physical abnormalities. In chronic HE, several neurotransmitter systems such as dopamine and neuromodulators such as neurosteroids (steroids synthesised within the nervous system) are altered. We recently demonstrated that neurosteroids may be pathophysiologically relevant in HE. By means of radio-immunoassay, we now demonstrate that the neurosteroid dehydroepiandrosterone sulphate (DHEAS) is significantly reduced in brains of patients died in hepatic coma compared with normal subjects free from any neurological or hepatic diseases ($p< 0.001$) . To assess the effect of DHEAS treatment in chronic HE, use was made of an animal model of rats subjected to bile duct ligation (BDL). In BDL rats, we show that dopaminergic neurons assessed by tyrosine hydroxylase immunohistochemistry and western blot was significantly reduced compared with controls ($p< 0.01$), together with a reduced locomotor performance assessed with open-field ($p< 0.02$) and treadmill ($p< 0.0001$) tests. Reduced TH immunreactivity is observed in the nuclei of origin substantia nigra and ventral tegmental area as well as their projections within striatum and cerebral cortex. Administration of 5 mg/kg DHEAS to BDL rats increases brain and plasma levels of DHEAS and restores locomotor performance and TH-immuoreactivity within the dopaminergic neurons and their projections. Our data support alteration of dopaminergic nigro-striato-cortical circuits and locomotor behaviors in BDL rats. As replacement therapy, we suggest that treatment with DHEAS could be beneficial for patients with chronic HE.

LESCH-NYHAN SYNDROME IN A GYPSY BOY FROM SLOVAKIA - A NEW SPLICING MUTATION IN HPRT1 GENE AND A GENOTYPE-PHENOTYPE REFERENCE

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Background: Lesch-Nyhan syndrome is an X-linked disorder of purine metabolism caused by Hypoxanthine-guanine phosphoribosyltransferase (HPRT) deficiency. Mild forms are termed X-linked hyperuricaemia or Kelly-Segmiller syndrome, clinically presenting with gout, eventually also mild neurological symptoms. Severe HPRT deficiency additionally leads to serious neurologic impairment - psychomotor retardation, hypotonia, automutilations, and nephrolithiasis with chronic renal failure.

Methods: We bring clinical and DNA findings in a Gypsy patient who presented with acute renal failure and hyperuricaemia already in newborn age.

Results: Present clinical status (age 4 years) represents severe delay - no sitting, no speach, hypotonia, dyskinesis. Self-biting started in his 2nd year of life. Renal functions are reduced, ultrasound shows kidney calcifications.

Analyzing HPRT1 gene of the patient, we have identified a novel splicing mutation c.27+2T>C in intron 1 (IVS 1+2T>C). The influence of mutation´ impact to mRNA splicing was evaluated by cDNA analysis. Sequencing of cDNA containing exons 1,2 and a part of 3, proved defective splicing of mRNA. Mutation c.27+2T>C abolishes the natural donor splice site and an alternative splice site within intron 1 is used (r.27_28ins49). The protein translated from the mutated RNA is predicted to contain only 26 amino acid residues. However, according to our results, the majority of mutated mRNA undergoes nonsense-mediated mRNA decay and the defective protein is not synthesized.

Conclusion: The severe mutation described here occured de novo in the patient and led to Lesch-Nyhan syndrome. Our results in accordance with published data point to a good genotype-phenotype correlation in patients with HPRT deficiency.

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VALUE OF BONE MARROW EXAMINATION OF NEURO-METABOLIC DISEASES

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Results: We reviewed the cases of 4 patients having bone marrow abnormality revealing storage disease. We report 2 cases of Niemann-Pick type C disease. They were 45 and 42 years of *age*. They presented cognitive impairment and vertical gaze paralysis. A 19 year old girl presented with a progressive myoclonic epilepsy due to Gaucher´s type 3. An eight year old girl presented with an epileptic encephalopathy, a partial oculocutaneous albinism due to Chediak Higashi syndrome.

Conclusion: Bone marraow is especially helpful in lipid storage disease. In Niemann-Pick type C disease, it shows sea-blue histiocytes and vacuolated histiocytes. In Gaucher disease, it shows the presence of Gaucher cells. In Chediak Higashi syndrome, it shows giant granules in the leukocytes.

Storage diseases are often unrecognized. The diagnosis require enzymatic dosages, which can be long and difficult. In this context, the detection of inconstant cytologic anomalies in blood and bone marrow smears, permitting a rapid screening, is an important step in the diagnostic approach which lead to early specific treatment.

NEUROLOGICAL MANIFESTATIONS IN WILSON´S DISEASE (ABOUT 7 CASES)

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Introduction: the Neurological symptoms in Wilson´s disease are dominated by extrapyramidal manifestations. The delayed diagnosis is due to insidious development. The prognosis remains unfavorable in advanced forms.

Worsk´s purpose: Through 7 cases admitted in Ibn Rochd UHC of Casablanca (1999-2011), we try to describe the evoluting, clinical, biological, radiological, therapeutic aspect of the neurological affections in Wilson´s disease.

Results: 6 men, one woman; of mean age of 20.8 years old, the disease supervened at a mean age of 17.6 years old; There was family consanguinity (4 cases), similar cases family (4 cases). The Neurological signs were at onset (5 cases), dominated by dystonia (4 cases), tremor (2 cases), dysarthria (5 cases), cognitive impairment (3 cases) , psychiatric symptoms (1 patient) 6 patients already had liver cirrhosis. The Kayser Fleischer's ring was present (4 patients). The Cupric assessment was disrupted in the 6 performed cases.

At encephalic MRI: hyperintensities in the basal ganglia (5 cases), cortical atrophy (3 cases) on CT brain: hypodensity of the basal ganglia (1 case), 3 patients were administered D-penicillamin, 3 others under zinc salts, with steady progress (4 cases), death (2 patients).

Discussion: Neurological symptoms in Wilson´s disease are classical, sometimes badly diagnosed, they were suspected in the presence of extrapyramidal symptoms in young patients with liver disease.

The Diagnosis is based on a set of arguments, mainly that the cupric assessement remains difficult to interpret. The treatment is based on copper chelators and zinc salts. The prognosis depends on early diagnosis and the take-in-charge.

PERIPHERAL NEUROPATHIES IN NEUROMETABOLIC DISEASES IN TUNISIAN CHILDREN

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Introduction: Neurometabolic diseases (NMDs) are a group of inherited disorders presenting with a complex clinical picture. In NMDs, the neuropathy may be predominant and/or inaugural.

Objective: To describe the types of neuropathies most frequently observed in NMDs and discuss their clinical value as pointers towards specific types of NMDs.

Patients and methods: A retrospective study (2005-2011) was conducted in 130 patients with confirmed or high probable NMDs. Neuropathy was present in 23 % of patients. Main clinical and electrophysiological parameters of peripheral nervous system were analyzed.

Results: 30 patients (11 males and 19 females) had neuropathy. The most frequent diseases associated to peripheral neuropathy were mitochondriopathies (50%) and lysosomal leucodystrophies (40%). Peripheral neuropathy was the first neurological manifestation of the NMD in one patient (acute intermittent porphyria) and a part of more diffuse clinical picture in the others. Sensorimotor neuropathy was observed in most cases (70%). Axonal forms represented 53 % of the cases (mainly associated to mitochondriopathies). Demyelinating forms were observed in 40% of the cases (mainly associated to lysosomal leucodystrophies).

Discussion: Systematic ENMG study is a crucial exam for the etiological diagnosis of NMDs since they disclose an infraclinical neuropathy in half of the patients and allow identifying pathophysiological mechanism. Neuropathy is exceptionally associated with diseases giving rise to intoxication. Axonal neuropathy is the most frequent type and suggests energy metabolism diseases, whereas demyelinating neuropathy is suggestive of complex molecule diseases.

Conclusion: ENMG studies allow orientating diagnosis suspicion of unidentified NMDs and proposing appropriate treatment and genetic counselling.

WERNICKE'S ENCEPHALOPATHY AT THIRTY YEAR OLD

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Wernicke's encephalopathy is very common consequence of long-term alcohol abuse and dependence, but its existence at thirty year olds is rare because of what we make this case report.

The patient O.M., age 32, untreated alcoholics for a number of years, with mental and neurological status (polyneuropathy, desinhibition phenomenon, abducens and conjugate gaze palsies), on admittance to the psychiatric clinic, typical for Wernicke's encephalopathy.

Heteroanamnesticly we find out that the patient has been drinking alcohol intensively for four years, and seven days before admittance he had everyday diarrhea.

Understood diagnosticly as a psycho-organic syndrome in diagnostics has been promptly done CT of endocranium without and with contrast that has shown existence of diffuse cortical and subcortical atrophy. It has also been done another complementary diagnostics (biochemical blood tests, RTG of hart and chest, consultative checks of endocrinologist, hematologist, dermatologist, infectologist, neuro-surgeon, oftalmologist) which determined vitamins B deficiency and anaemia megaloblastica.

After six-week hospital treatment during which he was treated with mega doses of vitamins, especially B complex, and matching symptomatic therapy, the partial reduction of psychopathology with residues in cognitive sphere has been achieved.

NEUROLOGICAL MANIFESTATION OF VITAMIN B12 DEFICIENCY

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Introduction: Vitamin B12 deficiency is a common metabolic disorder. Neurological manifestations range from reduced and unspecific symptoms to encephalo-myelopathy. The purpose of this study is to present clinical and biological aspects and to describe nerve conduction and MRI findings of neurological events caused by vitamin B12 deficiency.

Material and method: Retrospective analysis over 10 years (2001-2010) had been performed in an academic medical center (neurological department - Sahloul Hospital - Sousse- Tunisia). There were included 21 patients with neurological events due to vitamin B12 deficiency.

Results: Twenty-one patients were collected, whose average is 58.25 [33-83] with a sex ratio of 1.6. the history was dominated by alcoholism, autoimmune diseases and surgery of the digestive tract, respectively in 40%, 24% and 15%. . The gait pattern was the most common disorder for consultation (81%) followed by disorder of sensitivity. Neurological examination found an array of combined sclerosis of the spinal cord in 52%, a peripheral neurogenic syndrome in 57%. The dosage of vitamin B12 was decreased in 83% with a rate < 60mg/l. Gastrointestinal endoscopy objectified a fundic atrophy in 52%. Involvement of the peripheral nervous system was dominated by sensorimotor polyneuropathy in 43% with an axonal damage. The MRI of spinal cord was normal in 82%. The evolution was marked by improvement < 50%.

Conclusion: Vitamin B12 deficiency is a curable metabolic disorder. Neurological recovery depends closely with vitamin supplementation delay.

PROBING MECHANISMS OF CYANOGEN NEUROTOXICITY: RELEVANCE TO THE PATHOGENESIS OF KONZO, A MOTOR NEURON DISEASE HIGHLY PREVALENT IN SUB-SAHARAN AFRICA

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Background: Cassava dietary dependency is associated with deficiency in essential sulfur amino acids (SAA) cystein and methionine needed for the detoxification of cyanide, a by-product of the main cassava cyanogenic glucoside, and outbreaks of konzo.

Objective: Elucidate nervous system (CNS) targets of cassava cyanogen analogs, notably sodium cyanide (NaCN) and sodium cyanate (NaOCN), under conditions of balanced vs. SAA amino acid diets.

Methods: Young adult rats were treated with 2.5 mg/kg NaCN, 50-200 mg/kg NaOCN, or saline; and fed normal (AAA) or 75% SAA-deficient diet. Activity of SAA-dependent CN-detoxifying rhodanese was assessed in plasma and CNS. Proteomic studies elucidated changes associated with the neurotoxicity of NaCN or NaOCN.

Results: NaCN induced seizures under SAA-deficient diet while NaOCN induced motor weakness. Rhodanese activity was higher in CNS vs. plasma, however, with no differences across treatments and diets. Proteomic analyses revealed differential patterns of (neuro)protein-carbamoylation. Proteins involved in redox and protein folding mechanisms, and maintenance of neuronal integrity, appeared to be targeted.

Conclusion: Our studies revealed molecular targets of cassava cyanogen analogs under conditions of balanced vs. SAA-deficient diet. The lack of rhodanese response to SAA dietary-deficiency suggests that

(1) chronic SAA-deficiency may be needed to impair the detoxification of cyanide,

(2) other thiol-donors may compensate for the SAA-dietary deficiency, and

(3) in concert with our proteomic findings, the putative role of SAA deficiency in konzo may need to be revisited with a focus placed on its role on redox and protein folding mechanisms.

LESH-NYHAN SYNDROME: A NOVEL MUTATION IN TUNISIAN CHILD

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Introduction: Lesch-Nyhan syndrome is an X-linked recessive inborn error of purine metabolism caused by the complete deficiency of hypoxanthine phosphoribosyltransferase (HGPRT). To date, over 300 mutation of HGPRT gene have been identified. We report a Tunisian patient with Lesch-Nyhan disease in whom a novel mutation of the HGPRT gene was identified.

Case report: A 6 year-old boy, born to first degree consanguineous parents, with a family history of renal failure in two maternal cousins and a personal history of recurrent urinary tract infection. He presented with a psychomotor delay, movement disorders and behavioral disturbance. Neurological examination showed: axial hypotonia, generalized choreic and dystonic movements, quadripyramidal syndrome and mutilating lesions of fingers. Brain MRI was normal. Biological investigations showed a hyperuricemia. The HGPRT activity was undetectable confirming the diagnosis of Lesh Nyhan disease. Genetic study of HGPRT gene (Xq26-27.2) showed a novel mutation in exon 4: c.320_326delATGACCAinsCTTTTTTAT leading to a codon stop in HGPRT protein.

Comments and conclusion: Lesh Nyhan disease is characterized by uric acid overproduction which is associated with lithiasis and gout, psychomotor delay, dystonia, choreoathetosis and compulsive self-injurious behaviour. Our patient had a typical presentation. The diagnosis is based on clinical and biochemical findings (hyperuricemia) enzymatic activity and molecular tests. Documented mutations in HGPRT deficiency show a high degree of heterogeneity in type and location within the gene and that explain the constantly appearance of new mutations in population as in our patient.

Molecular diagnosis in HPRT-deficient patients allows faster and more accurate carrier and prenatal diagnosis.

METHYLMALONIC ACIDEMIA AND HYPERGLYCEMIA: AN UNUSUAL ASSOCIATION

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Introduction: Hyperglycemia is an exceptional manifestation of Methylmalonic acidemia (MMA). We describe a patient with MMA in whom we observed a hyperglycemia which improved under treatment of the metabolic crisis.

Case report: A 14 month-old boy presented with an acute generalized dystonia and lethargy preceeded by fever, vomiting and lethargy at the age of 13 months. Biological investigations showed a hyperglycemia, lactic acidosis, and hyperammonemia. Urinary organic acid analysis showed accumulation of methylmalonic acid, tiglylglycine and methylcitrate and leads to the diagnosis of MMA. The patient underwent symptomatic treatment with rapid improvement of general condition, consciousness and gradual normalization of biological parameters especially glycemia after six days without using insulinotherapy.

Discussion: MMA is an autosomal recessive disorder caused by a deficiency of methylmalonyl-CoA mutase resulting in methylmalonic acid accumulation. Biochemically, the disorder is typically characterized by: metabolic acidosis, ketonemia or ketonuria, hyperammonemia, leukopenia, thrombocytopenia, and anemia. Hypoglycemia is a frequent manifestation. Our patient presented a hyperglycemia which is unusual in MMA, since we found only three patients reported with this association. Pathophysiology remains unknown. In reported cases, hyperglycemia was treated by insulin therapy and reducing glucose intravenous infusion, with fatal outcome. In our patient, outcome was exceptional because glycemia spontaneously normalized after treatment of the metabolic crisis.

Conclusion: Hyperglycemia is an exceptional manifestation of MMA and could be a seriousness marker.

X -LINKED ADRENOLEUCODYSTROPHY IN MOROCCO: RESULTS OF FAMILY SCREENING

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X-linked adrenoleukodystrophy (X-ALD) is severe demyelinating disease, resulting from inactivating mutations in ABCD1 gene, with pathognomonic accumulation of saturated very long-chain fatty acids (VLCFA) in tissues and body fluids. It results in clinically diverse phenotypes, the fatal disorder of cerebral ALD (cALD) or a milder disorder of adrenomyeloneuropathy (AMN).

We present the preliminary results of eighteen months of experience in the diagnostics of X-ALD in the department of Neuropediatrics Children´s Hospital and the Center of inherited and metabolic diseases of Rabat.

Our studies involved 6 pedigrees with a total of 12 identified at-risk members. Patients were between 4 and 12-year-old boy, and we found different phenotypes in the same family.

Clinically, the presentation is primary adrenal insufficiency with cutaneous-mucosal hyperpigmentation, and dehydration with hyponatremia and hyperpotassemia in 36% of boys, associated to neurological disorders.

Confirmation diagnostic assays were performed in 7 Childs and 4 women with measuring serum VLCFA concentrations with Gas Chromatography; The reports of C24/C22 and C26/C22 VLCFA was high for 4 children and 2 women heterozygous homozygous which confirmed the diagnosis of X-ALD.

The study of molecular ABCD1 gene was performed in members of one family. The mutation c.1661G> A (p.Arg554His) was found in 2 heterozygous females and 2 males homozygous; none of the 2 heterozygous females do not have symptoms of clinical disease. However, Identification of heterozygous provides the opportunity for disease prevention through genetic consulting.

Diagnostic tests should be offered to all at-risk relatives of X-ALD patients and include members of the extended family.

NEUROLOGICAL ASPECTS OF FAHR SYNDROME SECONDARY TO DYSPARATHYROIDIES: 10 CASES STUDY

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Introduction: The Fahr syndrome is defined by the presence of intracerebral calcifications, usually symmetrical of basal ganglia . In this context, a dysparathyroidy must be sought. Neurological manifestations are varied: epilepsy, extrapyramidal syndrome, cognitive-behavioral disorders and the response to calcium and D vitamin therapy is generally satisfactory.

Patients and methods: The records of patients admitted to the neurology department of Casablanca UHC between 1997 and 2011 and presenting neurological symptoms combined to intracerebral calcifications and phosphorus calcium metabolism disorders were analyzed retrospectively. A dosage of parathyroid hormone was performed in these patients.

Results: 10 patients were included with a mean age of 37 years and a sex ratio of 1.

There was a majority of cognitive-behavioral disorders (5 cases), epilepsy (4 cases) with a case of status epilepticus and an extrapyramidal syndrome (3 cases). One patient had an associated idiopathic intracranial hypertension syndrome and tetany was constant. Etiologically, 3 patients had primary hypoparathyroidism, 4 patients had hypoparathyroidism secondary to thyroidectomy and 3 patients had pseudohypoparathyroidism.

Calcium and D vitamin therapy actually combined to symptomatic treatment (antiepileptic drugs, levodopa) allowed a rapid improvement particularly in tetany and epilepsy and to a lesser degree the cognitive-behavioral disorders and extrapyramidal syndrome.

Conclusion: This study shows that replacement therapy can quickly improve symptoms directly induced by hypocalcemia (tetany, seizures, behavioral disorders). Delayed diagnosis exposes the patient to the extension of intracerebral calcifications which account for lesser response of other symptoms, particularly extrapyramidal syndrome and dementia.

NEUROLOGICAL MANIFESTATIONS OF VITAMIN B12 DEFICIENCY: A RETROSPECTIVE STUDY OF 42 CASES

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Neurological symptoms of B12 vitamin deficiency are polymorph. Causes are dominated by Biermer's disease and B12 vitamin non dissociation that is frequent in the elderly.

We realized a retrospective study during 17 years. Patients with neurological symptoms associated to megaloblastosis were included.

Forty two cases were analyzed. Mean age was 53.7 + 14.5 years and there were 16 women and 26 men. Neurological signs included combined medullar sclerosis (N = 12), peripheral neuropathy (N=15), isolated paresthesia (N= 11) and inferior limb pyramidal syndrome (N=2). Neurological signs revealed vitamin B12 deficiency in 6 cases. Mean heamoglobin rate was 6.2 + 2.1 g/dl (1.7 - 12.8), mean MCV was 110.7 + 59 fl (94-134). Fourteen patients had macrocytic anemia, one patient normocytic anemia, 13 bicytopenia and 13 pancytopenia. In one patient there is macrocytosis without anemia. Cobolamin deficiency was confirmed by laboratory test in 17 patients. Medullar RMI showed antero-posterior cordonal demyelinisation of cervico-dorsal medulla in 4 cases and atrophy of cervico-dorsal medulla in 1 case. Electromyography confirmed neuropathy in 13 cases with neuromuscular post synaptic block in one case. Causes of B12 vitamin deficiency were Biermer's disease in 22 cases, non-dissociation of vitamin B12 in 12 cases and partial gastrectomy in one patient. In 7 patients, no eatiology was found. In two cases, Biermer's disease was associated with myasthenia. Treatment with parenteral vitamin B12 induced neurological symptoms regression in 26 patients.

CISPLATIN-RELATED REVERSIBLE POSTERIOR LEUKOENCEPHALOPATHY SYNDROME IN A 37-YEAR-OLD FILIPINA: (A CASE REPORT AND REVIEW OF LITERATURE)

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Background: Cisplatin is a commonly used chemotherapeutic agent for a variety of tumor types. It exerts its cytotoxic effects by platination of DNA; but central nervous system toxicities have rarely been reported. Reversible Posterior Leukoencephalopathy Syndrome (RPLS) is a rare but increasingly identifiable clinicoradiologic process in cancer patients associated with cytotoxic and immunosuppressive agents. However, some clinicians often overlook this disorder. With increased awareness of RPLS by neurologist, cancer patient care may be improved and further insight through continued research may be gained.

Objectives: To describe the clinical and radiologic manifestations of RPLS; to discuss its possible pathophysiology.

Casr report: A 37 year old, female, diagnosed with Cervical Cancer Stage IIB was admitted in our institution for her first cycle chemotherapy with Cisplatin (86 mg/dose) and (5-FU at 1500 mg/dose) concurrent with radiation therapy. On the start of day-4 chemotherapy, she was noted to be aphasic and had blank stares and with elevated blood pressure. Blood chemistries showed creatinine at 3.64 mg/dl; calcium 0.97 mmol/L and magnesium at 0.5 mmol/L. Cranial MRI with gadolinium contrast findings showed evidence of abnormal white matter bright signals in both cerebral hemispheres, posterior limbs of both internal capsules and corticospinal tracts (at the level of cerebral peduncle), pontine tegmentum, brachium pontis on both sides and corpus callosum.

Conclusion: Significant reversal of neuroradiological abnormalities coupled with complete clinical recovery suggests the diagnosis. Clinicians must be aware of this syndrome as its recognition obviates unnecessary diagnostic procedures. This syndrome is reversible and has a good outcome.

BRAKE FLUID TOXICITY FEIGNING BRAIN DEATH

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Introduction: Brake fluid (glycol based), toxicity is known to have a protean of central and peripheral nervous system manifestations. Toxic effect is generally attributed to perivascular deposition of calcium oxalate crystals in various tissues. However, clinical features resembling brain death has rarely been reported. We report a case of break fluid toxicity simulating brain death.

Case report: A 21 y male presented with 3 days of recurrent vomiting, bilateral flank pain, headache, somnolence, and decrease urine output, after ingestion of break fluid mixed with energy drink. He was found to have acute renal failure with metabolic acidosis. Neurologically, he had bilateral sensorineural deafness and facial palsy, fixed dilated pupils, with normal extraocular eye movements. By day 7, he became arreflexic and motor power deteriorated to 0/5. On day 10, brainstem reflexes were lost. Nerve conduction studies showed absence of motor and sensory responses. CSF analysis revealed high protein(2.27g/l) and white cells(47). EEG demonstrated diffuse theta/delta slowing with superimposed beta activity. His MRI brain was normal. Patient was managed symptomatically with regular hemodialysis. He showed slow improvement of his neurological status. Currently, at 6 months from ingestion, he is still at a rehabilitation facility requiring haemodialysis. He is awake, alert, oriented fully, with bilateral sensory neuronal hearing loss, mildly dilated non reactive pupil, with muscle power 4-/5, and arreflexia. His repeat NCS showed low amplitude CMAP in median and ulnar nerves.

Conclusion: Patients following glycol toxicity could end up being *locked in* and clinically mimic brain death.

BILATERAL OPTIC NEUROPATHY DUE TO MUSHROOM POISONING - REPORT OF ONE CASE

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Optic Neuropathy is characterized by Visual loss and loss of color vision with centrocecal scotoma and afferent pupillary defect. Optic neuropathy may be unilateral or bilateral and have different etiologies such as inflammatory- ischemic- infectious- parainfectious- nutritional- infiltrative and compressive causes. One of important causes are toxic-drug etiology such as Methanol toxicity. Here we report one case due to mushroom poisoning.

Patient was a 42 years old man which consumed mushroom at mountain at NAGHADE city of West Azarbayjan province of IRAN. 12 hr later developed diarrhea- vomiting- generalized weakness which become better by supportive measures after 2 days. at day 3 after eating, he developed bilateral visual loss and pain of eyes at movement- RAPD and mild papilledama at fundoscopy. Other neurologic and systemic examinations was normal. Brain CT and Brain MRI was normal but VEP demonstrated bilateral P100 loss at amplitudes and prolonged latencies.

Patient treated with Solumedrol pulse therapy for 3 days without any benefit but after one month follow up his visual Acuity and pupillary reflexes were better.

This case reveals mushroom toxicity as one of toxic causes of optic Neuropathy which previously was relatively unknown as etiology of this disease.

EFFECTS OF VITAMIN E ON CENTRAL NEURAL DEVELOPMENT OF FETUSES OF DIABETES-INDUCED RATS

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Introduction: It has been established that maternal hyperglycemia increases production of free radicals and reduction of antioxidants especially vitamins E and C and by thus causes embryonic defects. This study was designed to evaluate the effects of vitamin E in prevention of embryonic developmental damages.

Materials and methods: Diabetes was induced by intraperitoneal injection of 65mg/kg Streptozotocin in 28, 3-month old female rats of 250-300 gram weights. There were also 15 female rats of the same age and weight as control group. The two groups were mated overnight with male rats. The mated female rats were divided accidentally into two groups. One group of diabetic rats received 400mg/kg vitamin E via feeding tube right from the 1st day of pregnancy. Animals were killed under general anesthesia on the thirteenth day of gestation, then embryos of the two groups were examined for incidence of neural tube malformations.

Results: Results showed that not only the incidence of embryonic neural tube malformations significantly increased in the diabetic groups ($p< 0.001$), but also the diabetic group that received vitamin E had less gross neural malformations ($p< 0.001$)

Conclusion: Based on the above findings, it is suggested that vitamin E supplementation in early stages of pregnancy in diabetic mothers, may prevent embryonic malformations.

MELAS SYNDROME: REPORT OF TWO CASES AND REVIEW OF THE LITERATURE

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Mitochondrial myopathy with encephalopathy, lactic acidosis and stroke-like episodes (MELAS) is a maternal inherited mitochondrial disorder charcterized by a variety of neurologic, muscular and systemic manifestations with an onset before age 40. The prognosis is conditioned by the progression of neurologic deficit and systemic complications.

We report the cases of a 16 year-old boy and a 39 year-old man. The former case presented with partial secondary generalized seizures and status epilepticus. The diagnosis was made a few years from onset with a bad prognosis; death at age 21.The latter case presented with an acute cognitive impairment and stroke-like episode with myoclonic jerks. We reviewed the latest literature for genetic data and treatment trials.

NEUROLOGIC IMPAIRMENT AS THE PRESENTING FORM IN WILSON'S DISEASE, A STUDY ABOUT FOUR CASES

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Introduction: Wilson's disease (WD), also called “hepatolenticular degeneration”, is a genetic affection with autosomic recessive transmission. It is characterized by a tissular accumulation of copper essentially in liver and brain. Clinical manifestations in WD are heterogeneous, dominated by hepatic and neuropsychiatric symptoms.

Case report: We report four cases of WD, respectively in two male and two female patients. Median age was 22.7 years (range: 19~26), and median age of onset was 12.7 (range: 3~21). Diagnostic was mad by the copper balance (Cupremia, cupruria and ceruloplasmin dosage).

Results: Neurologic symptoms were the presenting form of the disease in the four cases (dysarthia, tremor and dystonia are the major finding). Psychiatric disorders were associated in one patient. Kaiser-Fleischer ring was found only in one case.

All the patients were treated with Pennicilamine as soon as the diagnostic was established, zinc therapy was associated in two patients.

On treatment, neurologic symptoms were stabilized in one patient, partial improvement is shown in two patients, and one had almost fully recovered. No patient developed intellectual alteration. Thus, one patient developed hepatic manifestations of WD on treatment.

Conclusion: Neurologic impairment is a frequent manifestation of Wilson's disease. Early diagnosis and adequate treatment is compulsory to improve the curse of the disease and to stop the hepatic disorders which are fatal if not treated.

COMPLETE CLINICAL RECOVERY OF A PATIENT WITH EXTRAPONTINE MYELINOLYSIS: A CASE REPORT

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Myelinolysis is characterized by non-inflammatory demyelination that affects the central portion of the pons and extrapontine areas of the central nervous system. We describe a 21-year-old Caucasian woman, who presented with hemiparesis, intranuclear ophthalmoplegia, athetosis of upper extremities, generalized weakness and lethargy. Brain MRI demonstrated bilateral symmetrical basal ganglia lesions, as well as lesions in the internal and external capsule and the mesencephalon, corresponding to extrapontine myelinolysis. The patient's medical history did not show evidence of previous hyponatremia, intoxication, malnutrition, substance abuse, pregnancy, or any illness. Routine blood tests were normal, whereas cerebrospinal fluid analysis showed the presence of oligoclonal bands. Toxicological, virusological and immunological findings were normal. The patient achieved a complete neurological recovery on a two-week oral corticosteroid therapy. More investigations are necessary to identify the precise risk factors and the mechanism underlying demyelination.

AN EPIDEMIC OF PSYCHOSIS IN A SUDANESE VILLAGE

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In January 2010 a wave of pathological laughter, crying and bizarre behavior affected about 122 people in a remote village in the far North West State of Kordofan in Sudan. Our team underwent a detailed investigation of the clinical presentations and possible underlying causes and provided medical treatment as well.

Children constituted 52% and were more severely affected than adults. The main presentations were visual hallucinations, uncontrolled laugher, twisting movements, delirium, and convulsions. No vascular manifestations were detected. Males were affected more than females (60%).

In a few of the severely affected patients a lumbar puncture was performed (7/122).

The patients were treated symptomatically with benzodiazepines. Carbamazepine was used in those presenting with recurrent seizures. Routine urine, blood and CSF basic parameters were within normal limits for routines, but the toxicology screen of urine missed the critical period for detection of the suspected toxic substances. Samples from the water sources were clear, but the wheat consumed by the villagers grew the fungus Claviceps purpurea in abundance. Further tests on the fungi revealed their production of very high level of LSD-like ergot alkaloids.

No long term neurological sequalae noticed on follow up.

The wheat came from stores in Darfur which is near the affected village.

The epidemic was contained and a public education campaign was launched to avoid recurrence of the event.

This paper includes videos and a literature review.

This study draws attention to the importance of vigilance about neurotoxins as causes of bizarre presentations.

A CASE OF CENTRAL PONTINE MYELINOLYSIS IN AN ALCOHOLIC PATIENT DESPITE THE SLOW CORRECTION OF HYPONATREMIA

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A 60 years old woman with a history of alcoholism was admitted for recurrent vomiting and diarrhea. The initial physical examination found a severe tiredness and deshydratation with blood creatinine at 280 and urea at 30 mmol/l, and with a hyponatremia at 118 mmol/l. A rehydration and progressive correction of the hyponatremia were done. At day 5 after the admission the patient presented an alteration of consciousness with a Glasgow score at 11/15 associated with a tetrapyramidal syndrome. The brain MRI and CSF studies were normal. At day 18 a neurological impairment occurred progressively with a dysarthria, dysphagia and a severe quadriparesis. The brain MRI at day 18 found a massive pontine high T2- and low T1-intensity without contrast enhancement. The DWI was altered with increased ADC. Further we observed a progressive recovery of motor signs achieving a functional independence in 6 months.

Discussion: Although, the hyponatremia was corrected carefully (7 mmol/l/day), our patient presented a severe central pontine myelinolysis. The recommended correction speed is 8 mmol/l/day. We observed a classical biphasic course: firstly, the temporary improvement of confusion after hyponatremia correction and, secondly, the neurological deterioration with brainstem signs and quadriparesis. Surprisingly the first brain MRI at day 5 was normal. In contrast with good motor recovery, severe dysexecutive syndrome persisted.

Conclusion: Severe central pontine myelinolysis in an alcoholic patient occurred even though hyponatremia was corrected slowly and initial brain MRI was normal. The cognitive impairment may be an important long term burden even after a good motor recovery.

MYASTHENIA AND BIERMER'S DISEASE: A CLINICAL CASE

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The association of myasthenia and Biermer anemia is very rarely reported. We report an observation of Biermer's disease associated to myasthenia in a 22 year-old woman with no family history in whom the anemia and the myasthenia developed in the same time. She has a fluctuating weakness of voluntary muscles with fatigability and diplopia.

Hemoglobin was 5.8 g/dl, mean corpuscular volume was 101 fl and vitamin B12 serum was very low (65 pg/l). Anti-acethyl choline receptor antibodies and intrinsic factor antibodies were positive. Electromyography showed neuromuscular post synaptic block and chest CT scan revealed a thymoma.

She was given cholinergic drugs, vitamin B12 supplements and thymectomy was performed. The patient showed gradual improvement in her clinical symptoms.

In the literature, in a serie of 138 myathenia this association was found in only one case in whom the anemia developed 19 years after the discovery of calcified thymoma and 13years after the appearance of the first signs of myasthenia.

The authors aim to find a possible physiopathological link between these two conditions.

NEUROLOGICAL MANIFESTATIONS OF VITAMIN B12 DEFICIENCY

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Introduction: Vitamin B12 deficiency is a longstanding public health problem which affects more than 20% of the elderly population. Neurological and psychiatric symptoms of vitamin B12 deficiency are polymorph.

The aim of this study was to describe the rare neurological complications of cobalamin's deficiency.

Methods: We report a retrospective study, over a period of three years insisting of eight patients with neurological symptoms and cobalamin's deficienty confirmed by blood levels under 160 µg /l.

Results: Eigth cases were analyzed. Mean age was 45±14.3 years and there were five women and three men. Neurological signs included : ischemic stroke (n=1), combined medullar sclerosis (n=4), peripheral neuropathy (n=4), autonomic dysfunction (n=4), psychiatric disorders (n=3), dementia (n=2), cerebellar ataxia (n=1) and confusion (n=1). Biermer's disease was diagnosed in six patients. Out of eight, six patients showed an improved outcome after vitamin B12 supplementation.

Discussion: Compared to published reports, our series seem to be interesting since its describes: patients in young age, the association in way variables of several neurological syndromes at the same patient and exceptionally, the presence of ischemic stroke, psychiatric disorders and confusion.

Conclusion: We recommend looking for vitamin B12 deficiency in all unexplaind central or peripheral neurological symptoms; associated or not with an hematological abnormalities.

ATYPICAL PRESENTATIONS OF FAHR DISEASE

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Fahr disease is sporadic or familial idiopathic basal ganglia calcification that is associated with many neurological and psychiatric abnormalities. Although extrapyramidal symptoms are the most common findings of this condition, we diagnosed two cases with Fahr disease who exhibited rare neurologic manifestations.

Case 1: Fifty seven years old female was applied to the emergency department because of speech problem. The patient had some psychiatric problems such as depression and anxiety last ten years. Especially last two years she became more introvert then she used to be. She couldn´t remember the names and phone numbers of familiar persons, she had difficulties money management and housework. On neurologic examination she was conscious, her speech was nonfluent and poor content. MMSE score was 22/30. Tactil extinction on the left side was determined. Serum calcium and parathormone levels were normal.

Brain MR imaging revealed bilateral calcification of basal ganglia and dentate nuclei and ischemic gliotic hyperintense signal on bilateral parieto occipital lobes and periventricular area.

Case 2: Thirty two years old male patient was seen at emergency department after his first generalize tonic convulsive seizure. Neurologic examination was normal. Laboratory findings revealed that low serum calcium and parathormone levels , but serum phosphorus was above the normal.Brain MR imaging showed bilateral basal ganglia calcification.

Fahr disease can present different symptoms and characterize with symmetrical calcification of basal ganglia and/or dentate nuclei, generally idiopathic but sometimes secondary to dysparathyroidism.

TOXIC DAMAGES OF BASAL GANGLIA

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Introduction: The brain damages or dysfunction are two consequences that are caused by myriad toxic agents. These agents include carbon monoxic, industrial agents, drugs, medicine plants and metabolic agents.

Case report:

Case1: Professional plumb poisoning observed in forty aged man, who had an arms motor deficit. An MRI shows symmetrical basal ganglia injury.

Cases 2: Nigella poisoning observed in a forty seven aged woman, who went in coma for about five days. An MRI shows a symmetrical basal ganglia injury.

Case 3: Conserned with a seventy five aged woman whom she had a cirrhosis caused by hepatitis virus and whom she had an extra pyramidal syndrome relative to an hyper ammoniemia.

Discussion: Basal ganglia are affected by both anoxic and toxic processes, and metabolic disorders. The abnormalities in MRI are usually bilateral and symmetrical.

However injuries within the basal ganglia are not specific to any particular toxic; their relative susceptibility could be related to higher metabolic and energy demands, these areas are rich of serotoninergic and dopaminergic neuron which can be reached by several toxics.

Conclusion: To conclude we can say that toxic and metabolic agents are the main causes of bilateral ganglia injuries and brain damages. The prognosis does not seem to be related to the severity of injury.

COGNITIVE AND NEUROIMAGING PROFILE OF A BRAZILIAN FAMILY WITH CADASIL

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Cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy (CADASIL) is an inherited small vessel disease leading to small infarcts and subcortical vascular dementia. This study presents results from the neuropsychological and neuroimaging evaluation of functionally autonomous individuals of a Brazilian family with CADASIL. The causal mutation was confirmed in four family members. Seven individuals from two generations were evaluated using the CERAD battery and additional neuropsychological tests and were submitted (6 individuals) to magnetic resonance imaging (MRI) of the brain with specific protocols for white matter lesion quantification. Apraxic changes and fast progression over nine months (neuropsychological reevaluation of 6 individuals) were found in many individuals. The MRI study suggests greater involvement of frontal lobes in more severely affected individuals. Even functionally independent individuals may exhibit significant neuropsychological and neuroimaging changes. Apraxia, little commented on in literature, and rapidly progressive cognitive changes were found in this group.

PSYCHOSOCIAL PROBLEMS, QUALITY OF LIFE AND CAREGIVER BURDEN AMONG STROKE CAREGIVERS IN INDIA

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Background: Caring for stroke patients is demanding with caregivers experiencing considerable burden for several years after the initial event. However, scant information is available from developing countries.

Aim: To study the quality of life (QoL), caregiver strain, anxiety and depression experienced by stroke caregivers and their relationship with stroke characteristics.

Methods: Prospective hospital based study. Patients were interviewed after ≥1 month post-stroke. WHOQoL-BREF was used to assess QoL. Anxiety and Depression was recorded using Hospital Anxiety Depression Scale (HADS) and caregiver burden was evaluated using Modified Caregiver Strain Index (MCSI). Statistical analyses was done using SPSS version 16.0.

Results: 152 caregivers participated (women, 104 (68.4%); mean age 40.5±13.8 years [range 17 to 78]). Mean duration of follow up was 18.9±26.7 months (range 1 to 147). The care givers had high scores in the all the domains of QoL. Anxiety was seen in 72 (47%) caregivers and 66 (43%) had depression. Caregiver strain influenced anxiety in the multivariate logistic regression analysis (OR 0.23, CI 0.09-0.53, p=0.001). Ischemic stroke (OR 0.21, CI 0.08-0.57, p=0.002) and psychological domain (OR 5.21, CI 1.88-14.45, p=0.001) were the predictors of depression. Anxiety was the predictor of caregiver strain (OR 0.20, CI 0.08-0.47, p< 0.0001).

Conclusion: Despite a good QoL there was a high prevalence of anxiety and depression with very high levels of caregiver strain in our cohort. Caregivers particularly women need to be educated about coping strategies regarding anxiety, depression and caregiver strain.

THE EFFECT OF ANTIDEPRESSIVE AND ANTIPSYCHOTIC DRUGS ON CHEWING FUNCTION

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Drugs used in psychiatric disorders treatment are influent on muscular system as a whole. The use of antidepressant and antipsychotic medications causes chronic and acute motor collateral effects that appear on around 20% treated patients. The aim of this study was to compare the sEMG activity of the masticatory muscles during habitual mastication between 20 individuals with schizophrenia (GI), 20 individuals with affective disorders (GII) and 40 controls (GIII). The sEMG analysis was performed using EMG MyoSystem-BR1. Surface electrodes were placed bilaterally on both masseter and temporal muscles. A ground electrode was used over the sternum region. The habitual chewing was verified through the sEMG signal obtained during chewing of peanuts and raisins. The electromyographic signals of all the masticatory cycles were collected in three replicates of ten seconds, intercalated by two minutes of rest and, after this process, it was used the mean value. The masticatory efficiency of cycles between individuals was evaluated by the normalized ensemble average of the electromyographic signal. The electromyographic means were subjected to statistical analysis using ANOVA (SPSS). The psychiatric individuals presented higher EMG activity than control individuals with a statistical significance between groups ($p < 0.05$). Data allow us to conclude that the mental health medication had a stronger influence on the masticatory muscles activity, causing an exaggerated recruitment of muscle fibers to perform a dynamic activity. The results may provide valuable data to be considered when choosing one of these treatments for psychiatric patients, which will improve their quality of life.

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SCHIZOPHRENIA AND AFFECTIVE DISORDERS - EMG MASTICATORY MUSCLES ANALYSIS

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The use of antidepressant and antipsychotic medications causes chronic and acute motor collateral effects, including Parkinsonism, akathisia and dyskinesia, characterized by involuntary buccofacial movements, that appear on around 20% treated patients. The aim of this study was to compare the sEMG activity of the right and left temporalis and masseter muscles during rest position and postural movements (10s), between 20 individuals with schizophrenia (GI), 20 individuals with affective disorders (GII) and 40 controls (GIII). The sEMG analysis was performed using a MyoSystem-BR1 electromyographer. Surface differential active electrodes were placed on the skin, bilaterally on both masseter muscles and on the anterior portion of the temporalis. A ground electrode was also used and fixed on the skin over the sternum region. The data collected were normalized by maximum voluntary contraction (MVC), and the results were analyzed by ANOVA (SPSS 17.0) during the comparison between groups ($p< 0.05$). The psychiatric individuals presented higher EMG activity than control individuals (Table 1) during all positions tested in this study, including rest. During EMG data comparison there was a statistical significance between groups for all conditions ($p< 0.05$). The data allow us to conclude that the mental health medication had a stronger influence on the masticatory muscles activity, causing an exaggerated recruitment of muscle fibers to perform a static and dynamic activity. The results may provide valuable data to be considered when choosing one of these treatments for psychiatric patients, which will improve their quality of life.

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SELF AWARENESS AND DEFICIT RECOGNITION IN MULTIPLE SCLEROSIS

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Background: Anosognosia can be defined as impaired ability to recognize the presence of deficit or disease. Is frequently observed in neurological processes but is sparse studied in MS patients.

Objective: To asses and determine the prevalence of anosognosia in a MS group of patients.

Methods: 39 patients with definite MS were studied. The mean age was 34.6 years and the clinical picture was RR .The mean time of evolution was 4.7 years and the mean EDSS was 3.0. The specific scales in order to evaluate the presence of anosognosia were the Visual-Analogue Test assesing anosognosia for motor impairment (VATA-m) and the Mayo-Portland Adaptability Inventory (MPAI). The severity and stages were measured utilizing the Bisiach Scale. Correlation between MRI number,size, severity and localization of cerebral lesions was stablished.

Results: We observed a highly prevalence of anosognosia (59%) with remarkable dissociation when scales were administered to patients and caregivers. The grade of anosognosia was 1 or 2 and the awareness of impairment was mainly observed in neurocognitive tasks and fine motility skills.

Our findings correlated possitively with EDSS, evolution time and the presence of a large number of lesions located in the right temporo-parietal subcortical areas.

Conclusions: Anosognosia is a highly prevalent disorder in MS , suggesting a dysfunction in the mechanisms of self awareness, with implications in the ADL and with predictive value on poor functional outcome. Neuroimaging studies revealed more often localization of lesions in right parieto temporal hemispheric localization.

ASSOCIATION BETWEEN BIPOLAR DISORDER AND MULTIPLE SCLEROSIS

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Introduction: The rate of psychiatric disturbance for patients with multiple sclerosis (MS) is higher than that observed in other chronic health conditions. Bipolar disorder has been reported to be two times more frequent in MS than in the general population.

Objectives: To report on three cases of MS and bipolar disorder and to discuss the possible etiological hypothesis.

Observations: Three patients: two women aged 23 and 38 years and a 39 year-old man, are reported. All patients fulfilled the Mc Donald criteria for MS. Two patients were followed up in psychiatry for manic or depressive fits and further developed MS. The last patient was diagnosed with MS and developed deferred psychotic symptoms. Some clinical and radiological features are highlighted in our patients: one manic episode induced by high-dose corticosteroids and one case of a new orbito-frontal MRI lesion concomitant with the emergence of psychiatric symptoms. All patients needed antipsychotic treatment with almost good tolerance for high-dose corticosteroids and interferon beta treatment.

Conclusion: The MRI lesion suggests the possible implication of local MS-related brain damage in development of bipolar disorders. However, this can not state for a proof of etiopathogenic mechanism since common genetic susceptibility is another possible hypothesis for this association. Interferon beta treatments are well tolerated while high dose corticosteroids may induce manic fits. More studies focusing on genetic susceptibility and specific response to treatment are mandatory.

COGNITIVE IMPAIRMENT IN SYSTEMIC LUPUS ERYTHEMATOSUS

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Different neurological complications are observed in systemic lupus erythematosus (SLE). Cognitive impairment are the most common and their frequency are assessed at 21 to 71%. Previous studies indicated to large variability of psychological pattern and differences in impairment profoundness. The typical profile of cognitive disturbances in SLE patients has not been estimated yet.

The aim of the study was the analysis of cognitive function in patients with SLE.

Material and methods: We assessed 20 patients with SLE, 2 male and 18 female, mean age - 32 years old. All patients were examined neurologically and brain MR was done in all of them. The neuropsychological test battery consisted of AVLT, TMT A and B, Stroop Test, TRF. We assessed executive and categorization functions, and emotional status (Beck scale) as well. The results were compared with appropriately matched for age and gender control group.

Results: In SLE patients the results of executive function, selectiveness and divisibleness of attention were significantly lower in the comparison to the controls. The deepest changes correlated with the presence of the vascular lesions in the white matter of the frontal region seen in brain MR imagings.

Conclusions:

1. The profile of cognitive impairment in SLE patients is characterized by the disturbances of right and rapid communication between different, co-operating brain structures.

2. The deepest cognitive impairment in SLE patients are connected with white matter lesion.

CORTICAL DEMENTIA IN MULTIPLE SCLEROSIS

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Cognitive impairment observed in Multiple Sclerosis (MS) is essentially represented by sub cortical dementia. It usually occurs late in the disease course. We report two cases of MS presented with cortical dementia as a presenting form. Diagnosis of MS was confirmed by the presence of MRI Barkhof's criteria and follow-up. Other immunological disorders were excluded.

Case 1: A 33-year-old female experienced recurrent seizures, complicated two years later by status epilepticus, and progressive cortical dementia with amnesia, alexia and agraphia. In the follow-up, she exhibited ataxia, paraparesia and worsening of dementia. Anamnestic investigation showed an antecedent of retrobulbar optic neuritis. Treatment by intravenous pulse of Methylprednisolone and Cyclophosphamide was ineffective. Rivastigmine did not improve the cognitive disorders.

Case 2: A 40-year-old female had a progressive dementia syndrome with prominent amnesia, associated with aphasia and apraxia. After 4 months, she had visual disturbances and a progressive cerebellar ataxia. She was treated by Methylprednisolone and Cyclophosphamide, without any improvement.

Cortical dementia is exceptional in MS and usually an initial presentation. Zarei et al. reported in 2003 only 23 cases in the literature. It is classically constituted by severe amnesia, associated with other cortical symptoms like aphasia, agraphia and apraxia. Diagnosis of MS is difficult in such cases and usually made months or years after the onset of cognitive disorders. This presentation may represent a clinical and pathological entity of “cortical MS”. Disease modifying treatments are generally ineffective on cognitive impairments.

VITAMINS E AND C PREVENT MEMORY IMPAIRMENT CAUSED BY CHRONIC VARIABLE STRESS IN RATS

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Learning and memory deficits occur in depression and other stress related disorders. Although the pathogenesis of cognitive impairment after stress has not been fully elucidated, factors such as oxidative stress and neurotrophins are thought to play possible roles. In the present study we investigated the effect of treatment with vitamin E (40 mg/kg) and vitamin C (100 mg/kg) on the effects elicited by chronic variable stress on rat performance in Morris water maze. Brain-derived neurotrophic factor (BDNF) immunocontent was also evaluated in hippocampus of rats. Sixty-day old Wistar rats were submitted to different stressors for 40 days (stressed group). Half of stressed group received administration of vitamins once a day, during the period of stress. Results demonstrated that the stressed group presented a decrease in reference memory in the water maze task and a reduced efficiency to find the platform in the working memory task. Animals treated with vitamins E and C had part of the above effects prevented, suggesting the participation of oxidative stress in such effects. The BDNF levels were not altered in hippocampus. Our findings lend support to a novel therapeutic strategy, associated with these vitamins, to the cognitive dysfunction observed in depression and other stress related diseases.

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DELINEATING THE DE NOVO METHYLATION PATTERN OF THE ATAXIN-2 PROMOTER

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Objective: To develop novel Methyl Specific methods to dissect the methylation map of ataxin 2 promoter. To delineate contribution of the de novo methylation to the phenotypic variability in SCA2.

Methods: SCA2 DNA samples from CNS were assessed by using methylation assays aimed at determine the pattern of methylation in the CNS in relationship to regions compromised in SCA2. Also, SCA2 subjects with discordant phenotypes were studied using different approaches to delineate the methylation pattern of the SCA2 promoter.

Results: Primers spanning the ataxin-2 predicted core promoter yielded methylation patterns in controls and SCA2 (Chi2= 3.63, p=0.06) and specific expected bands. Descendants from MZ also show anticipation without CAG expansions but with differences in CpG methylation, strengthening the fact that unmethylation might cause SCA2. Quantitative analysis of ataxin-2 promoter is also reported in 23 SCA2 sib-sib pairs and in a large cohort of 300 SCA2 DNA sample. Also a methylation mapping on Central Nervous System DNAs from ataxin-2 targets is presented.

Conclusions: Methylation assays are highly specific and sensitive. Methylation pattern will improve the management of SCA2. The quantitative nature of methylation will be used as stratifying biomarker for SCA2 therapies. The de novo methylation pattern will be useful in treating SCA2, SCAs and other proteinopathies.

NEUROSARCOIDOSIS

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Sarcoidosis is a chronic inflammatory disorder that typically occurs in adults between 20 and 40 years of age. It can appear in an acute, explosive fashion or start as a slow chronic illness. We analyzed the neurological manifestations of sarcoidosis in 11 patients. We recorded neurological signs and symptoms, magnetic resonance imaging, and results of cerebrospinal fluid examinations from the records of each patient.

All patients were female. Neurological manifestations were revealing of sarcoidosis in 4 cases, the others patients were already known having systemic localization of sarcoidosis. The Central nervous system was involved in the majority of patient (09 cases)Sarcoidosis is a chronic systemic disease of unknown causes characterized by noncauseating granuloma in various organs. Neurological involvement occurs in 5-6% of patients with sarcoidosis. Most patients with **neurosarcoidosis** have extraneurologic abnormalities and extraneurologic biopsies usually support the diagnosis, however, nearly half of the patients with**neurosarcoidosis** present with neurological manifestations without systemic symptoms. Several cases of isolated **neurosarcoidosis** have been reported, making the diagnosis difficult. Although several diagnostic criteria have been proposed, neuropathological examination is required for the definite diagnosis.clinical assessment with various combinations of modern neuroimaging techniques is important. Lumbar puncture is useful to rule out other diseases but CSF changes are not specific. Any part of the CNS can be involved but there is predilection for hypothalamus, pituitary gland, leptomeninges, and cranial nerves particularly facial nerve. Although corticosteroids are the main stay of therapy, refractory cases can be treated by immunosuppressive therapy.

GROWTH FACTOR AND INSULIN-LIKE GROWTH FACTOR 1 IN MULTIPLE SCLEROSIS PATIENTS

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The efficiency of reparative mechanisms in Multiple Sclerosis (MS) can be regulated by neurohormones, such as growth hormone (GH) and insulin-like-growth-factor (IGF)1. However, published studies about GH and IGF1 profiles in MS patients have shown conflicting results.

We investigated GH and IGF1 blood levels in a large population of untreated MS patients (n=97), in healthy controls (HC, n= 93) and in patients affected by other neurological diseases (OND, n=53). Patients affected by relapsing-remitting, secondary-progressive and primary-progressive MS were included and Expanded Disability Severity Scale (EDSS) score was measured. The serum concentration of GH was measured by a chemiluminescent reaction, that of IGF-I by a solid-phase-enzyme-labeled-chemiluminescent-immunometric assay.

Mean GH level was lower in MS patients than in OND patients and HC (MS = 0,92; OND = 1,59; HC = 1,63; p = 0.24), but the levels did not differ among patients with different disease courses. Mean IGF-1 level was lower in patients with progressive MS than in those with relapsing-remitting MS (p= 0.04) Both GH and IGF1 levels were lower in patients with long disease duration (>10 years) and locomotor disability (EDSS score >= 4.0).

These findings, albeit preliminary and lacking proper statistical significance, can be considered of interest, mainly because obtained in a treatment-naïve MS population. It is conceivable that lower levels of IGF-1 may enhance the progression of MS, creating an hostile microenviroment for CNS repairing mechanisms.

A RELATIONSHIP BETWEEN OXIDATIVE STRESS AND GLUTAMATE UPTAKE IMPAIRMENT IN MULTIPLE SCLEROSIS

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Excitotoxic-neuronal-damage driven by glutamate-uptake (GLU-up) impairment and oxidative stress (OXS) are widely documented in neurodegeneration of Multiple Sclerosis (MS). Morevover, OXS can be considered a factor negatively affecting GLU-up. Considering the biochemical connection between OXS and GLU-up, we investigated this relationship in 70 MS patients and 63 controls.

Coenzyme-Q10, total, oxidized and reduced forms of glutathione, malondialdehyde, reactive-oxygen-species, anti-oxidized-low-density-lipoproteins antibodies (Anti-oxLDL), and anti-oxidant-power together with activity and affinity of glutamate-platelet-transporters were studied.

Coenzyme-Q10, glutathione and malondialdehyde were determined by HPLC, reactive-oxygen-species were photometrically quantified, anti-oxLDL were detected by ELISA, anti-oxidant-power was measured by the Cu++ reduction. Sodium/energy-dependent-glutamate-uptake was studied in platelets measuring tritiated-Glu by beta-counter.

Coenzyme-Q10, one of the most powerful antioxidant was lower in MS (518.84±34.06) compared to controls (626.86±28.60 µg/L p< 0.02); oxidated-glutathione (bioproduct of OXS) was higher in MS (61.82 ± 3.69) vs controls (48.55±4.4 U/ml, p=0.01). Higher Anti-oxLDL in MS patients (34.21±2.6) vs controls (30.94 ±4.91 U/ml), particularly in benign(44.96 ± 8.24 p:n.s.) was found as well.

Reduced GLU-up values was found in MS compared to controls (20.79±2.32; 30.7±3.78 pmoles/mg p=0.003), except for benign MS. Correlation analyses disclosed in secondary MS, an inverse correlation between GLU-up and reduced-glutathione (r =-0.67 p= 0.04), and an inverse correlation between GLU-up and Anti-oxLDL (r =-0.79 p= 0.01). Conversely, in benign MS this latter correlation, albeit not statistically significant, was direct(r =0.48 p= 0.1). These findings might suggest a different involvement of glutammatergic-excitotossicity in different forms of MS and an OXS modulation of this mechanisms even for MS.

SEVERE PULMONARY ARTERIAL HYPERTENSION POSSIBLY DUE TO INTERFERON BETA I A THERAPY FOR MULTIPLE SCLEROSIS: FIRST CASE REPORT

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Until now a few cases of pulmonary arterial hypertension (PAH) linked to an interferon (IF) therapy have been reported. Only one case has been described with an IF β1b treatment for multiple sclerosis (MS).

A 48 year old woman with a relapsing-remitting course of MS from 2002 had been treated during 7 years until end of 2009 without any trouble with IF β1a (44 µg subcutaneously 3 times a week). The ECG in 2007 was normal. In January 2010, an exertional dyspnoea appeared (NYHA III). ECG showed: right axis deviation, complete right-bundle-branch block. Echocardiography showed: right ventricle and atrium dilated, grade IV tricuspid valve insufficiency and severe PAH (95 mm Hg) confirmed by catheterisation. No history of pulmonary embolism or appetite suppressant drugs intake was found. HIV tests were negative. The lung scintigraphy was normal. IF β1a was withdrawn in May 2010.

A treatment with diuretics, bosentan and sildenafil was begun. Until now, the dyspnoea has been markedly improved. There has been no relapse of the MS. The patient has partially responded to bosentan and sidenafil treatment. Echocardiography in june 2011 showed: decrease of the dilatation of the right ventricle, grade I tricuspid valve insufficiency and improved PAH (60 mm Hg).

This case seems to be the first to be reported of PAH in relation with IF β1a therapy, the second with IFβ therapy. As described in animal models, the stimulation by IF of the thromboxane cascade and inflammatory mediators are suspected to be involved in the onset of the PAH.

VARIABILITY OF DEBUT OF DISSEMINATED SCLEROSIS AT PATIENTS LIVING IN AN INDUSTRIAL CITY

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Aim: Analysis of variants of disseminated sclerosis (SD) with unfavorable ecological conditions.

Materials and methods: We have analyzed cases of disseminated sclerosis at 27 patients with the second progressing clinical course who were at inpatient treatment from 2005 to2010. There were 22 women and 5 men at the average age of 45±10,3 years. We used the methods: neurological, MRI, neurophysiological and statistic. SD is set according to criteria Mac Donald.

Results: The ratio of women and men 4:1. The terms of disease are from 1 to 34 years old.

The most common debut was retrobulbar neuritis - 11 cases (40, 7%). In 8 cases (29, 6%) in the debut we obtained pyramidal poresis, in 4 cases - the debut with diplopia and in 4 cases - sensitive disorders. The duration of remission at patients with retrobulbar neuritis in debut before arising of the next exacerbation was in average - 7, 45 years, at pyramidal debut - 5, 25 years, at the other debuts - the first remission was 4, 8 years. Among the patients with retrobulbar neuritis in the debut of disseminated sclerosis the speed of progressing was 0, 5 points a year according to the scale EDSS, whereas at the other debuts it was more malignant course.

Conclusions: The debut of disseminated sclerosis with retrobulbar neuritis is prognostically more favorable.The degree of limitation of labor and social activity at patients with the debut of disseminated sclerosis in the kind of ocularmotorius and pyramidal disorders in the debut.

AN INTERESTING CASE OF DIFFUSE LARGE B-CELL LYMPHOMA PRESENTING AS CRANIAL POLYNEUROPATHY (POLYNEURITIS CRANIALIS)

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Introduction: Polyneuritis cranialis is uncommon neurological problem with variety of possible etiologies. The diagnostic evaluation may be challenging.

Case report: We report a 57 year old previously healthy gentleman, who presented with double vision for 3 weeks; right eyelid drooping for 2 weeks; swallowing difficulty; and hoarseness of voice for 5 days. His examination showed right complete IIIrd nerve, subtle left LMN VIIth, and right XIIth nerve palsy with hoarse voice and absent gag. Right hip flexors were weak and plantars were downgoing. Rest of the neurological examination was normal. The differential diagnoses included brain stem meningoencephalitis, GBS variant, parainfectious or paraneoplastic syndrome. MRI brain was unremarkable, lumbosacral MRI showed mild disc disease. NCS and EMG showed mild L5-S1 radiculopathy on right. Hematological studies, electrolytes, autoimmune, and toxicology screen were non-contributory. CSF showed 250 cells, predominantly lymphocytes, low glucose and raised proteins. Intravenous steroids and anti-tuberculous therapy (ATT) were started considering brainstem encephalitis or CNS TB. Lumbar puncture was repeated after 1 week that showed decreased cell count and proteins. He was discharged on ATT and steroids. At 2 week follow-up, he had worsening of left VIIth nerve palsy, increased weakness of right thigh and quadriceps atrophy. He also had nausea and vomiting. CT scan of chest, abdomen and pelvis showed no significant abnormality. Upper GI endoscopy with biopsy of gastric fundus showed large B-cell lymphoma. Chemotherapy was started and ATT was stopped.

Conclusion: Cranial polyneuropathy is an uncommon disorder, and can be presenting feature of diffuse large B-cell lymphoma.

MILLER FISHER SYNDROME WITH SERUM ANTI-GQ1B ANTIBODY

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Introduction: Miller-Fisher syndrome (MFS) is a rare auto-immune post-infectious syndrome, characterized by an ataxia, an ophthalmoplegia and a generelized areflexia. It is considered as a clinical variant of Guillain-Barré syndrome (GBS).

Objective: To describe a case of MFS with high level of Anti-GQ1b antibodies. Observation: A 16-year-old men presented MFS with acute episode of diarrhea and rhinopharyngitis reaveled by ophtalmoplegia, paresthesia, and cerebellar syndrome. Cerebral MRI was normal. CSF protein showed hyperproteinorachy. Anti-GQ1b antibodies were strongly positive and anti-GM1, anti-GM2 antibodies were slightly positive. Electromyography showed motor and sensory abnormalities in median and ulnar nerves territory. Campylobacter jejuni serology was negative. The patient was treated by corticotherapy with a good improvement.

Conclusion: This observation illustrate various clinical and electrophysiological manifestations of Miller Fischer syndrome.

STRESS OF CARPAL TUNNEL TO THE DIABETIC MEDIAN NERVE

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Rationale: Prolonged distal latency (DL) is often a finding in diabetic median nerve, while forearm conduction stays normal. It is still obscure whether this is a real carpal tunnel syndrome (CTS) or a part of diabetic polyneuropathy (DPN).

Objectives: To know mechanism of this peculiar conduction change and how this abnormality develops.

Methodology: In 164diabetic patients (86male, 78female) with no sensory symptoms in the upper limbs, we performed motor and sensory conduction study in the median, ulnar, tibial and sural nerves. In 51cases, median-ulnar motor latency difference (MLD) was determined by 2nd lumbricales and 2nd palmar interosseous recording. Median-ulnar sensory latency difference (SLD) was also studied using ring finger. To explore the site of focal delay, we recorded middle finger CSAP by inching stimulation by 2cm increments across the wrist.

Findings: Fifty-nine cases (36%) showed prolonged median DL more than 4.2ms. Of these 29 (15%) had normal forearm MCV (CTS-type); other 30 accompanied decreased in MCV (Low-MCV type). Although prolonged DL associated a fall in amplitude to some extent, 2.5mV was the lowest. Thirty-four of 51 examined had prolonged MLD more than 0.5ms; seven had normal DL. Abnormal FCD more than 0.6ms/2cm at between 2cm and 4cm distal to the wrist was major finding in prolonged DL. Lower limb conduction was more abnormal in Low-MCV group rather than CTS-type group. Focal conduction delay across the edge of the transverse carpal ligament in diabetes is surprisingly similar to that of CTS, and seems to be an early abnormality of DPN.

HIV DISTAL SENSORY POLYNEUROPATHY IN SUB-SAHARAN AFRICA: AN EVOLVING EPIDEMIC

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HIV distal sensory polyneuropathy (DSP) is the commonest neurological complication of HIV in sub-Saharan Africa. Our data shows between 20.9 and 43.2% of Tanzanians with HIV have DSP depending on risk factor exposure with similar prevalence reported in other studies.

Advanced HIV and a low CD4 count are known risk factors as are nucleoside reverse transcriptase inhibitors (NRTIs) which are present in all anti-retroviral treatment (ART) regimes. HIV DSP is also clinically very similar to DSPs caused by nutritional deficiencies, diabetes and alcohol. Accurate diagnosis of HIV DSP is thus problematic, particulary in resource-constrained settings with limited access to investigations.

The scale of HIV infection in sub-Saharan Africa is a massive challenge. Whilst recent WHO recommendations suggest omission of the cheaper neurotoxic NRTIs stavudine and didanosine from formularies and ART initiation at a lower CD4 threshold of 350 cells/µL (previous guidance = 200 cells/µL), financial constraints often preclude their implementation.

The lack of medical infrastructure makes screening for, monitoring and management of HIV DSP difficult. Existing treatments for HIV DSP neuropathic pain are ineffective and often unavailable. There is at present little public health planning relating to HIV DSP in sub Saharan Africa and few data on the scale of disability it causes or its socioeconomic cost.

We present a review of recent data relating to HIV DSP in in sub Saharan Africa, highlight the challenges this epidemic presents and propose a protocol to screen for and manage HIV DSP in a resource-constrained outpatient setting.

GUILLAIN BARRÉ SYNDROME ASSOCIATED WITH ACUTE DISSEMINATED ENCEPHALOMYELITIS (ADEM)

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Introduction: Acute disseminated encephalomyelopathy and Guillain-Barré syndrome (GBS) are both immunologically mediated para-infectious demyelinating disorders, the former affecting the central nervous system and the latter affecting the peripheral nervous system. To our knowledge, the association is rarely reported. Here we report a case of a combined central and peripheral demyelination.

Case report: A 20-year-old girl, presented 3 weeks after an episod of respiratory infection an acute flaccid and areflexic paraparesis. The elevated cerebrospinal fluid protein levels (0,95g/l) and delayed F waves fulfilled the criteria of GBS. Neurological examination of the patient in the second day of his hospitalisation revealed a flaccid paraplegia associated to a bilateral Babinski sign. A cerebral and medullar MRI revealed extensive multifocal demyelination compatible with a diagnosis of ADEM. The patient was treated with high dose intravenous prednisone (5g) with a complete clinical recovery.

Discussion: It was suggested that acute severe combined central and peripheral demyelination might constitute a separate entity in which the demyelinating process, involving simultaneously the central and the peripheral nervous systems, indicating an immune response against a component of the myelin of one system carrying cross-antigenicity with the other. Further, high dose of intravenous corticosteroids can be used as the first therapeutic strategy when Guillain-Barré syndrome is associated to Acute disseminated encephalomyelopathy. Intravenous immnoglobulin and plasma exchange can also be used in steroid resistant forms.

Conclusion: An acute flaccid paraplegia with Babinski sign can be due to a combined demyelination of the central and peripheral nervous system.

GUILLAIN BARRÉ SYNDROME: A TUNISIAN STUDY

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Guillain-Barre syndrome is a rare but serious and multifaceted.Study the different epidemiological , clinical and electrophysiological features during different forms of GBS, with emphasis on the differing predictors of disease progression and his severity.

Our study is conducted in the neurology department and intensive care unit (ICU) of the military hospital in Tunis.We retrospectively reviewed the clinical files of 30 Guillain-Barré syndrome patients admitted between 2000 and 2005. 17 patient are male (56%), the mean age is 40 years (6-85years). Twenty (66%) presented antecedent events, most often a respiratory tract infection (*n* = 11) or enteritis (*n* = 5). In 36% the disease was heralded by sensory symptoms. The motor deficit is constant in all patients. 50% of patients one or more cranial nerves were involved, most often leading to facial palsy or difficulties in swallowing. 26% of the patients had sensory signs, proprioceptive more often than superficial. Autonomic disturbances were common, especially hypertension and tachycardia. Ten patients have been hospitalized in ICU six of which require mechanical ventilation. The polyradiculitis was demyelinating in 66% of cases, and axonal in 27% of cases. CSF protein level was elevated in all patients, with a mean value of 1.5 g/l. Twenty patients had AIDP, six had AMAN form and 4 had Miller Fischer form. 50% of patients had a good evolution after immunglobuline therapy, 36% had sequelae and four died. Age,desease form and the rapidity of the rising phase are factors of poor prognosis.

NEUROLOGICAL DISORDERS CAUSED BY VITAMIN B12 DEFICIENCY: A RETROSPECTIVE STUDY OF 53 CASES

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Introduction: Vitamin B12 deficiency is a classical etiology of combined sclerosis of the spinal cord. However, more recently it turned out to be the cause of a large spectrum of neurological troubles.

The purpose of this study is to discuss the clinical signs and paraclinical data of patients with neurological disorders due to Vitamin B12 deficiency.

Patients and methods: A retrospective study of 53 patients with neurological disorders due to vitamin B12 deficiency was performed in the National Institute of Neurology in Tunis, during the last ten years.

Results: The mean age of patients was 51 ± 10 years with a sex ratio of 1. The most frequent symptoms was gait ataxia in 52.83% and combined sclerosis of the spinal cord in 58.49%. Nerve conduction studies showed an axonal sensory neuropathy in the most case of patients (72.22%). Hyperintensity on T2-weighted images on medullar MRI of the posterior columns of the cervical and dorsal region of the spinal cord was seen in 3 cases. About 50% of the examined cases suffered from Biermer´s disease. Under Vitamin B12 Substitution, 75% of the patients recovered completely. The poor prognosis factors were advanced age, and a severe axonal neuropathy on nerve conduction studies.

Conclusion: Neurological disorders may be the only symptoms of Cobalamin deficiency. Only an early administration of Cobalamin can secure clinical improvement.

ISAAC'S SYNDROME: REPORT OF TWO CASES

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Introdution: Isaacs´ syndrome (IS) is a rare condition of spontaneous and continuous muscle fibre activity of peripheral nerve origin, with specific clinical and electromyographic features.

Case report: We report two male patients aged 56 and 68 years with Issac's syndrome. They were admitted in neurology department for generalized muscle stiffness, with articular deformation in one case. The muscle stiffness persists during sleep, and disappears completely after curare anesthesia in one patient. Facial myokimia and cramps were present in first patient and hallucinations with sleep disorders in the second. Continuous and spontaneous discharges were present in two cases.The antibody against voltage-gated potassium channel and anti-GAD performed in one patient were negative. Carbamazepine and diazepam have used without success in two patients. High-dose intravenous methylprednisolone resulted in a partial improvement in two, but intravenous immunoglobulin used in one patient exacerbated muscle stifness.

Discussion: IS is a rare disorder, manifesting as spontaneous, continuous muscle activity of peripheral nerve origin. It's characterised clinically by myokymia, muscle cramps and stiffness. As in our patient, central nervous system symptoms can be observed such as hallucinations, delusional episodes or sleep disorders (Vincent, 2004). Electromyographic features is characteristic with spontaneous discharges at the highest frequencies that fire in prolonged bursts.The voltage-gated potassium-channel antibodies will be detectable in about 40% of patients (Hart, 2002). The anticonvulsants such as phenytoin and carbamazepine may be useful, but steroids, plasmapheresis or intravenous immunoglobulin represents physiopathological treatment.

CONTRIBUTION OF PLASMA EXCHANGE IN TUNISIAN GUILLAIN-BARRÉ SYNDROME

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Background: Guillain-Barre Syndrome (GBS) is the most common cause of acute flaccid paralysis. The value of plasma exchange (PE) was well established and improved the functional and vital outcome.

Objectives: To access safety and efficacy of PE in the management of GBS.

Methods: Our study included Tunisian patients with a GBS found for a period of 14 years. Muscle strength was assessed by the Hughes score at admission, after 1 month and 1 year. On the therapeutic level, 29 patients received symptomatic treatment and 32 had PE. The various immediate and delayed complications of EP were observed.

Results: We identified 61 patients fulfilling the GBS criteria's. The mean age was 37.4 ± 21.7 years. Initial symptom at onset was a lower limbs weakness in 49 patients. Neurological exam revealed cranial nerves involvement in 54.1% of cases. On admission, the 2 groups (EP and symptomatic treatment) were similar. At 1 month, there's been a functional improvement in 81.2% of patients in the EP group against 41.3% of patients with symptomatic treatment. At 1 year, motor handicap was noted in 12.5% and 27.5% respectively in these two groups. The total numbers of PE were 133 and only 14 sessions were stopped. Immediate complications were noted in 32 séances and were represented especially by arterial hypotension. Lower limbs venous thromboses were noted in 2 patients.

Conclusion: Our study confirms once more the effectiveness of PE in GBS. Their actions are faster and their tolerance is relatively good if they are well used.

IS THIS PATIENT HAVING A REGIONAL VARIANT OF GUILLAIN-BARRE SYNDROME? SIMULTANEOUS BILATERAL FACIAL PALSY IN SYSTEMIC LUPUS ERYTHEMATOSUS

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Introduction: Bilateral facial nerve paralysis is uncommon and requires identification of the underlying disease. We report a case of a patient presenting with bilateral facial nerve paralysis and distal limb paresthesia, in which its cause was identified as a variant of GBS.

Case report: A 58-year-old woman admitted for the development of bilateral facial weakness. She had upper respiratory infection two weeks earlier. Neurological examination revealed bilateral symmetrical facial weakness without other cranial abnormality. Although she complained of tingling sense of bilateral finger tips, she had no apparent abnormality of limb movement or sensory nervous system and deep tendon reflexes were all normoactive. The NCS showed polyneuropathy although conduction block or temporal dispersion suggestive of demyelination was not shown. Autoantibody showed positive for ANA, Anti-dsDNA and Anti-ribosomal P antibody. Additional laboratory tests revealed proteinuria and interstitial lung disease therefore fulfilled 4 out of 11 American college of Rheumatology criteria for SLE. But, albumin-cytologic dissociation was shown from CSF analysis and enhancement of bilateral facial nerve present in brain MRI, these results were thought to be inexplainable with SLE.

Conclusion: Bilateral facial nerve paralysis, paresthesia of distal limbs and NCS result suggestive of polyneuropathy could be classified as a variant of GBS with “bilateral facial nerve paralysis and paresthesia”.

Subjective symptoms of distal limb paresthesia in bilateral facial nerve paralysis patients even in the absence of objective symptoms of paralysis or paresthesia requires electrophysiologic test, CSF analysis and brain MRI for proper diagnosis of GBS.

DIGITAL GLOMUS TUMOR MIMICKING ULNAR NEUROPATHY

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Objectives: To report a case of digital glomus tumor (GT) mimicking ulnar neuropathy.

Background/introduction: GTs are rare benign vascular tumors that frequently present during the fourth and fifth decades. Pain is the characteristic feature**.**

Case presentation: A 44 year old male presented with an 18 year history of electrical and sharp pain and hyperesthesia in a right ulnar distribution. He underwent evaluation with Nerve conduction studies (NCS) and MRI.

Results: On examination, there was decreased sensation in the right fifth digit and hypersensitivity. NCS revealed a prolonged ulnar CMAP but were otherwise normal. MRI showed a GT measuring 2X3 mm at the dorsal aspect of 5th digit

Discussion: GTs are hamartomas arising from a glomus apparatus, a neurovascular complex, that rarely undergo malignant degeneration. They present with hypersensitivity to cold, paroxysmal pain and hyperesthesia .GTs occur in the hand, lung, trachea, liver, pancreas, paranasal sinuses, carotid ,etc. Diagnosis relies on ultrasound, MRI and angiography. Treatment methods include surgical, laser and sclerotherapy.

Conclusion: Pain originating from digital GTs may mimic a focal neuropathy. Although rare, GTs should be considered in differential diagnosis of a mononeuropathy especially in the setting of hyperpathia. Imaging should be routinely used in the evaluation of mononeuropathy.

MAGNETIC RESONANCE NEUROGRAPHY VERSUS ELECTROMYOGRAPHY FOR THE DIAGNOSIS OF RADICULOPTHIES

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Introduction: Evaluation of spinal nerve disorders relies on an accurate h&p, MRI, magnetic resonance neurography (MRN), and needle electromyography (EMG)/nerve conduction studies.

Objectives: To determine if MRN could detect radiculopathies earlier than EMG.

Methods: Inclusion criteria included adults with cervical radiculopathy who underwent MRN and needle EMG. Exclusion criteria included peripheral neuropathy, muscle disease, diabetes, or tumor. Of the 438 patients reviewed, 64 were included. Symptoms, MRN findings, time course, needle EMG findings, and consistency of MRN/EMG results with clinical findings were obtained retrospectively. The patient population was subdivided into males/females and symptom duration < or > 2 months. McNemars test was used to compare the percentage agreement between MRN and clinical findings and percentage agreement between needle EMG and clinical findings. To examine the difference in agreement between the subgroups, data were entered into a generalized estimating equation (GEE) model. Interaction was evaluated at the significance level of 0.10.

Results: Differences in agreement between MRN & needle EMG were 23.5% for females and 6.7% for males. For those with < 2 months, the difference in agreement between MRN and needle EMG was 4.7% while for those with >2 months, it was 20.9%. However, because of the small sample size, the power did not reach statistical significance (p=0.30 and 0.35, respectively).

Conclusion: There were no significant benefits to MRN over needle EMG in radiculopathy diagnosis. However, subgroup analysis showed that MRN is equivalent to needle EMG with symptoms < 2 months, though not statistically significant, due to small sample size.

PREVALENCE OF NEUROPATHIES ON HIV PATIENTS UNDER ANTIRETROVIRAL TREATMENT CONTAINING STAVUDINE IN DOUALA-CAMEROON

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Background: Peripheral neuropathies on HIV patients can be due to HIV itself by its neurotropism or as a consequence of neurotoxicity from antiretroviral therapy,especially Stavudine.

Objectives: Evaluate the prevalence,describe the clinical and therapeutic features and course of neuropathies in patients infected with HIV,undergoing ARV treatment containing stavudine and being followed up at Bonassama district hospital in douala-cameroon.

Methodology: It was a retrospective and descriptive study carried out over a period of 18 months(from january 2009 to june2010)on adults patients treated by stavudine(lamivudine+stavudine+nevirapine or lamivudine+stavudine+efavirenz).The diagnosis of neuropathies was essentially clinical,based on the presence of sensitive or motor symptoms and signs.

Results: The study included 178 patients.Women represented 73% of the sample and men 27%.Average age was 40 years;average CD4 count was 174/mm^3 and advanced stages were predominant.The prevalence of neuropathies was 24,1%,the time of appearance from start of treatment was 5 months on average.Grades 1 and 2 of neuropathies were the most frequent.The management was either symptomatic or consisted of a change of antiretroviral therapy.

Conclusion: Neuropathies on hiv patients under stavudine are frequent.These can appear at any stage of the disease.Their treatment is either symptomatic or involves of change of antiretroviral.

A REMARKABLE IODINATION EFFECT OF RESINIFERATOXIN AND AND ITS ANALOGUES

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The study of ion channels strongly depends on the availability of compounds that can either activate or inhibit their function with high selectivity and potency. A remarkable exception is TRPV1, the capsaicin receptor, for which a large number of ligands (vanilloids) are available. Most TRPV1 activators are either natural products or compounds derived from (or inspired by) natural products. Conversely, vanilloid antagonists are mainly synthetic compounds that have emerged from the random screening of chemical libraries.Aromatic iodination ortho to the phenolic hydroxyl reverts the activity of the ultrapotent vanilloid agonist resiniferatoxin (RTX), generating the ultrapotent antagonist 5´-iodoRTX. To better understand the role of iodine in this remarkable switch of activity, a systematic investigation on the halogenation of vanillamides, a class of compounds structurally simpler than resiniferonoids exemplified by nonivamide, was carried out, showing that the antagonistic activity depends on the site of halogenation, that iodine is more efficient than chlorine and bromine at reverting the agonistic activity, and that iodine-carbon exchange decreases antagonist activity. The iodine-induced reversal of vanilloid activity has now been investigated in as series of RTX analogues, showing that the effect of iodination is much more complex than in capsaicinoids, critically depending on the length of the linker between the aromatic moiety and the carbonyl moiety as well as on the location of the iodine on the aromatic ring. In connection with these investigation, an original synthesis of 5'-iodoRTX was developed, improving the original procedure in terms of practicality and yield.

RELAPSING NEUROPATHIES (NON-COMPRESSIVE AND NON-FAMILIAL): THIRTY YEARS LATER, TODAY

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Introduction: Remembering the overview offered by M Balcells Riba (SEN) considering contributions to WCN in Kyoto (1981), the series described by Pou et al (relapsing neuropathies - non compressive and non-familial), disclosed 12 patients (5 Parsonage-Turner cases, one GBS , one MFS and five cases of cranial nerves palsies). Valuable new series are described nowadays in recent literature.

Methods: Comparatives in recent series (Kuitwaard, van Koningsueld, Ruts, Jacobs and van Doorn 2009) described relapsing GBS (a minimum interval >- 4 months between the episodes with incomplete recovery or > - 2 months when complete recovery). Differential diagnoses with GBS with treatment, related fluctuations (GBS-TRF) or chronic inflammatory demyelinating polyneuropathy with acute onset (A-CIDP). Linear correlation with relapsing neuralgic amyotrophy.

Results: Linear correlation between neuralgic amyotrophy relapsing series (26.1 % of patients) and relapsing GBS is r= 0.15.Sensitive semiology is related according to r= 0.56.

Conclusions: Relapsing GBS is defined by MFS pattern, young age (< 30 years) and mild course. Cranial nerve dysfunction is observed in 38 % of cases. Related characterisation with sensorial neuralgic amyotrophy may be obtained.

BRACHIAL DIPLEGIA AS A COMPLICATION OF ACUTE INTOXICATION WITH CARBON MONOXIDE

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Carbon monoxide intoxication (CMI) is responsible for severe neuropsychological impairments. Peripheral nerve' injury is exceptional. We report a case of a brachial plexus damage related to CMI.

A man aged 42 years old presented after an acute CMI, a loss of consciousness for three hours complicated after waking up by a brachial diplegia and oedema of the face and upper limbs. Clinical examination noted motor and sensory deficits in upper limb and deep tendon areflexia. Cerebral MRI objectified bilateral pallidal abnormalities. Cervical spine MRI was normal. Creatine kinase was elevated. Electromyogram was in favor of a bilateral brachial plexus C5 D1 injury predominant in the left side. Clinical course after hyperbaric oxygen therapy was marked by a complete recovery of neurological disorders. Diagnosis of a brachial plexus compressive damage secondary to a Volkmann's contracture syndrome was retained.

Peripheral neuropathy following CMI has rarely been reported in the literature (Garcia and Maestro, 2005). It consists usually in a demyelinating polyneuropathy or mononeuropathy affecting mainly the lower limbs and occurring in young adults. It's facilitated by the presence of a localized swelling secondary to rhabdomyolysis. Isolated involvement of both upper extremities has been described only in 4 patients related to root damage. Plexus impairment, as shown in our patient, in our knowledge has never been reported. Various mechanisms have been implicated including nerve compression secondary to rhabdomyolysis, nerve ischemia due to hypoxia and direct nerve toxicity of carbon monoxide. Prognosis is commonly excellent without any sequelae.

TWO-POINT DISCRIMINATION IN COMPARISON TO NERVE CONDUCTION STUDIES IN DIABETES PATIENTS

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Objective: Diabetes mellitus (DM) is a common cause of polyneuropathy. The aim of the study is to evaluate the two point discrimination (TPD) in comparison to nerve conduction studies in early period of DM.

Materials and methods: Fifty-one patients with early diagnosed (< 5 years) Type II DM and 21 healthy controls were included in this study. Twenty-five patients (Group I) had neuropathic pain and 26 patients (Group II) were asymptomatic. Medical history, clinical and biochemical assessments, neurological examination for polyneuropathy, LANSS (Leeds Assessment of Neuropathy Symptoms and Signs) score, TPD, and electrophysiological evaluations were conducted in all subjects.

Results: Nerve conduction studies of patients showed axonal damage. Group I patients had higher TPD value on plantar surface of foot and both groups had higher TPD values on outer lateral malleolus in comparison to controls ($p< 0.05$). There was a correlation between TPD and axonal damage in Group I patients ($p< 0.05$). In group II, distal latencies of motor or sensory nerves correlated with TPD ($p< 0.05$). In controls, only 3rd digit TPD related to distal motor latency of median nerve ($p< 0.05$).

Conclusion: TPD method is less painful, practical, cost-effective, more easily applicable, and was completed in less time. Higher TPD value shows demyelization or axonal damage in patients. These findings suggest that elevation of the TPD value can easily determine polyneuropathy which has been started in early period diabetes patients.

AN ATYPICAL CASE OF FULMINANT FISHER SYNDROME LEADING TO PSEUDO-COMA

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Introduction: Fisher syndrome (FS) is considered a variant of Guillain Barre Syndrome (GBS) and is typically characterized by a clinical triad of ataxia, ophtalmoplegia, and areflexia. It usually has a benign course; however, more severe forms with additional symptoms have been reported. We report an unusual case that progressed to respiratory failure then complete paralysis of the whole body within two days from onset of the ophtalmoplegia.

Case presentation: A 41 year-old woman with a few days history of a flu-like syndrome and limb paresthesias presented with acute onset of diplopia, dysarthria, dysphagia, fatigue, gait ataxia, and dyspnea. There was no fever, but exam was significant for dilated sluggish pupils, bilateral ophtalmoparesis, and mild weakness of the left arm. DTRs were present and there were no sensory signs. The patient continued to deteriorate and became totally paralyzed except for minimal voluntary movements of the right toes. Brain MRI with contrast and CSF analysis were normal, however, the serum was strongly positive for ganglioside GQ1b antibodies. Electrodiagnostic testing showed an acute severe primarily axonal sensori-motor polyneuropathy affecting all extremities.

In the ICU, the patient received plasmapheresis followed by IVIG. Slow improvement started on day seven of admission.

Discussion: This patient´s clinical presentation is that of a so-called “overlap-syndrome” between FS and axonal sensory and motor form of GBS. Of interest is its fulminant course leading to total body paralysis, “pseudo-coma”. Clinicians should keep this unusual presentation of FS in mind, as this may be confused with other conditions, such as Botulism.

LOW DOSE PLASMAPHARESIS IN GUILLAIN BARRE SYNDROME-A CHEAP, EFFECTIVE TREATMENT-STUDY OF 110 CASES

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Introduction: The aim was to seek an alternative much cheaper treatment to Guillen Barre Syndrome(GBS) as compared to very costly Intra-venous Immuno Globulins(IVIG). Retrospective & prospective study of consequent 110 cases over 7 years.

Methods: Cases were assigned to,

a) IVIG 0.4 mg/kg over 5 days or,

b) Low Dose Plasmapharesis(LDP) over 6 days.

Those who could not afford IVIG were given LDP. LDP was done by removing 350 ml whole blood from a peripheral vein.It was sent for centrifugation in cell-separator in the blood bank. Cellular components & plasma were separated.LDP was done 5 times a day, total 1800 cc plamsa removed/day. IV low molecular weight Dextran was replaced.

Results: A total of 110 cases (60 male, 50 female), aged 6 to 80 yrs., mean age 36 years, mean duration of signs 7 symptoms 7 days, mean debility score 3 (scale 0-6) were studied.

Debility score improved by 3 in 95% of the cases. Two cases died. 4.5% cases did not improve.

IVIG group, 96% cases improved, 1 died, 3.5% cases did not improve.

Conclusion:

1) LDP is a low cost treatment(USD-$-500/Euro-400/-) as compared USD-40000/-Euro-35000/- for IVIG.

2) Morbidity & Mortality is almost same in both groups.

3) Cheap & easy method to treat GBS.

4) Blood banks & cell-separators available all over India/World, so treatment possible at smaller places.

5)LDP is cheaper than also Plasmapharesis by Dialysis-about USD-15000/Euro-12000.

DIABETIC NEUROPATHIC PAIN: AN ELECTROPHYSIOLOGICAL STUDY

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Introduction: Neuropathic Pain is one of the paramount complications of diabetes. In case of association with diabetic nephropathy, neuropathic pain occurs in 15 to 30% diabetic patients.

Objective: To compare electrophysiological parameters of neuropathic pain in diabetic patients with and without diabetic nephropathy.

Methods: We evaluated prospectively 60 diabetic patients with neuropathic pain, group 1: 30 patients without nephropathy and group 2: 30 patients with renal failure undergoing periodic haemodialysis. Neuropathic pain was evaluated by the DN4 score (DN4>4). Conventional electroneuromyographic assessment and sympathetic skin reflex recording were carried out.

Results: Mean age of patients was respectively 60 years in group 1 and 57 years in group 2. Mean duration of diabetes was less than 10 years in 27% of patients in the group 1 and only 10% in the group 2. Axonal sensory and motor neuropathy was found in all diabetic patients with nephropathy and only in 70% patients without renal complications (P< 0,05). Sympathetic skin reflex was abnormal in 90% of patients of group 2 and in 16% of patients of group 1 (P< 0,001). There was no correlation between the presence of neuropathy, the radial nerve amplitude or the sympathetic skin reflex and the DN4 score in the two groups.

Conclusion: Diabetic neuropathic pain in not correlated to the existence of diabetic nephropathy. Neuropathy seems to be electrophysiologically more severe in diabetic patients with diabetic nephropathy. There is no correlation between electrophysiological parameters and DN4.

HUMORAL IMMUNE RESPONSES TO NEOLACTOGANGLIOSIDE LM1 IN GUINEA PIGS

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Background: Guillain-Barre' syndrome (GBS) is an autoimmune-mediated disease triggered by a preceding infection. A substantial body of evidence implicates antibodies (Abs) to various gangliosides in subtypes of GBS. Some patients with acute demyelinating subset of GBS have IgG Abs against peripheral nervous system myelin specific neolactogangliosides LM1 and Hex-LM1.

Objective: To induce anti-neolactoganglioside Abs and experimental neuropathy by immunizing guinea pigs with LM1.

Design/methods: Ten guinea pigs were immunized with purified LM1 ganglioside mixed with keyhole limpet hemocyanin (KLH) and emulsified in complete Freund's adjuvant. The animals were boosted using incomplete Freund´s adjuvant and bled regularly at four week intervals. Experiments were terminated four months after initial immunization.

Results: Nine of 10 guinea pigs immunized with LM1 exhibited Ab responses to LM1. Anti-LM1 IgG titers in LM1 immunized guinea pigs ranged from 400 to 12,800 at 16-weeks after initial immunization. Anti-LM1 Abs were predominantly of IgG2 subclass. One guinea pig with the highest levels of IgG Abs exhibited mild signs of neuropathy. There was no evidence of demyelination or inflammation in the sciatic nerves of LM1-immunized guinea pigs. Anti-LM1 Abs bound to rat sciatic nerve myelin and to isolated rat Schwann cells.

Conclusions: Our preliminary findings demonstrate that although anti-LM1 IgG Abs were induced in most guinea pigs, only one guinea pig exhibited signs of neuropathy possibly due to low antibody titers and short duration of experiments. Repeated immunization of animals for a longer duration may be needed to determine the pathogenic potential of anti-neolactoganglioside Abs in neuropathy.

HANSEN'S NEURITIS PRESENTING WITH TENOSYNOVITIS: AN INTERESTING CASE REPORT

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Introduction: Musculoskeletal involvement in leprosy though third most common is under-diagnosed and under-reported. We report an interesting case presenting with tenosynovitis.

Material and method: This 25yr old male was referred to us with complaints of a swelling over dorsum of right wrist over extensor tendons , with pain, swelling difficulty in flexing the fingers of his right hand for last 3 months. On deailed questioning he gave a history of impaired sweating with diminished sensation for pain, touch and temperature over bilateral lower limbs and upper limbs in a glove and stocking distribution for past 1 year.

Results: Examination revealed multiple shiny, hypopigmented patches over the trunk with 70% loss for pain , temp and touch.Bilateral superficial radial, left great auricular, bilateral common peroneal and left ulnar nerve were thickened.A soft, cystic, non-tender swelling of 3 x 4 cm attached to the extensor tendons with ill defined borders over dorsum of the right wrist was present. Neurological examination revealed distal weakness, graded sensory loss in both lower limbs and upper limbs with absent reflexes in lower limbs and diminished reflexes in upper limbs. Electrophysiology revealed sensory motor axonal + demyelinating neuropathy . Ultrasonography of wrist was suggestive of tenosynovitis. Slit skin smear was negative for acid-fast bacilli. Patient was subjected to a sural nerve biopsy which confirmed the diagnosis of borderline leprosy. Patient was started on standard anti leprosy treatment with significant clinical recovery.

Conclusion: Thus this case highlights an interesting treatable manifestation of hansens disease!

GUILLAIN-BARRÉ SYNDROME REVEALING ACUTE VIRAL HEPATITIS B ABOUT TWO CASES

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Introduction: Hepatitis B virus (HBV) is often asymptomatic. Sometimes, it can be manifested by a pre-icteric non specific phase followed by an acute hepatitis phase.

Polyradiculoneuropathy such as Guillain-Barré syndrome (GBS) often occurs after a viral infection. Rare cases of acute viral hepatitis B (AVHB), revealed by GB, have been described.

Case report: We report two cases of patients who developed motor flaccid paralysis. The paralysis was symmetrical, ascending with proximal predominance. There was no involvement of respiratory muscles and cranial nerves. The mucosa and the skin were also normal.

The diagnosis of acute viral hepatitis B was confirmed by the dosage of antigens HBe. That of GB was confirmed by an electroneuromyography and the analysis of cerebrospinal fluid.

In the absence of immunotherapy, our patients received symptomatic and physical treatment allowing a total recovery in one and a partial one in the second.

Comment: GBS is a rare manifestation of acute hepatitis. The mechanism is not well elucidated, but the association AVHB and GBS suggests that hepatitis B would induce an immune response, which would trigger GBS.

The fact that during seroconversion, the immune response is maximal could explain the risk of occurrence of autoimmune neuropathy during the acute HVB.

BILATERAL BRACHIAL NEURITIS ASSOCIATED WITH WEST NILE VIRUS

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West Nile virus infection has been associated with a number of neuromuscular manifestations including a polio-like syndrome and has been associated with multifocal neuropathy. Here we report a 31 year old male who developed bilateral brachial neuritis in association with West Nile virus meningoencephalitis.

A right handed gentleman presented to his local Hospital (Kingston, London) in December 2010 with fever and headache. He had recently holidayed in Kenya and had been bitten by mosquitoes during this time. Results of haematology, renal, liver and autoimmune testing were normal or negative. CSF demonstrated a WCC of 49 (95% lymphocytes), Protein 0.99g/L, Glucose 3.0mmol/L (Serum 5.1mmol/L). PCR of CSF for HSV, VZV, EBV and CMV was negative. Two weeks later he developed progressive weakness of both upper limbs associated with severe neuropathic pain. On examination he demonstrated bilateral winging of the scapula, weakness of elbow flexion and extension, wrist extension, finger extension and grip. Reflexes were present and there were no marked sensory findings. EMG demonstrated findings consistent with bilateral brachial neuritis.

Serum and CSF IgM antibodies for West Nile virus were positive in samples obtained from the patient´s initial admission with the meningoencephalitic illness. This patient was treated with a course of high dose oral prednisolone and strengthening exercises from physiotherapy. His left scapula remains winged but has otherwise made a good recovery. This case demonstrates a previously unreported neurological manifestation of West Nile virus infection and highlights the need for consideration of West Nile virus in neuromuscular presentations.

ESTABLISHMENT OF IPS CELLS FROM AMYOTROPHIC LATERAL SCLEROSIS MODEL MICE AND MOTOR NEURONAL DIFFERENTIATION

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Background and aims: To unravel pathogenesis of amyotrophic lateral sclerosis (ALS), methods using induced pluripotent stem cells (iPS cells) are promising. We establish iPS cells from ALS model mice, mutant superoxide dismutase1 (SOD1) transgenic mice, induce neural differentiation and unravel pathogenesis of ALS.

Methods: We introduced known four factors (Oct3/4, Sox2, Klf4, c-Myc) into mouse embryonic fibroblasts obtained from crossbreeding of SOD1^{G93A} mice with Nanog-GFP-IRES-Puro^{r} mice using retroviral vectors and cultured them on SNL feeder cells. We picked ES cell-like colonies, cultured them and confirmed establishment of iPS cells using ES cell markers. Then we induced directed differentiation using retinoic acid and Smoothened agonist and confirmed motor neuronal identity by immunocytochemistry.

Results: We established iPS cells from mutant SOD1 mice and control mice and confirmed motor neuronal differentiation.

Conclusions: These results indicate that iPS cells from ALS model mice possess properties of ES cells with mutant SOD1 and may contribute to establishment of ALS model(s) *in vitro*.

INHIBITION OF OXIDO-INFLAMMATORY CASCADE PREVENTS NEUROPATHIC PAIN IN EXPERIMENTAL MODEL OF DIABETIC NEUROPATHY

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Nitrodative stress induced inflammatory cascade is implicated as a final common pathway in the development of diabetic neuropathy and pharmacological interventions targeted at inhibiting free radical and cytokine production have shown beneficial effects. In the present study, we have targeted Nitrodative stress mediated nerve damage in diabetic neuropathy using epigallocatechin-3-gallate, a potent natural antioxidant. After 8 weeks, streptozotocin induced diabetic rats developed neuropathy which was evident from decreased tail-flick latency in tail-immersion test and decreased paw withdrawal threshold both in Randall sellitto and von-Frey hair test. Decrease in nociceptive threshold was accompanied by significant increase in lipid peroxidation and nitrite levels in sciatic nerve of diabetic rats along with marked decrease in reduced glutathione and superoxide dismutase activity. Treatment with epigallocatechin-3-gallate for 4 weeks starting from the 5th week of streptozotocin injection significantly attenuated all the behavioral and biochemical alterations in dose-dependent manner. The decrease in pain threshold was also coupled with marked increase in TNF-α, IL-1β and TGF-β1 levels both in serum and sciatic nerve of diabetic rats which was significantly reversed on treatment with epigallocatechin-3-gallate. The major finding of the study is that insulin alone corrected the hyperglycemia and partially reversed the pain response in diabetic rats. However, combination with epigallocatechin-3-gallate not only attenuated the diabetic condition but also reversed neuropathic pain through modulation of oxidative-nitrosative stress and inflammatory cytokine release in the diabetic rats. Our results clearly demonstrate neuroprotective effect of epigallocatechin-3-gallate in attenuation of functional, biochemical and molecular deficits associated with diabetic neuropathy.

MAN IN THE BARREL SYNDROME

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The man in the barrel syndrome (MIBS) is a rare neurological entity characterized by a severe and isolated brachial diplegia , sparing the face and lower limbs and giving the appearance of a patient confined in a barrel . This syndrome can result from different etiologies affecting both the central and peripheral nervous system.

The authors report four cases of MIBS secondary to peripheral nervous system involvement:

1- An anterior horn affection in a 40 year old patient with amyotrophic lateral sclerosis (Vulpian syndrome),

2- A severe bilateral brachial plexopathy of compressive origin during a prolonged coma following a carbon monoxide intoxication in a 30 year old patient,

3- A multirooted affection related to multiple bilateral cervical cysts in a 34 year old patient,

4- And multirooted lesion of cervical arthrosic origin in a 68 year old patient.

In this work, the authors review the topographical location and the etiologies described as responsible for this syndrome, which remain dominated by bilateral cerebral infarction. They also discuss prognosis aspects in specifically Vulpian degenerative form.

CLINICAL ANALYSIS OF BELL´S PALSY IN ONE KOREAN UNIVERSITY HOSPITAL

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Background: Bell´s palsy(BP) is an acute, unilateral paresis or paralysis of the face in a pattern consistent with peripheral nerve dysfunction, without detectable causes. So, we analysed that the etiology and clinical course of acute BP in one korean university hospital.

Methods: The study includes 275 patients of BP examined during a period of 72 months. Clinical history, neurologic examination, laboratory test, electrophysiologic study, and brain image was performed. Follow up examination was done once a week during the first month and for up to 2 months.

Results: Of 275 patients, 117(42.5%) were men and 158(57.5%) were women. The average age of men were 44.6(± 16.6) years and women were 46.5(± 17.6) years. The initial examination revealed 16(5.8%) were HB grade 2, 83(30.1%) were grade 3, 139(50.5%) were grade 4, and 40(14.5%) were grade 5. 136(49.5%) patients were involved in right side and 139(50.5%) patients were involved in left side. The patients with viral infection were 59(21.5%) and with diabetic mellitus were 38(13.8%) patients. Combined symptoms were as follows; postauricular pain(76%), increase tear flow(22.6%), taste change(13.2%) and hyperacusis(15.1%). The initial facial nerve conduction study performed within 1 week showed low CMAP amplitude in 150(54.5%) and blink reflex showed no reflex in 245(89.1%) within 1 week. Follow-up examination showed that 162(58.9%) of the patients partially improved within 4 weeks, and 183(66.5%) patients improved completely within 8 weeks.

Conclusion: We report epidemiologic, clinical, electrophysiologic and radiologic characteristics of BP patients in one korean university hospital.

CARPAL TUNNEL SYNDROME IN HAEMODIALYSIS PATIENTS

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Introduction: Carpal tunnel syndrome (CTS) includes all symptoms related to compression of median nerve in the carpal tunnel. It is a common expression of dialysis related amyloidosis.

Objective: The objective of this study was to describe CTS's characteristics and to analyze its risk factors in long-term haemodialysis patients.

Method: We conducted a cross sectional study during the fourth quarter of 2009. Were included all adult patients receiving haemodialysis for more than one year in the Nephrology department of Hassan II university hospital in Fez-Morocco. A median nerve electromyography (EMG) was performed for all of them and it was considered the gold standard for diagnosis of CTS.

Results: Have been agreed to participate in the study 60 haemodialysis patients. Their average age was 48 ±15 years, with a sex ratio of 0.9. All of them received weekly, 10 to 12 hours of haemodialysis therapy, with synthetic membrane. The average duration of dialysis was 83±6.5 months. The prevalence of CTS in our study was 32 % (19 patients). Eight of them were completely asymptomatic. Even though, we found a significant relation between clinical symptoms and EMG results. Risk factors of CTS occurrence in our study were current age, late age at initiation of haemodialysis, female gender, overweight, and the side of arteriovenous fistula. Circulating serum β-2microglobulin level was high in both groups of haemodialysis patients with and without CTS.

Conclusion: CTS is a common complication in chronic haemodialysis patients. Dialysis's quality improvement may help to reduce the risk of onset of CTS.

PRIMARY HYPERPARATHYROIDISM SIMULATING MOTOR NEURON DISEASE: A CASE REPORT

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Introduction: Motor neuron diseases are always lethal. Other curable causes of neurologic disorders have to be sought. There are few publications on primary hyperparathyroidism (PHP) resembling Amyotrophic Lateral Sclerosis (ALS). Most of these cases improved after resection. We report an example.

Case report: A 60-year-old woman has a history of PHP. Three years after, the patient presented with weakness in the left arm and shoulder for the past 3 years. The neurological examination showed distal atrophy in the upper limbs. There were no fasciculations and both mental status and speech were normal, whilst cranial nerves were intact. The sensory examination was normal. All the deep tendon reflexes were symmetrically brisk and plantar response was bilaterally flexion. Electromyography showed lower motor neuron degeneration resembling a motor neuron disease. The neuroimaging studies of the spine were normal. Laboratory investigations revealed a hypercalcemia and high level of parathyroid hormone.

The absence of upper motor neurons signs after 3 years of evolution and the presence of the history of PHP make an SLA diagnosis improbable. Surgery of hyperparathyroidism was indicated for the improvement of neurological symptoms.

Conclusion: The hyperparathyroidism can present as a severe neuromuscular disease similar to ALS. The pathogenic association is until now unknown. Faced with symptoms mimicking motor neuron diseases, calcium and phosphorus levels have to be measured because hyperparathyroidism can be cured and neurologic disorders can be disappear after surgery.

THE ROLE OF MAPK FOR MICROGLIAL ACTIVATION IN TRIGEMINAL SUBNUCLEUS CAUDALIS

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Objective: We studied the spaciotemporal expression of phospho-extracellular signal-regulated protein kinase (pERK) and phosphorylated-p38 mitogen-activated protein kinase (MAPK) to elucidate the function of microglia activation in trigeminal subnucleus caudalis (Vc) induced by noxious stimulation of the rat oral mucosa.

Methods: The intermolar region of dorsal lingual eminence (IDLE) of rats (250g) was stimulated with 10µl of either normal saline or 5% formalin for 5 minutes. Rats were allowed to survive for 1 hour or 24 hours after the nociception. The brainstems were dissected and cut with a cryostat (30µm) at -20℃. Frozen sections of each brainstem were collected and processed for the immunohistochemical study of microglial activation. Expression of pERK and phosphorylated-p38 MAPK in the specimens were evaluated and analyzed.

Results: In the experimental groups, ionized calcium-binding adapter molecule 1 (Iba1)-immunoreactive (IR) cells were significantly increased in the 1-hour and 24-hour after-nociception Vc ($p < 0.05$). A significant increase of Iba1-IR cells expression in Vc was more evidently observed at 24 hours than 1 hour after nociception ($p < 0.05$). A significant increase in the number of pERK-IR and phosphorylated-p38 MAPK-IR microglia in Vc was observed in both the 1-hour and 24-hour after-nociception specimens; the phosphorylated-p38MAPK-IR microglial cells increased more evidently ($p < 0.05$).

Conclusions: 24-hour-persistent and enhanced microglial activation in Vc was evoked by noxious stimulation of the IDLE oral mucosa. The expression of pERK and phosphorylated-p38 MAPK in Vc were closely related with important roles for microglial activation in Vc.

CMT2I DUE TO A MYELIN PROTEIN ZERO SER44PHE MUTATION IN A LARGE FAMILY FROM NORTHERN IRELAND

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Charcot-Marie-Tooth disease (CMT) is a clinically and genetically heterogeneous group of inherited neuropathies. Whilst the genetic basis of demyelinating CMT has been largely recognised for many years, there has been an explosion in our understanding of the genetic basis of autosomal dominant axonal CMT (CMT2) over recent years.

We describe a large family from the north-east of Northern Ireland with autosomal dominant late-onset axonal CMT (CMT2I). The proband is a male who presented at the age of 64 with orthostatic tremor and imbalance progressing to foot drop and distal sensory loss. Nerve conduction studies confirmed a mixed, mainly axonal, symmetrical sensorimotor polyneuropathy. He had 11 siblings of whom 6 were affected. A family history can be traced back to at least the 18th century with historical records reporting a family known for their limp. Sequence analysis demonstrated with a Ser44Phe substitution mutation in the coding region of myelin protein zero (MPZ), encoding P0. Mutations in MPZ are well-recognised as a cause of demyelinating neuropathy, including the second most common cause of CMT1 (CMT1B), but also dominant-intermediate CMT-D and Dejerine-Sottas Syndrome and Congenital Hypomyelinating Neuropathy. Mutations in MPZ have also been described in very rare cases of both late-onset axonal CMT (CMT2I) and axonal CMT with hearing loss and pupillary abnormalities (CMT2J). The Ser44Phe mutation in our family has been described previously in only a single Sardinian family (Marrosu et al., 1998). This new large family allows further elaboration of the phenotype of CMT2I.

LATERALITY OF THE ULNAR NEUROPATHY AT THE ELBOW

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Introduction: In contrast to previous observations, we noted that ulnar neuropathies at the elbow are more common in the left (usually non-dominant) hand. The aim of the study was to check this observation on a series of one year referrals to our electrodiagnostic (EDx) service.

Methods: All patients referred to our institution in 2010 with the ulnar neuropathy at the elbow were included. In all patients clinical examination and the EDx studies, and in a proportion of them also an ultrasonographic (US) examination were performed. Possible etiology for neuropathy with respect to laterality tried to be found.

Results: In 2010 ulnar neuropathy was identified in 233 of referred patients. Lesion was diagnosed in 141 (61%) patients on the left, in 67 (29%) on the right, and 25 (11%) bilaterally ($p< 0.01$ on 1-tailed Z-test for two proportions). Of 117 patients with more severe lesion (i.e., axonal) 60 (51%) were on the left, 39 (33%) on the right, and 17 (15%) were bilateral. Of 75 hands with suspected ulnar neuropathy at the elbow examined US 53 (71%) were on the left, and 22 (29%) on the right. Increased cross-sectional area (>0.10 cm^2) was found in 40% and 64%, respectively ($p< 0.05$ on 1-tailed Z-test for two proportions).

Conclusion: Ulnar neuropathies at the elbow are indeed more common on the left (usually non-dominant) arm. Reason for this is not clear, although lower frequency of enlarged nerves on the left may point to a more common compression in contrast to entrapment.

COMPARISON OF CD4 COUNTS, DEPRESSION AND QOL IN PATIENTS WITH AND WITHOUT PERIPHERAL NEUROPATHY IN HIV-1 CLADE-C INFECTION IN INDIA

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Object of the study: India has the second largest burden of HIV related pathology, most commonly caused by HIV-1 Clade C. Peripheral neuropathy is a common feature in advanced HIV disease especially with CD4 counts less than 200. This study was performed to look for evidence of neuropathy in HIV-1 Clade-C patients with CD4 counts above 200. It was a cross sectional study to determine the comparison of the CD4 counts, Depression, and Quality of life in patients with and without Peripheral neuropathy.

Methods: 53 patients with HIV-1 Clade-C with CD4 counts more than 200 in age group of 18-60 yrs were evaluated for neuropathy. These patients were also assessed on Beck Depression Inventory (BDI) and WHO Quality of Life scale(QOL).

Results: 9 patients out of 53 had abnormal nerve conduction studies and 2 had carpal tunnel syndrome. Mean CD4 counts in patients with neuropathy was 438.44 (±99.01) and without neuropathy was 509.32 (±154.37), (t=1.31, p=0.194). Significant differences were noted in BDI, STAI and WHO Quality of Life scale. Mean BDI in patients with neuropathy was 15.44±11.63 and without neuropathy was 6.74±6.28 (t=3.20, p=0.002).

QOL was 103.44±13.07 in patients with neuropathy and 118.15±13.47 in patients without neuropathy (t=2.99, p=0.004).

Conclusion: Neuropathy is not uncommon in patients with HIV-1 Clade C infection with CD4 counts >200, although there is no statistically significant relation between the presence of neuropathy and the CD4 count. Significant differences were seen in level of depression, and quality of life in patients with and without neuropathy.

LEPROUS NEUROPATHIES: CASES REPORT

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Introduction: Leprosy is a rare cause of sensory-motor neuropathy, but any patient with melanodermia from endemic countries associated neuropathy must have assessement for leprosy.

Objective: To report 4 cases of tuberculoid form leprous neuropathy.

Comments: There is three men and one woman, mean age of 30.5 years, of which two are from northern Morocco and Guinea respectively, with a family history of leprosy. The first symptoms are sensory disorders (paresthesia and insensitivity to painful stimuli), associated a limbs weaknes, slowly progressive, asymmetrical for 9 years on average. Clinical examination showed asymmetric peripheral neuropathy with achromic tasks and nerve hypertrophy. The Electroneuromyography showed multiple mononeuropathy in three patients, and polyneuropathy in 1 patient. The possibility of tuberculoid Hansen disease was raised. The nasal swab and skin biopsy in healthy skin hypoesthesia in search of Hansen´s bacillus were negative. The nerve biopsy showed an inflammatory infiltrate highly suggestive of leprosy. Ziehl Nielson showed Hansen bacillus in one case but no tuberculoid granuloma. All patients were treated on leprosy chemotherapy with good outcome.

Discussion: The nerve damage in a tuberculoid leprosy is often severe. The small number of studies on leprosy nerve makes it very unrelaible as diagnostic methods. The positivity of dermal juice would be less than 10%, the biopsy of healthy skin hypoesthesia of about 30%, and the nerve biopsy from 30 to 60%.

Conclusion: The main difficulty is to detect as early as possible contaminated patients to prevent the occurrence of neuropathies and disability.

FREQUENCY OF CARPAL TUNNEL SYNDROME AND ITS RELATIONSHIP WITH BODY MASS INDEX

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Introduction: Carpal tunnel syndrome (CTS) is the commonest focal peripheral neuropathy. Prevalence estimates are between 1% and 5% in the general population and up to 10% among active workers in certain occupations. Increased weight and body mass index (BMI), have been suggested as risk factors for CTS.

Objectives: To assess the prevalence of CTS and its relationship with BMI in a working population controlling for sex, age and type of work.

Methods: A cross- sectional study was performed in a restricted population belonging to the neuromuscular surveillance program of the Neuroscience Center- ARP Positiva- Cali, Colombia. All patients completed nerve conduction testing, physical examination, and questionnaires. CTS was defined by median neuropathy and associated symptoms. BMI was calculated in all patients. Statistical analysis was done using Stata version 9. (Univariate analysis, Pearson chi-quared statistics, Logistic regressions, Multiple linear regressions).

Results: 63 patients (126 hands) were studied, aged 26- 63 yo, mean age 43 yo, 71% woman, 39% men; 64% had abnormal BMI (48% overweight, 16% obesity); 43 of 126 hands were diagnosed with CTS with a prevalence of 34.1% in these industrial based population (IC 95%: 25.7%- 42.5%). There was not statistically significant correlation between BMI and CTS (OR 1.30, p:0.508; IC 95%: 0.60- 2.82).

Conclusions: The prevalence of CTS was high in this particular population. We did not find statistically significant correlation between BMI and CTS. This finding suggests that factors other than excess body weight may be influential in the high prevalence of CTS in our patients.

CHRONIC INFLAMMATORY DEMYELINATING POLYRADICULONEUROPATHY: A RETROSPECTIVE STUDY ABOUT 21 CASES

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Introduction: Chronic inflammatory demyelinating polyradiculoneuropathy (CIDP) form a relatively broad spectrum, which differs from the acute forms. An immunologic mechanism is likely to intervene but it is still not clearly elucidated. Diagnostic of CIDP refers on a clinical and electrophysiological approach that leads generally to suggest an immunomodulator treatment.

Case report: We report a retrospective study about 21 patients, having been hospitalized in the department of neurology of the Military Hospital of Tunis during the period going from January, 2000 until December 2009. These patients presented with a CIDP features, confirmed by the clinical, electrophysiological and biological data meeting the French CIDP study group criteria.

Results: Age of onset varies between 18 and 90 years with an average of 48.5+/-19.74 years. The mean age of male patients is 50.4+/-19.82, that of female patients is 43.8+/-20.56. A net male ascendancy (sex ratio=2.5) was found. The majority of patients (57 %) presented a progressive form of CIDP. Clinical examination showed a motor deficiency in 90% of the cases. This deficiency is mostly symmetric interesting the four limbs in 68% of cases and proximal ascendancy. Tendon reflexes absence was constant. And areflexia was generalized in 81% of cases. The amount of protein in cerebrospinal fluid varies from 0.19g/l to 10.2g/l (median level of CSF protein: 1.44+/-2.24 g/l). This albumino-cytological dissociation was found in 76.2% of cases.

Conclusion: CIPD appear among the rare curable neuropathies. And immunomadulator treatment is usually suggested once the diagnostic is established by the clinical and electrophysiological findings.

WHAT ARE THE EFFECTS OF ANTHROPOMETRIC FACTORS ON NERVES OF THE FOOT?

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Introduction: Current studies have shown that age, gender, and body mass index (BMI) affect amplitude of sensory nerves, but the total effects of multiple factors or the most prominently affected nerve parameters have not been well documented.

Methods: Amplitude, latency and conduction velocity of compound muscle action potential (CMAP) and sensory nerve action potential (SNAP), mixed nerve action potential (MNAP) of the posterior tibial, calceneal, distal posterior tibial, medial and lateral planter and sural nerves were measured in 30 healthy subjects (60 feet). The effects of age, gender, height and BMI on each nerve were estimated by correlation and linear regression analysis.

Results: The amplitude of posterior tibial CMAP and distal posterior tibial MNAP decreased with BMI. The amplitude of medial planter MNAP and sural SNAP decreased with height. The conduction velocity of calceneal SNAP and distal posterior tibial, lateral planter MNAP decreased height and BMI. The conduction velocity of medial planter MNAP decreased only with height. The latency of posterior tibial CMAP increased with age and height. The latency of lateral planter CMAP and calceneal SNAP increased with height. The latency of lateral planter MNAP increased with BMI.

Conclusions: The effects of age, gender, height and BMI in foot nerve conduction studies are not identical. BMI and height were shown to strongly affect motor, sensory and mixed nerve conduction. Further investigations are needed.

CASE REPORT: EPIDURAL MID-SACRAL NEUROMODULATION AS THERAPY FOR CHRONIC REFRACTORY POST-PROSTATITIS PERINEAL NEURALGIA

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Introduction: Neurmodulation utilizes electronic currents to provide minimally invasive on-command pain relief with maintenance of sensory tone. Although, considered an integral part of the standard of care for multiple pain syndromes, to our knowledge no literature exists on the application of electronic neuromodulation in the mid-sacrum for chronic, refractory perineal neuralgia following prostatitis.

Materials and methods: We present the case of a 60 y/o male with a history of multiple bouts of prostatitis and severe perineal pain. Each infection was treated successfully with antibiotic therapy. The last episode of prostatitis thirteen years ago resulted in intractable perineal pain that has disturbed his daily functioning and sleep patterns. Attempted pain management to alleviate his disability has included NSAIDS, muscle relaxants, narcotics, gabapentin, psychosomatic therapy, TURP and pudendal nerve decompression all to marginal and transient avail. A novel trial with percutaneous posterior epidural mid-sacral stimulation resulted in a subjective 50% pain reduction. Subsequently a 2x8 lead was surgically placed in the epidural space extending over the entire length of the S2 and S3 sensory afferents then connected to a subcutaneously placed stimulator generator.

Results: Post-operative follow up has indicated reduction of reported pain from 7/10 to 3/10 as well as improved functional capacity for the patient. He admits to reduced oral pain medication daily dosages, more fulfilling sleep patterns, and diminution of his disability.

Conclusion: Mid-sacral epidural neuromodulation was integrated successfully as an adjunct to standard chronic pain management in chronic, refractory post-prostatitis perineal pain.

LIFE WITHOUT PAIN (CASE REPORT OF FAMILY WITH HSAN TYPE I WITH DEMENTIA)

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In this case report we describe a family (father and 3 sons') who developed deafness and dementia 10-15 years after the onset of sensory neuropathic symptoms. We had opportunity to examine only one member of them (S.K, second son) because all other were dead at that time (2004), but after that the described patient dies too.

All of the presented family members showed very similar clinical picture: beginning with dizesthesias in legs at the age of 20's and developing painless ulcerations on their feet's proceed with difficulties in hearing progressing to deafness, at the age of 35-40 their status worsened with developing dementia, and all of them died before age of 50. EMG of examined patient showed normal needle EMG and MCV, with absent of sensory nerve action potentials, while cranial MRI showed predominantly frontal atrophy.

Although done retrospectively and without medical data's from other affected members (lost during war in Kosovo), aim of this case report is to describe this family with HSAN type I with dementia, a very rare combination till now described only in few cases in USA and Japan.

MILLER FISHER SYNDROME WITH NEGATIVE ANTI GQ1B ANTIBODIES DURING A *MYCOPLASMA PNEUMONIAE INFECTION*

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Summary: The Miller-Fisher's Syndrome (MFS) is characterised by the association of ophthalmoplegia, ataxia and myotatic areflexia. The pathophysiologic mechanisms are not well known. A viral infection is often incriminated in the days or weeks preceding the symptoms. We report a case of a 75-year old woman, admitted 48 hours after the onset of ophthalmoplegia, ataxia and myotatic areflexia. Electroneuromyography was normal. The MRI did not show any brainstem lesion. *Mycoplasma pneumoniae* serology was highly positive (IgM = 1/320, reference lower limit = 1/40). A lumbar tap with CSF analysis revealed one white cell and a protein level of 0.40g/L. Anti GQ1b antibodies that are present at high levels in the serum of patients with this disorder and which suggest an ophthalmoplegia were absent. The patient was treated with polyvalent immunoglobulin infusions (Tegelineâ 0,4g/kg/day) and macrolides for 5 days. The clinical and immunological course of the condition was marked by improvement. *Mycoplasma pneumoniae* infection should be looked for systematically in the work-up for MFS. There may be another epitope different from GQ1b that plays a role in the pathogenesis of MFS.

THE CORRELATION BETWEEN LOSS OF INTRAEPIEDERMAL NERVE FIBER DENSITIES (IENFD) AND NERVE CONDUCTION ABNORMALITIES IN DIABETES MELLITUS

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Background: Skin biopsy has become an accepted tool for investigating small nerve fibers. Diabetic polyneuropathy is reported loss of epidermal innervations in early stage. Therefore, skin biopsy is expected to be usefulness for the evaluation of diabetic polyneuropathy (DPN). Nerve conduction study (NCS) is usually performed for the evaluation of DPN. However, the correlation between nerve conduction abnormality and loss of small fiber is controversial.

Objective: The purpose of this study to investigate the correlation between loss of small fiber and nerve conduction abnormalities in patients with diabetes.

Subjects: Thirty patients with NIDDM

Method: We recorded nerve conduction studies in the tibial, peroneal, and sural nerve.

We subjected to skin biopsy of the calf for the evaluation of intraepidermal nerve fiber densities (IENFD) were expressed after staining with PGP 9.5. IENFD were expressed as number per mm length.

Results: There was correlation of decreased IENFD with the prolongation of tibial F-wave latencies and sural SNAP amplitude. These findings suggest that small fiber abnormality may develop in parallel with large fiber abnormality in diabetic polyneuropathy.

URINARY COLLAGEN METABOLITE EXCRETION IN AMYOTROPHIC LATERAL SCLEROSIS

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Objectives: Several studies have reported collagen abnormalities in patients with amyotrophic lateral sclerosis (ALS). The concentrations of the hydroxylysine glycosides, i.e., glucosylgalactosyl hydroxylysine (glu-gal Hyl) and galactosyl hydroxylysine (gal Hyl), excreted in urine indicate the tissue origin of the collagen metabolites and the rate of the degradation of collagen. An increase in degradation of skin collagen and bone collagen will produce an increase in urinary excretion of glu-gal Hyl and gal Hyl, respectively.

Methods: We measured the urinary levels of glu-gal Hyl and gal Hyl in urine from 12 ALS patients, 10 diseased control subjects (control group A), and 10 healthy control subjects (control group B).

Results: The urinary level of glu-gal Hyl in ALS patients was significantly lower ($p< 0.001$ and $p< 0.001$) than in control groups A and B. In addition, a significant negative relationship ($r=-0.66$, $p< 0.02$) between its urinary level and duration of illness was found in ALS patients. There was no marked difference in the urinary level of gal Hyl between ALS patients and control groups A and B. The ratio of glu-gal Hyl to gal Hyl was appreciably lower ($p< 0.001$ and $p< 0.001$) in ALS patients than in control groups A and B, and was significantly and negatively correlated($r=-0.68$, $p< 0.02$) with duration of illness in ALS patients.

Conclusions: Our data suggest that the decreased urinary level of glu-gal Hyl and the decreased ratio of glu-gal Hyl to gal Hyl could be useful in assessing the alteration in collagen metabolism in ALS.

PERIPHERAL NEUROPATHY AFTER BURN INJURY

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Peripheral neuropathy is a well- documented disabling sequela of major burn injury. These lesions are associated with both thermal and electrical injuries It may be frequently undiagnosed or overlooked in clinical settings . There were 27 (57%) burns caused by thermal reasons, and 20 (43%) burns caused by electricity .16 (34%) were low voltage electrical injuries and 4(8%) were high voltage ones. 15 **(**31.9%) patients had polyneuropathy and 32 (68.1%) had mononeuropathy. Patients with polyneuropathy frequently had axonotmesis.

The purpose of this study was to evaluate the incidence of burn-related neuropathy in our database and to investigate the clinical correlates for both mononeuropathy and generalized peripheral polyneuropathy.

A RETROSPECTIVE REVIEW OF GUILLAIN-BARRÉ SYNDROME SUBTYPES IN SINGAPORE

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Background: Guillain-Barré syndrome (GBS) can be broadly classified into acute inflammatory demyelinating polyneuropathy (AIDP), acute motor axonal neuropathy (AMAN) or Fisher syndrome (FS) through a combination of clinical signs and electrodiagnostic tests. The purpose of this study is to describe the distribution of the subtypes among the GBS patients seen at our institution.

Methods: A retrospective review was done of the electrodiagnostic features of all cases of GBS seen at a tertiary hospital in Singapore over the last four years. GBS was diagnosed as defined by Ashbury and Cornblath in 1990. Sub-classification of GBS into AIDP and AMAN was based on the Ho's electrodiagnostic criteria. FS was defined clinically by the presence of ataxia, areflexia and ophthalmoplegia.

Results: A total of 42 cases were studied. 26 (62%) were classified as AIDP, 4 (9.5%) as AMAN. 4 (9.5%) were labelled as indeterminate. 8 (19%) of the case had clinical features of FS.

Conclusion: As in most parts of Asia, a significant proportion of GBS cases in Singapore are FS. The low incidence of AMAN is unexpected. Serial electrodiagnostic studies may increase the diagnostic yield of AMAN.

GIANT AXONAL NEUROPATHY

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Introduction: Giant axonal neuropathy (GAN) is a rare autosomal recessive disorder affecting both the central and the peripheral nervous systems. It is characterized by the following: severe early-onset peripheral motor and sensory neuropathy, Tightly curled lacklustre hair that differs markedly from that of the parents and central nervous system involvement including intellectual disability, cerebellar signs (ataxia, dysarthria), and pyramidal tract signs.

Case presentation: We report a case of a 4 year-old girl who presents with a gait disturbance and frequent falling down .The patient is the third child of a positive consanguineous marriage. The family history reveals a 7 year old sister with the similar condition with a definitive diagnosis of GAN.

The clinical examination showed: bilateral equinovarus, bilateral steppage, distal amyotrophy of the lower limbs (wasting of the peroneal muscle), deep tendon reflexes are present and symmetric, no sensory disturbances. The EMG showed a severe motor axonal lesion affecting limb nerves. The nerve biopsy showed a normal density of myelinated fibres and the presence of onion bulb formations of Schwann cells.

Conclusion: The GAN is a rare hereditary disorder affecting central and peripheral nervous systems. Looking forward to advanced gene therapy approaches, yet genetic counselling and symptomatic treatment are still the only means proposed in the management of this disease.

CHEMOTHERAPY-INDUCED PERIPHERAL NEUROPATHY

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Background: Paclitaxel and docetaxel has been implicated a causative agent in polineuropathy. Some studies indiceted that docetaxel has been caused fewer polineuropathy. Polineuropathy (PNP) rate related with Docetaxel and paclitaxel was compared.

Materials and methods: We recruit 68 patients who were diagnosed as inoperable cancer from Janurary to April 2011 and they were treated one or more chemotheraputic agent where enrolled. All patients, before chemotheraphy, were examined and electrophysiological tests were applied. The patient who was diagnosed PNP, excluded. After chemotheraphy same patients were examined to investigate for PNP again. WHO grading system was used for classfing. In patients who have treated with Paclitaxel, carboplatin and cisplatin were investigated PNP and compared with each other.

Results: PNP was found in 5 (7.4%) patient of 68 cancer patient before treatment. 16 patient were died before treatment (23.5%). Remaining 47 patient has included in the study. 12 patient were treated with the docetaxe - cisplatin. PNP was appeared in 7 patient in 12 patients (58.3%) 22 patient were treated with paclitaxel- carcoplatin. 17 patient have diagnosed as PNP in 22 patients(77.2%) There is no statistical significant difference was found between these two groups(p=0.485) .Cumulative dosages of paclitaxel (p=0.11 and p=0.30) and docetaxel (p=0.40 and p=0.10) are found unrelated with PNP appereance and degree of the disease.

Conclusion: In this study, docetaxel and paclitaxel are seen similar effect on polineuropathy development. However, cumulative dose does not important role in development of PNP.

DISPERSION OF VENTRICULAR REPOLARIZATION AS DIAGNOSTIC TOOL FOR ASSESSMENT OF AUTONOMIC FUNCTION IN PATIENTS WITH GUILLAIN-BARRE SYNDROME

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Purpose: Guillain-Barré syndrome (GBS) is acut inflammatory polyneuropathy as a reactive, self-limited, autoimmune disease triggered by a preceding bacterial or viral infection. GBS causes abnormalities in functions of autonomic nervous system. Increased ventricular dispersion is assosiated with an increased incidence of malignant ventricular arrhythmias. However, the parameters of ventricular dispersion and them correlation with abnormalities of sensorimotor nerve conduction in GBS have not been examined.

Material and methods: We studied 26 patients with GBS; the mean age was 42.95±19.84 years ; 15 female and 11 male and 35 age-matched healthy subjects; the mean age was 34,19±12,74 years; 20 female and 15 male. In all persons 12 leads ECG were recorded at a speed of 50 mm/s and somatic nerve conduction studies were carried out. Ventricülar repolarization parameters (QT,QTc JT,andJTc) and ventricülar repolarization dispersion(d) parameters (QT-d,QTc-d,JT-d,JTc-d) were detected. QT and JT intervals were measured from the beginning and from the end of the QRS complex, respectively, to the end of T wave to baseline while excluding the U wave. Using Bazett formula, these intervals were corrected for heart rate. Repolarization dispersion parameters were calculated the difference between minimal and maximal values of QT,JT,QTc,and JTc among 12 leads.

Results: Mean QT-d,QTc-d,JTd,JTc-d in GBS patients were significantly longer than that of the normal subjects ($p< 0.05$). No correlation was observed between abnormalities of sensorimotor nerve conduction and ventricüler repolarization dispersion parameters.

We conclude that ventricüler repolarization dispersion parameters evaluation are helpful and cheap method in the assessment of autonomic function in GBS.

INCREASED VASCULAR ENDOTHELIAL GROWTH FACTOR IN THE SKIN OF PATIENTS WITH AMYOTROPHIC LATERAL SCRERosis - AN IMMUNOHISTOCHEMICAL STUDY

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Objectives: Several studies of skin in patients with amyotrophic lateral sclerosis (ALS) have shown unique morphological and biochemical alterations. Vascular endothelial growth factor (VEGF) is expressed in many tissues and is rapidly upregulated during hypoxia. It has been shown recently that deletion of the hypoxia response element in the VEGF promotor causes motor neuron degeneration in mice with neuropathological features reminiscent of ALS in humans. It was not clear, however, whether VEGF is involved in the pathogenesis of human ALS. We have made an immunohistochemical study of VEGF in skin from ALS patients.

Methods: Skin biopsy samples were taken from the left upper arm of 11 patients with ALS and from 11 controls with other neurodegenerative diseases matched for sex and age. Routine formalin-fixed paraffin-embedded 6 µm sections were immunostained according to standard techniques. The immunoreactivity was quantified with an image-analysis system.

Results: The immunoreactivitiy of VEGF was strongly positive in the epidermis and in some blood vessels and glands of the reticular dermis in all ALS patients. These findings became more conspicuous as ALS progressed. Its optical density in ALS patients (6.22±2.91) was significantly higher ($p < 0.001$) than in controls (1.65±0.61). Furthermore, there was a significant positive relationship ($r=0.84$, $p < 0.001$) between the immunoreactivity and duration of illness in ALS patients.

Conclutions: VEGF was found to be significantly upregulated in skin samples from ALS patients. The results suggest that changes of VEGF in skin of ALS are likely to be related to the disease process.

POSTERIOR REVERSIBLE ENCEPHALOPATHY SYNDROME AS AN INITIAL MANIFESTATION OF GUILLAIN-BARRÉ SYNDROME

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Background: Guillain-Barré Syndrome (GBS) frequently affects autonomic nerves with subsequent fluctuations in blood pressure. Posterior reversible encephalopathy syndrome (PRES) is characterized by sudden hypertension that is associated with headache, seizure, visual disturbance and altered mental function.

Methods: We report a case of marked elevations in blood pressure with subsequent PRES prior to the motor weakness and diagnosis of GBS.

Results: A 56-year-old female presented to the clinic with complaints of thoracolumbar back pain and paraesthesia. Within the following 2 days, her blood pressure showed marked elevation with complete bilateral visual loss, urinary retention and generalized tonic-clonic seizures. Brain MRI with predominantly posterior cerebral hyperintensities on T2-weighted images and frontal lobe lesions affecting mainly juxtacortical white matter, was consistent with PRES. Antihypertensive and anticonvulsive treatment was established and visual function was recovered after two days. By day five of her initial presentation, she developed bilateral facial weakness and relative hyporeflexia of ankle jerks. The diagnosis of GBS was finally established 6 days after the seizure by electrophysiological findings. After treatment of GBS with steroids, antihypertensive and anticonvulsive therapy could be phased out and finally stopped. The patient was discharged after 25 days with complete clinical and radiological recovery from PRES, but still had bilateral facial weakness.

Conclusion: The acute arterial hypertension, the provoking factor of PRES, was probably caused by an autonomic dysfunction in the context of GBS before motor signs of GBS were present. The possible role of other GBS related factors in PRES could not be excluded.

MULTIPLE MONONEUROPATHY AS A FIRST MANIFESTATION IN SYSTEMIC LUPUS ERYTHEMATOSUS

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Introduction: Systemic lupus erythematosus (SLE) is a chronic inflammatory autoimmune disorder that can involve any organ system. Peripheral nervous system manifestations were found in 5 to 27% of patients with SLE. In addition, they rarely represented a mode of revelation. We report a case of multiple mononeuropathy in a 22- year-old woman inaugurating SLE to emphasize the rarity of peripheral neuropathy in SLE, especially as a first manifestation.

Case report: A 22-year-old woman, with no significant past medical history, presented with numbness and tingling which started for three months in left hand, then spreaded to right hand and arms associated to feet's then leg's numbness. Neurologic examination revealed thenar and hypothenar left eminence amyotrophy, asymmetric proximo-distal motor deficit predominant in left lower limbs, left dorsum foot's hyperesthesia, weak tendon reflexes in four limbs. Electromyography revealed active denervation in four limbs with motor and distal nervous involvement. Laboratory findings showed leukopenia 3100/mm^3, lymphopenia 11OO/mm^3, diet glycemic index < 1, 26 g, serum protein etectrophoresis revealed polyclonal hypergammaglobulinemia. Cerebrospinalfluid analysis showed albuminocytologic dissociation. Serological tests for hepatitis B, C and Lyme were negatives. Immunologic findings revealed speckled antinuclear antibodies (>1/1280), anti-Sm+, anti-RNP +++, anti-Ro ++, anti-La +. Cryoglobulinemia and antiphospholipid antibodies were negatives. Labial salivary gland biopsy was normal. Based on clinical and biological findings a diagnosis of SLE was considered. The patient was treated with prednisone 1mg/kg/day with little improvement.

Conclusion: Peripheral nervous system injuries in SLE are rare, even more they rarely represent a circumstance of discovery.

PEDIATRIC MULTIPLE SCLEROSIS: A CHALLENGING DEMYELINATING DISEASE.CASE REPORT AND BRIEF REVIEW OF THE LITERATURE

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Introduction: Multiple sclerosis (MS) is an inflammatory, demyelinating, neuro-degenerative disorder of the central nervous system (CNS) of unknown etiology. Although, much knowledge has been achieved on the diagnosis and treatment of adult patients with MS, it remains a matter of debate and controversy in childhood.

Case report: A 9 years-old girl was referred for neurological examination due to sudden onset of diplopia. Her past medical and familial history was unremarkable for any degenerative or neurological disorder. General clinical assessment of the patient was found within normal limits. Neurological examination revealed convergent strabismus and no movement of the left lateral rectus muscle. The remainder of the exam was essentially normal, including visual fields and routine oftalmoscopy. Blood laboratory exams and electrocardiogram were found to be normal. Magnetic resonance imaging (MRI) of the brainshowed multiple lesions affecting the periventricular, juxtacortical and infratentorial regions. Brain MRI also showed gadolinium-enhancing and nonenhancing lesions. A cerebrospinal fluid analysis was unremarkable. As no other structural abnormalities were identified, a diagnosis of multiple sclerosis (MS) was made and the neurological symptom was attributed to it. Based on this diagnosis, we started *pulse* corticosteroid *therapy* with methylprednisolone during three days. The girl did not present recover of the diplopia and is currently being followed on outpatient appointments.

Conclusions: Given the distinct features and substantial variability of symptoms in pediatric patients, a high clinical awareness to the possibility of MS diagnosis is necessary, seeking help from experts in central nervous system demyelinating diseases.

EPILEPSY AND MULTIPLE SCLEROSIS

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Introduction: Epilepsy has been reported to be more frequent among patients with multiple sclerosis (MS) than in the general population.

Objectives: Determine the frequency of epileptic seizure (S .E)among a sample of M.S,patient ,the clinical form of MS most affected ,the reponse to antiepileptic drugs (AED).

Methods: We retrospectivly evalueted the occurrence of SE in our patients .Definite MS diagnosis was established according McDonald's criteria . we selected 12 patients for the present study, we excluded patients with possible etiologic factors for epilepsy other than MS.the diagnosis of SE was established according the International League for epilepsy criteria.all the patients had a standard EEG ,and cerebral MRI . AED was prescribed.

Results: Of 178 patients 12 had epileptic seizures (6,7%), Their mean age at onset of MS was 30,1 years, and at onset of epileptic seizures 32.6 years. 4 were males and 8 were females. The progressive MS forms, were significantly more common. Among patients with MS and epilepsy regarding seizure type, simple partial motor seizures were the most common (62.5%), followed by generalized tonic-clonic. EEG revealed epileptic in 62.5%, abnormalities were observed in the frontal and temporal lobes. Upon further analysis. one out of the eight patients were not taking any AED eight were on monotherapy and three were taking two AED.

Conclusion: Our findings support the notion that SE is a serious threat to MS patients with epilepsy, and that epilepsy should be considered an important risk factor in MS patients.

ASSESSMENT OF PAIN, FATIQUE AND QUALITY OF LIFE IN SLOWLY PROGRESSIVE NEURO MUSCULAR DISEASE: A NURSING CHALLENGE

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Introduction: Few sudies have examined the effect of pain on the QOL of individuals in progressive neuromuscular disease (NMD). The purpose of this study is to create awareness of impact of pain and fatique on QOL of above patients among nurses.Also to report pain and fatique and their associaltion wth QOL in persons with NMD.

Methodology: Descriptive study design is used on 50 patients who agreed to participate in the study from Out Ptient Department and the neuro wards of a teritary Hospital.Fatique impact scale, WHOQOL-SHORT, visual analogue pain scale and the sociodemographic and clinical data questionnaire were used to collect data.

Results: The results indicated that the pain reported in NMD was significant (p=0.01) at night and comparable with chronic low back pain. There was significant correlation betwen increased pain and lower level of general health, vitality, social function and physical role. Pain was moderaltly associated (p=0.03) with increased fatique , inability to cope adequately with sleep and sleep disturbance. Low family income was significantly (p=0.01)related to low QOL. Ptients from North India and sourrounding states exhibited low psychological domain of QOL and high level of Fatique. This is directly related to family support.There were nosignificant relationship between total scores of Fatique impact scale, WHOQOL-SHORT, visual analogue pain scale . How ever tthe following sub divisions of the above scles were significantly related. Environment QOL domain &Social fatique (p=0.03),Physical QOL domain and social fatique (p=0.02),Psychological QOL domain and total fatique (p=0.01) were significantly related.

Conclusion: Above patients need specific comprehensive care.

CLINICAL, DEMOGRAPHY AND NATURAL HISTORY OF MULTIPLE SCLEROSIS IN TUNISIA: PROSPECTIVE POPULATION BASED STUDY (PRELIMINARY RESULTS)

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Purpose: To report demographic, clinical and natural history parameters of 232 patients with multiple sclerosis (MS) at the institute of neurology (INN) prospectively followed by using a standardized CRF.

Methods: Patients with confirmed MS according to McDonald criteria were entered prospectively in printed CRF at national institute of neurology Tunisia (INN) since 2000. CRFs are planned to contain non-time dependant, time dependant and cumulative data. The CRF were filled at each visit and entered in MSINN database in the following week. The data were validated after checking of the entered data on the basis of the CRF and patient record. 232 CRF are validated on a total of 732 entered CRF in the database.

Results: The mean age of onset was 31, 5±10, 3. 72 % of the patients had an age of onset in between 20 to 40 y. 69 % were female. The average EDSS was 2.76 + 1, 86 with mean disease duration of 4.87 ± 5.62 y (range 0, 1-34 y). Mean duration of the disease was 4.1± 5.0 y for ≤3 EDSS; 6.1±5.4y for 3 EDSS ≤6 and 9.4± 9.5y for EDSS>9. Duration > 10 y was encountered in 34% of patients with EDSS ≤ 3 in 55% of patient with 3>EDSS≤ 6 and in 62% with EDSS > 6.

Conclusion: Clinical parameters and natural history of MS in Tunisia are similar to those observed in European countries and do not confirm the reported severity of MS in patients originated from north African.

EFFECTS OF NATALIZUMAB ON BLADDER FUNCTION IN MS: RESULTS FROM THE TRUST STUDY

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Objective: To evaluate effects of natalizumab on bladder function in patients with multiple sclerosis (MS).

Methods: TRUST (EvaluaTion of Bladder Function in Relapsing Remitting MUltiple Sclerosis Patients Treated with Natalizumab) is an open-label, single-arm, 24-week, proof-of-concept study enrolling natalizumab-naïve MS patients with bladder dysfunction despite conventional bladder medications. To assess the impact of incontinence on quality of life (QOL), patients completed validated questionnaires (Urogenital Distress Inventory short form [UDI-6] and Incontinence Impact Questionnaire short form [IIQ-7]) every 4 weeks during natalizumab treatment. Primary and secondary endpoints were change from baseline in UDI-6 scores (range 0-18) and in IIQ-7 scores (range 0-21), respectively. Score changes were analyzed using the McNemar test.

Results: At the time of this interim (week 20) analysis, 26 patients had enrolled. Mean baseline characteristics were age 49.4 years, Expanded Disability Status Scale score 4.5, number of relapses (previous year) 2.5, UDI-6 score 10.4, and IIQ-7 score 12.7. Mean UDI-6 and IIQ-7 scores were significantly lower than baseline beginning at week 4 and up to week 20; mean improvements at week 20 were 3.6 and 5.7 points, respectively ($P < 0.0001$ for both analyses). At week 20, 78.9% and 89.5% of patients demonstrated improvements from baseline in UDI-6 and IIQ-7 scores ($P=0.0116$ and $P=0.0006$, respectively). Final results will be presented.

Conclusions: Natalizumab significantly improves incontinence-related QOL measured by UDI-6 and IIQ-7 scores, with the impact of incontinence on QOL potentially decreasing from moderate to mild. Other endpoints are currently being analyzed; final data will be presented upon study completion.

QUALITY OF LIFE ASSESSMENT IN PATIENTS WITH ACUTE DISSEMINATED ENCEPHALOMYELITIS

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Acute disseminated encephalomyelitis (ADEM) leads to lengthy inability to work, caused by neurological deficit as well as difficulties of social and psychological adaptation.

The aim of the current work was to assess the level of psycho-social and physical functioning impairment in 45 patients with ADEM (10 men and 35 women aged 15-53) that was carried out with the help of «Sickness Impact Profile- 68» test.

The greatest changes of patients' functional condition, connected with disease development, were noticed in the category “social behavior” and were observed in 42 patients (84% of cases), the average grade was 6,6±0,4. The changes in the category “somatic autonomy”, “psychic autonomy and communication” were less frequent (were present in 35 patients (70% of cases) and in 30 patients (60% of cases)), the average grade was correspondingly 2,3±0,5 and 4±0,3 points. The categories “movements control”, “emotional stability”, “level of mobility” turned out to be the least impaired (were observed in 25, 22, 22 patients correspondingly (50%, 44% and 44% of cases), the average grade was 3,6±0,3, 3±0,2 and 4,5±0,3 correspondingly.

Thus, functional limits, connected with ADEM appearance, mostly often are present in the social sphere of patients' life and least frequently - in the emotional sphere.

FOOT TAPPING SPEED AS A MEASURE OF DISABILITY IN MULTIPLE SCLEROSIS

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Objective: To evaluate the precision of foot tapping (FT) speed in multiple sclerosis (MS) and to compare FT results with 25-foot timed walk (25FTW), a standard measure of lower extremity function.

Background: Sensitive and precise tests of clinical disability are critical for predicting future disability and testing outcomes in drug trials. FT, a test that is easy to perform and interpret, shows promise as a test of clinical disability in neurological diseases.

Methods: In 86 MS patients, FT was measured in 3 consecutive 10sec epochs. 25FTW times were obtained at the same visit. To assess short-term stability of the measures, 22 patients repeated FT within 6 months.

Results:

1. FT and 25FTW were correlated in the low ($r=0.48$, $p=0.0003$) and moderate ($r=0.57$, $p=0.03$) range of disability (EDSS≤5.5).

2. Variability in repeated measures of 25FTW times increased with worsening performance ($r=0.69$, $p< .0001$), whereas in FT it remained constant across the full range ($r=0.08$, $p=0.45$).

3. Bland-Altman analysis demonstrated 37% greater precision of FT relative to 25FTW at the first visit.

4. At the second visit, intraclass correlation coefficients for both FT (0.91) and 25FTW (0.95) remained high.

Conclusion: FT speed is reproducible and remains precise across a wide range of disability, whereas 25FTW time becomes progressively less reliable at higher levels of disability. This suggests FT may be a useful measure of clinical disability in MS. Future work will determine whether FT is sensitive to longitudinal change with disease progression.

CLINICAL EFFECT OF FETAL STEM CELLS IN MULTIPLE SCLEROSIS

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Multiple sclerosis (MS) is regarded as a serious social problem for the solution of which international science is spending a lot of efforts and funds. Hope is now offered by new medical and cell technology.

23 patients (8 M and 15 F aged 25-60) presenting 4-10-year history of MS (12 - remitting relapsing, 6 - secondary progressive, 4 - progressive relapsing, 1 - primary progressive, 3,5-6,5 on EDSS scale, McDonald criteria were used for diagnosis) and resistant to most conventional methods (Copaxone, Avonex, Betaferon, corticosteroids, plasmapheresis) underwent transplantation of fetal hematopoietic and non-hematopoietic mesenchymal and ectodermal stem cells harvested from germ layers of internal organs of 5-8 weeks old legally aborted embryos.

After the treatment, 82,61% of patients reported early post-transplantation improvements - general health improvement, improved appetite, muscle tone (by 0,5-1). 65,21% of patients had better sleep, while 34,78% reported sleeplessness due to energy level increase. 6-8 months after the treatment, 60% of patients presented neurological improvements by 0,5 points on EDSS scale, 30% - by 1 point, 10 % - by 1,5 points.

The above results are suggestive of significant clinical effect of fetal stem cell transplantation in 82,61% of patients, which means that this method of MS treatment is very promising.

USE OF THE PHYSIOTHERAPY ON THE TREATMENT OF THE SPASTICITY

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Background and aims: The effect of the physiotherapy complex (ultratonetherapy, low-frequent variable magnetic field and balneothrapy) on the patients having spasticity was investigated.

Method: 110 patients aged from 25 to 65 (71 males and 39 females) having spasticity of different etiologies (initial stages of multiple sclerosis, spastical paraplegies, myelopathies) were observed. The patients were divided into two groups. The first group (80 patients) received in addition their basic medication and physiotherapy with combination of ultratonetherapy - variable sinusoidal high-tension (4-5 kV) high-frequent (22 kHertz) low-intensive current (power 1-10 Vatt), and low-frequent variable magnetic field (frequency to 100 Hertz, magnetic induction 27 mTesla) treatment of upper and lower extremities, with taking turn each other, and balneotherapy. Every procedure exposure was 12-15 min. The complete course was 10-12 procedures. The second group (control, 30 patients) received only the basic medication.

Results: The spasticity and subjective sensation of constraint extremities of the patients in the first group was reduced after 17-20 days of treatment (76,25% patients) compared to the control group, where muscle constraint reduced after 26-28 days of treatment (56,6 % patients), $p< 0,05$.

Conclusion: The addition of the complex (ultratonetherapy, balneotherapy and the low-frequent variable magnetic field) to the treatment of spasticity of different etiologies resulted in earlier reducing of subjective sensation of constraint extremities.

PREDICTORS OF QUALITY OF LIFE AMONG MULTIPLE SCLEROSIS PATIENTS: A COMPREHENSIVE ANALYSIS

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Objective: We aimed to identify the most important determinants of QOL in MS patients.

Methods: 201 consecutive MS patients attending outpatient clinics were prospectively studied over 6 months. Patients were assessed objectively using Expanded Disability Status Scale (EDSS), 8m-walk test, and Symbol Digit Modality Test (SDMT). Demographics and disease characteristics were collected. Patients completed the following questionnaires: Multiple Sclerosis QOL-54 (MS-QOL54), Hamilton Depression Rating Scale (HDRS), Fatigue Severity Scale (FSS), Brief Pain Inventory Average Pain Score (BPI), Drug Side-Effects Severity Scale, Social Support, Religiosity, Physiotherapy and Exercise, and Socioeconomic Profile. Overall QOL, physical (PHCS) and mental (MHCS) health composite scores were computed as outcome measures from MS-QOL54. Multiple linear and logistic regression was used to determine independent predictors of outcomes.

Results: Five factors predicted Overall QOL by linear regression (R^2 =0.43): Depression, social support, religiosity, education years and living area (rural/urban). Two additional predictors, unemployment and absence of fatigue correlated with poor and good QOL respectively. Seven factors predicted PHCS (R^2=0.81): Fatigue, pain, depression, EDSS, social support, MS type and anti-cholinergic treatment. MHCS was predicted by fatigue, pain, depression, education years and social support (R^2=0.70).

Conclusion: The QOL in MS patients is not determined by physical disability but rather by the level of social support, living area, and depression, level of education, employment, fatigue and religiosity. Accordingly, we suggest that these should be evaluated in every MS patient since they may be modified by targeted interventions. Putting emphasis on physical disability alone might not help improving QOL in MS patients.

EARLY INTERFERON BETA-1A RESPONSE PREDICTS QOL BENEFIT 15 YEARS LATER IN MULTIPLE SCLEROSIS

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Objective: Selection of optimal disease-modifying therapies for multiple sclerosis (MS) may be facilitated by early identification of patients likely to have positive long-term outcomes on a given treatment. We aimed to identify early predictors of long-term quality of life (QOL) benefits in patients initiated on intramuscular interferon beta-1a (IM IFNβ-1a).

Methods: ASSURANCE was a 15-year, open-label, observational follow-up of patients who completed 2 years in the MS Collaborative Research Group study. Criteria for early disease activity were >1 relapse over 2 years or confirmed Expanded Disability Status Scale progression over 2 years (>1.0-point progression sustained for 6 months). QOL was determined using the Short Form 36 (SF-36) and the visual analog scale (VAS) of self-care. Separate analyses were conducted for IM IFNβ-1a and placebo.

Results: IM IFNβ-1a-treated patients without disability progression over the first 2 years (77%) had significantly better scores at 15 years on the SF-36 physical component score (PCS) (P=0.011), SF-36 mental component score (MCS) (P=0.031), and VAS (P=0.009) than patients who experienced early disability progression. Likewise, IM IFNβ-1a-treated patients with ≤1 relapse during the 2-year trial (74%) had significantly higher scores than patients with >1 relapse on the following scales: PCS (P=0.004), physical functioning subscale (P=0.004), role-physical subscale (P< 0.0001), general health subscale (P=0.035), and social functioning subscale (P=0.009). In contrast, for patients initially given placebo, relapse rates and progression status did not predict long-term QOL benefit.

Conclusions: Results of this analysis provide supportive evidence that short-term responders to IM IFNβ-1a experience beneficial long-term outcomes. Supported by Biogen Idec Inc.

IMPACT OF INTRAMUSCULAR INTERFERON BETA-1A THERAPY TIMING AFTER CLINICALLY ISOLATED SYNDROME ONSET ON QUALITY OF LIFE 10 YEARS LATER

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Objective: The Controlled High-Risk Subjects Avonex Multiple Sclerosis Prevention Study (CHAMPS) and CHAMPIONS 5- and 10-year extension studies demonstrated that initiation of intramuscular interferon beta-1a (IFNβ-1a) immediately after clinically isolated syndrome significantly decreased progression to clinically definite MS in high-risk patients. This study examined whether the timing of treatment at MS onset affected quality of life (QOL) between CHAMPIONS years 5 and 10.

Methods: Immediate treatment (IT) was initiated at symptom onset, while delayed treatment (DT) began a median of 30 months (interquartile range 24-35 months) after symptom onset. Responses to the Multiple Sclerosis Quality of Life Inventory, which covers disease-specific measures, and the Short Form-36 (SF-36) were collected, analyzed, and compared between groups.

Results: In the CHAMPIONS cohort (IT, n=81; DT, n=74), 127 patients completed the 10-year examination. For both groups, most QOL measures were stable or improved slightly between years 5 and 10. Exceptions were the significant DT group improvement in Modified Social Support Survey (MSSS) total score (P=0.004) and tangible support (P=0.037), affectionate support (P=0.010), and positive social interaction (P=0.029) subscales. At year 10, DT patient scores were significantly higher than IT scores on MSSS total score (87.1 vs 79.8; P=0.022) and the SF-36 role-emotional subscale (83.9 vs 69.7; P=0.027).

Conclusions: Disease-specific QOL scores remained stable between years 5 and 10, with no significant differences between the IT and DT groups. Further analyses are required to understand factors accounting for the improvements in perceived social support in the DT group between years 5 and 10.

BOTULINUM TOXIN IN THE TREATMENT OF THE TREMOR OF THE HEAD IN PATIENTS WITH MULTIPLE SCLEROSIS (MS)

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Introduction and aim: Frequency of the tremor in patients suffering from MS is estimated as 60%, it has kinetic form with several subtypes. Tremor of the head is rare and difficult to treat, Therapies are usually unsatisfactory.

The goal of the study was to evaluate efficacy of botulinum toxin (Btx-A) in the treatment of the tremor of the head in patients with MS.

Material and method: Eleven patients with chronic progressive form of MS were recruited into this study. These patients had tremor of the head of YES-YES or NO-NO type, resistant to other kinds of treatment. The study was conducted in the years 2003-2010. The patients received Btx-A equally distributed among the affected muscles of the neck. The choice of the muscles injected with the toxin was based on visual evaluation, physical examination and electrophysiological recording. Effectiveness of this treatment was accounted by a questionnaire of quality of live, part B of EDSS, Matsumoto tremor scale, and Bain and Findlay tremor clinical scale.

Results: Repetitive injections of Btx-A brought relatively stable condition of the tremor, improvement of motor skills, and reduction of the degree of disability. These were confirmed by the results of the tests used. The clinical effect was observed for 4 months after injections, on average, and after that period injections were repeated. Side effects were rare and transient.

Conclusion: Btx-A injections seem to be beneficial alternative treatment of the tremor of the head and are of advantage in rehabilitation and care of MS patients.

NEGLECT ALEXIA IN AN ARABIC-FRENCH BILINGUAL PATIENT

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Neglect alexia is a rare reading disorder but well studied in occidental languages (Kinsbourne and Warrington, 1962). Case of neglect alexia in Arabic or in bilingual patients has never been reported in the literature. We studied a case of neglect alexia in Arabic (read from right to left) and French (read left to right) languages.

FH is a 31 year-old woman, right handed, Arabic and French bilingual teacher, presented a left hemiparesis and left neglect syndrome. Cerebral MRI showed a right fronto-parietal subcortical demyelating lesion. A comprehensive neurolinguistic study of Arabic reading using the Arabic Dyslexia-Dysgraphia Battery and of French reading, including reading of various parts of speech words, texts and non-words; was administered to the patient.

While reading Arabic and French texts, patient neglected the left side of the text and had difficulties to getting back in line. During reading in Arabic the patient neglected the end of words and produced derivational and morphosyntactic errors with few neologisms. On reading in French, she produced much more neologisms that in Arabic. This is due to the many omissions or substitutions of the first letters of the French words.

Our patient has typical findings of neglect alexia in French language. The prevalence of derivational and morphosyntatic errors in reading Arabic and few neologisms are explained both by the linguistic structure of Arabic language (triconsonantal roots and frequency of affixes) and the direction of writing, from right, to left causing the neglect of the end of the word.

QUALITY OF LIFE, ANXIETY AND DEPRESSION IN STROKE SURVIVORS IN TOGO

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Stroke is the leading cause of physical disability and psychological achievements in the world.

Objective: To assess the quality of life and psychological problems of survivors of stroke.

Material and methods: We conducted a prospective study over 12 months, using the Goldberg scales of anxiety and depression, quality of life (QOLIE-31) and the modified Rankin scale for the disability.

Results: We included 114 patient stroke survivors whose deficit is at least 6 months. The average age was 47 years ranging from 21 to 73 years. There were 83.3% (95) of ischemic stroke, 16.7% (19) of hemorrhagic. Our patients were more depressed than anxious with respective averages of 4.48 and 4.44 on the Goldberg scale. Quality of life was altered on the QOLIE-31, with an average of 0.94. On the modified Rankin scale we observed 26.3% (30) of stroke survivors who had no disability, 38.6% (44) had a mild disability, 31.6% (36) means a disability and severe disability in 3.5% (04) of patients.

Conclusion: Disability, anxiety and depression are all measurable parameters that affect the quality of daily life of stroke.

FAHR SYNDROME PRESENT WITH OBSESIONS AND PILLROLLING INVOLUNTARY MOVEMENTS ON ONE HAND

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Background: Fahr syndrome is a degenerative neurological disorder charecterized by accumulation of calcium deposition in bilateral basal ganglia and dentate nuclei of cerebellum. Clinical findings are tremor, depression, dementia, behavioral disturbances, extrapyramidal findings and cognitive impairments. Although abnormalities in calcium-phosphorus metabolism have been proposed ,it has not been clear yet what could be responsible .

Methods: 39 yo female, came with pillroling like involuntary movements on one hand and obsesions. İt has begun for 3 months. Her cognitive functions were normal.She complained forgetfullnes occasionally.She has obsesions and depresive emotion.She denied any illicit drugs. Her posture and gait, cerebellar examination was normal ,had no bradykinesia and hypomimi. İnvoluntary movement on one hand that appear at rest and disappear on posture and action and its frequency more slow than Parkinson´s disease tremor .She denied any psychiatric drug .

Results: Calcium and Phosfor metabolism and parathormon levels were within normal limits.Thyroid functions tests were normal Cranial imaging appeared bilateral symmetric calsification on caudate nucleus ,globus pallıdus, putamen and cerebellum dentate nucleus. Her EEG were normal.

Conclusion: I thought that her findings could be related to basal ganglia and cerebellar calsification.

MODEL OF CONTROL OF VERBAL FLUENCY IN ARABIC LANGUAGE STUDIED USING BOLD-FMRI

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Introduction: The adult"s cognitive functions are based on activation of specialized neuronal networks. Studies showed a set of well determined brain cortical tissue involved in the control of language function. In addition, Arabic language is shown to be very complex and might involve a complicated network of brain cells during language performance. The study goal is to establish the Arabic language verbal fluency functional map using simple model of paradigm and making use of BOLD-fMRI approach.

Material and methods: 12 healthy-adult Arabic-speaking volunteers were recruited. They were non-smoking, right-handed, and without any neurological, psychiatric disorder. We used BOLD-fMRI to map the neuronal network involved in the control of verbal fluency of Arabic. The functional paradigm consisted of silent words generation alternating with counting during 30 seconds in each cycle. The Arabic characters were chosen according to the most important prevalence of use in the vocabulary of volunteers of this study.

Result and conclusion: The Arabic letters generating most words were used (أ,ج,ح,م,ق,س,ر)

The fMRI results showed that the network of the Arabic verbal fluency is structured in equivalent way compared to already studied languages, in other words the right hemisphere is less stimulated than the left one, and this has considered volume and intensity of activations. However, different aspects were essentially found in cerebral lateralization in women. Similarities indicate the continuity in the processes and the neuronal structures underwent the functional control of different languages. While differences suggest that Arabic language have appropriate functional control characteristics.

KLEINE-LEVIN SYNDROME (KLS): *EPISODIC HYPERSOMNIA, HYPERPHAGIA, AND HYPERSEXUAL BEHAVIOR* IN A 21 YEAR OLD MALE OF FILIPINO DESCENT

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Objective: KLS is a rare disorder seen most often in adolescent white males. We describe a case in a Filipino marine.

Methods: 21 year old active duty male of Filipino descent presented with intermittent hypersomnia ranging from 7 to 14 days recurring over two years. Between episodes he was asymptomatic. When awake he was irritable and displayed hypersexualized behavior including public masturbation. Additionally, his appetite was significantly increased to the point of taking food from the trays of other patients. He recalled the majority of his behaviors and was quite embarrassed and apologetic. His first episode occurred when he was 19 yrs old after smoking marijuana and lasted twelve days. The second episode was approximately 18 months after the first, of seven days duration, occurring after drinking alcohol. The two most recent episodes happened at age 21 while serving in the US Marine Corps. Both episodes occurred after alcohol intoxication, were separated by three weeks, lasted twelve days, and required inpatient psychiatric hospitalization.

Results: He was examined both during and between episodes. Medical history, vital signs, laboratory tests, neurologic examination, cerebral computed tomography and magnetic resonance imaging scans were all normal. Electroencephalography during the episode was normal.

Conclusion: This report calls attention to KLS which can easily be mistaken for other psychiatric or neurologic illnesses leading to unnecessary psychopharmacologic interventions. A brief review is made emphasizing diagnosis and course of KLS. Further research in the natural history of KLS is needed to determine whether early intervention would improve long term prognosis.

EVALUATION OF COGNITIVE FUNCTION OF TWO EXTRACTS OF *RUBIA PEREGRINA* USING OPEN FIELD TEST ON THE RATS

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Herbal medicine is increasingly used by general population. nowadays In Africa medicinal and aromatic plants are used in traditional medicine. *Rubia peregrina* perennial shrub of *rubiaceas* family with medicinal proprieties. The whole plant is prescribed in folk medicine for the treatment of anemia blood diseases, and the treatment of inflammations. The Aim of the present study is the evaluation of locomotors activities using the open field test on the rat under two concentrations of the ethanolic and water extract of *rubia peregrina*'roots.

Results showed that the both extracts decreased the locomotors activities and then the number of crossing (peripherals and centrals) lines, and increased the time of immobility and the grooming behavior with both concentrations 500mg/kg and 800mg/kg, respectively.

Conclusion: The ethanolic extract and water extract have an effect in locomotors activities on the rats nevertheless The ethanolic extract decrease locomotors activities more than water extract. Some constitutions of *rubia peregrina* maybe affect dopaminergic system.

DETECTING SIGNS OF CONSCIOUSNESS IN SEVERELY BRAIN INJURED PATIENTS WITH VOLUNTARY CONTROL OF SNIFFING: A COHORT STUDY

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Background: Detecting signs of consciousness in patients with disorders of consciousness (DOC) is often challenging due to motor impairment. We propose here the use of the Sniff Controller, a sniff-dependant interface that measures changes in nasal pressure (sniffs), changing as a function of soft-palate positioning. Indeed, it is hypothesized that sniffing may remain conserved following severe injury because of its rich innervation pattern as shown in locked-in syndrome[1]. We here assessed this methodology in DOC patients.

Method: Nasal pressure changes (sniffs) were used to convey binary (sniff onset or offset), analog (sniff magnitude and duration) and directional ("sniff in"or"sniff out") signals. We aimed to test for sniff-dependent command-following, not observed by repeated bedside clinical examinations using standardized tools (coma recovery scale revised- CRS-R). Patients were here instructed to sniff every time a music sequence was playing in order to stop it. Data were analyzed using Stata and considered significant at $p< 0.05$ corrected for multiple comparisons.

Results: 19 DOC patients were included (12 men, mean age=35; SD =12.72); aetiology (n=11 traumatic), interval since insult (mean=49months, SD=35.21). Sniff-dependent command-following was observed in 3 patients. Interestingly, one of them failed to show any command following at bedside.

Conclusion: These preliminary results show that this test can be a complementary way to assess the level of consciousness at bedside, and may provide a rapid and non-invasive communication/self-expression in non-communicative brain-injured patients. The 'sniff controller device' can be an alternative to fMRI[2] or EEG based[3] non-motor dependent communication.

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DEPRESSION AFTER STROKE IN HOSPITAL IN BENIN

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Depression is a frequent complication after stroke that affects negatively physical, cognitive and social recovery. Our main objective was to seek the existing link between stroke and depression in hospital with Cotonou.

It was a cross sectional case-control study which proceeded from February to July 2009. It related to 171 subjects divided into 57 stroke patients confirmed by cerebral scanner (cases) and 114 control. It was required in each one of these two groups the existence and the quantification of a depressive syndrome using the Montgomery and Asberg scale (MADRS).

Prevalence of depression in stroke patients was 87,7% versus 27,2% in control ($p< 10^{-7}$); stroke patients run approximately 20 times more risk to develop a depressive syndrome than those which did not suffer from it (OR=19,1); the prevalence of depression was related neither to age, nor with sex. Stroke patients suffered mainly from moderate depression (48%), while the controls mainly were reached mild depression (87%).

These results suggest the existence of an important link between stroke and depression. The data thus obtained encourage taking into account depression in the treatment of any subject presenting stroke.

NO ASSOCIATION BETWEEN PHYSICAL ACTIVITY AND COGNITIVE SPEED IN COMMUNITY DWELLING 60-YEAR OLDS

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Background: According to previous research, physical activity may affect cognition, and decrease the risk of cognitive disorder.

Objective: The aim of this study was to investigate whether physical activity was related to cognitive speed in a sample of community-dwelling 60-year olds. The project was aimed at preventing lifestyle-related diseases by identifying persons at risk.

Materials and methods: Between 2004 and 2009, all 60-year olds in the catchment area of a primary care clinic in Gothenburg, Sweden were offered a health examination: 794 persons were invited to participate and 540 (68%) accepted participation. Physical activity was assessed with a questionnaire, cognitive speed was assessed with A Quick Test of cognitive speed (AQT). 361 participants (male/female 158/203) who completed AQT and questionnaire items on physical activity were included in this study.

Results: There was no significant association between physical activity and cognitive speed.

Conclusion: The hypothesis that a higher frequency of physical activity was related to higher cognitive speed could not be confirmed in this material. The cross-sectional nature of data may hide potential longitudinal effects of physical activity on cognition. Another possible explanation could be that instruments measuring physical activity and cognitive speed were not valid, reliable, or sensitive enough to reveal an association. It is also possible that previous research on this topic is positively biased in publishing associations between physical activity and cognition. Participants are currently being followed up approximately 5 years after baseline examinations, enabling future longitudinal analysis.

POSTERIOR ALIEN HAND SYNDROME AFTER A LEFT PARIETAL INFARCT IN SNEDDON'S SYNDROME

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Alien hand syndrome (AHS) is rare condition that occurs in patients with brain injury. It is a complex clinical disorders in which patients develop a sense of estrangement form, loss of volitional control and non-purposeful complex motor action of an affected limb.

We report a case with AHS after parietal stroke secondary to Sneddon's syndrome.

A patient of 29 year-old women right-handed presented involuntary movement in the left upper limb, she described estrangement behaviour of her left arm which goes to her neck and tried to strangle her.

Neurological examination noted in the left upper limb involuntary hand levitation, dystonic attitude and proprioceptive disorders, associated left homonymous hemianopia and dressing apraxia. She has also diffused livedo racemosa. Brain MRI showed right parietal infarcts, without lesion in corpus callusom.

Several forms of AHS exist, including frontal, callosal, and posterior types. Most commonly, lesions in the parietal lobes are associated with AHS and usually reported in the cortico-basel degeneration. Cases after stroke are exceptional, especially without a corpus callosum lesion (Ventura et al, 1995). To our knowledge, AHS due to Sneddon's syndrome has never been reported before.

A TARGETED RGS14 GENE THERAPY NOT ONLY RECOVERS BUT ALSO PREVENTS A MEMORY LOSS IN AGEING AND ALZHEIMER´S DISEASE

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Intact memory function is critical to carry out daily life activities. Deficits in memory function are comorbid with many psychiatric and neurological disorders. Mental retardation, autism, attention deficit disorder, learning disability, and schizophrenia all have memory components, as do Alzheimer's, Parkinson's, Huntington's, and other neurodegenerative diseases. Memory impairment also accompanies ageing. Cognitive enhancement pharmacological agents are viewed as a strategy to treat memory deficits. However, available drugs have failed to produce therapeutic efficacy in humans. More effective and precise therapeutic strategies are needed. In line to this, recently, we observed that the delivery of RGS14 gene into V2 visual cortex enhanced recognition memory to such extent that it led to the conversion of short-term memory of 45 minutes into long-term memory lasting for lifetime. Considering that recognition memory deficit is hallmark to many mental and neurological disorders and normal ageing, we tested here whether RGS14 delivery into V2 visual cortex can prevent and/or reverse the memory loss in normal ageing and Alzheimer's disease. Using these two most representative models, we found that RGS14 not only reversed the memory deficits in ageing rats and transgenic mice model of Alzheimer's disease but also prevented its onset in both conditions. These findings indicate that RGS14-mediated activation of area V2 neurons is adequate to amend the memory loss seen in both ageing and Alzheimer's disease. Thus, the combination of RGS14 protein and its targeted expression into area V2 could serve as a potential strategy for the treatment of declarative memory deficits in patients.

REDUCED EXPRESSION OF THE *ATRX* GENE, A CHROMATIN-REMODELING FACTOR, CAUSES ABNORMAL BEHAVIORS AND LEARNING IMPAIRMENT

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Background and aims: Mutations of the *ATRX* gene, which encodes an ATP-dependent chromatin-remodeling factor, were identified in patients with a-thalassemia X-linked mental retardation (ATR-X) syndrome. To examine the impact of the exon 2 mutation on neuronal development, we generated *ATRX* mutant (*ATRX*^{DE2}) mice.

Methods: Generation of homozygous *ATRX*^{DE2} mice was developed and the adult 12-week-old male mice were used in all experiments. Y-maze and novel object recognition tests, and contextual fear-conditioning test were performed. Further, histological and immnoblotting analysis in mouse brains was performed.

Results: The *ATRX*^{DE2} mice survived and reproduced normally. However, expression of ATRX protein was significantly reduced in the brains of *ATRX*^{DE2} mice compared to those of wild-type mice. In Y-maze and novel object recognition tests, *ATRX*^{DE2} mice showed decreased alternation behavior. In a contextual fear conditioning test, total freezing time was decreased in *ATRX*^{DE2} mice compared to wild-type mice. The *ATRX*^{DE2} mice show impaired learning memory and cognitive function. Autophosphorylation of a calcium-calmodulin-dependent kinase II and phosphorylation of glutamate receptor, AMPA 1 were decreased in the hippocampus of the *ATRX*^{DE2} mice compared to wild-type mice.

Conclusions: Deficits in cognitive function as well as increased anxiety are prominent features of ATRX syndromes in humans. *ATRX*^{DE2} mice may have fear-associated learning impairment with the dysfunction of aCaMKII and GluR1. The *ATRX*^{DE2} mice would be useful tools to investigate the role of the chromatin-remodeling factor in the pathogenesis of abnormal behaviors and learning impairment.

EFFECTS OF EMR FROM GLOBAL SYSTEM OF MOBILE PHONE (GSM 900 MHZ) ON LOCOMOTOR ACTIVITY OF RATS

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Objective: The increasing tendency of GSM mobile phone (MP) usage among the younger users especially children and adolescents have led to assess the behavior implications. Children are more sensitive to electromagnetic radiation (EMR) due to developing phase of their brain. MP radiates an average power of 0.2-0.6 watts and near 40-50 percent phone energy absorbed into the brain. The aim of our study was to investigate the effects of EMR from GSM mobile phone on Spontaneous Locomotor Activity (SLA) of rats.

Methodology: Wister albino rats were grouped as control and EMR and they were habitualised for one week prior to start the experiment in well-designed circular cellphone exposure (CCPE) cage. CCPE cage was specially designed for EMR exposure to rats by Mobile phone in the laboratory condition and these cages were placed in absence of other electric appliances in experimental room. Mobile phone was placed in center and rats were allowed to move around the device within 10 cm. radius area. EMR group were exposed for 3 hours/day (7 days in week) by MP. Spontaneous locomotor activity in rats was carried out using computerized Actimot (TSE, Germany) following the method as described by Ali et al. (1990).

Results: No significance changes were found in these parameters i.e. total distance travelled, resting time, stereotypic time, time moving and rearing in EMR exposed rats compared to controls.

Conclusion: Acute exposure of EMR (900MHz) through Mobile phone could not alter the locomotor activity of rats.

INCREASED TEMPERATURE SENSITIVITY IN CONGENITALLY BLIND BUT NOT IN LATE BLIND SUBJECTS

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Introduction: It is generally believed that blind individuals cope with their loss of vision by developing supranormal skills for the remaining senses. Thus, psychophysical studies showed that congenitally blind subjects outperform their sighted counterparts in auditory, tactile and olfactory discrimination tasks (1). Surprisingly, no studies have examined whether congenitally blind subjects also have a supranormal performance in thermal discrimination tasks.

Aim: To conduct quantitative sensory testing to compare temperature sensitivity in a group of congenitally blind, late blind and matched sighted control subjects.

Material and methods: We measured cold and warmth detection and cold pain and heat pain thresholds on the dominant forearm using a Peltier-based contact thermode. Temperature discriminatory capacity was tested with a CO_2 laser.

Results: The results show that congenitally blind subjects had significantly lower heat detection, heat pain and cold pain thresholds compared to normal sighted subjects. Congenitally blind subjects were also better at detecting small temperature increases. Late blind subjects did not differ in any aspect from sighted controls.

Conclusion. These results are congruent with previous reports of supra-normal performance of congenitally blind individuals in various sensory tasks such as audition, touch and olfaction that are probably dependant upon cross-modal plastic processes (2).

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RISK FACTOR OF COGNITIVE IMPAIRMENT IN SYSTEMIC LUPUS ERYTHEMATOSUS

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Background: Systemic lupus erythematosus (SLE) could affect the nervous system with cognitive impairment as the most frequent manifestation. The aim of this study was to identify risk factors for the presence of cognitive impairment in SLE patients.

Method: This was a cross-sectional study with all SLE patients who came to Cipto Mangunkusumo Hospital (RSCM) as the target of population. The patient´s cognitive function was examined using *Mini Mental Status Examination* (MMSE), *Trail Making Test part A and B*, *Grooved Pegboard Test, Rey Osterrieth Complex Figure Test* (ROCF), *and Rey Auditory Verbal Learning Test* (RAVLT). The assessed risk factors were age, age of onset, duration of having SLE, education, dose of steroid, duration of receiving steroid, target organ, psychosocial stress, depression or anxiety and disease activity of SLE (SLEDAI).

Result: Cognitive impairment was found in 63,8% of 69 subjects. The most affected cognitive domains were executive function (49,3%) and visuospatial (43,5%). Significant risk factors were age on examination >30 years old. If risk factors were related with specific cognitive impairment (visuospatial and executive function) than we found additional significant risk factors which were age of onset >30 years old, duration of having SLE >5,6 years, and middle education status.

Conclusion: The prevalence of cognitive impairment in SLE patients was 63,8%. The most affected cognitive domains were executive function and visuospatial. Significant risk factors fof cognitive impairment on SLE patients were age >30 years, age of onset >30 years, duration of having SLE >5,6 years, and middle education status.

STUDY OF LOCOMOTORS DISORDERS AND ANXIETY IN THE OVARIECTOMIZED FEMALE WISTAR RATS

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Introduction: Menopause is accompanied by a cognitive and neurodegenerative dysfunction. These disorders are mainly due to the collapse of the level of estrogen causing a chronic inflammation in the brain associated with a several unbalance in neurotransmission. This study has for objective to study the impact of the deficit in estrogens on the levels of anxiety on ovariectomized female Wistar rat.

Methodology: Female rats (172 to 226 g), aged 6 months, were used during this study. The animals were randomly divided into two groups: a control group "C" and an ovariectomized group "OVX". Three months later, the levels of anxiety were evaluated by valid behavioral tests, Open Field test (OFT) and elevated plus maze (EPM).

Results: The parameter values are collected and statically analyzed show partiality that:

* In the OFT, the number of central squares visited as well as the time spent in the central squares by the OVX rats are significantly lower than the recorded values among the “C”.

* In the EPM, the time spent in the open arms by the OVX rats is substantially lower than that recorded by the “C” rats.

Conclusion: These preliminary results suggest that the ovariectomy is associated with an increase in the level of anxiety, which would be due to a decrease in the secretion of ovarian hormones, particularly estrogens.

COGNITIVE NEUROPSYCHOLOGICAL STUDY OF CASE OF PURE AGRAPHIA IN ARABIC

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Arabic writing is a cursive script, written from right to left, mostly consonant, in which vowels are not included within the word. We present a case of pure agraphia studied according to cognitive neuropsychology theory (Ellis, 1982; Margolin, 1984).

EB is 56 year-old man, right handed, university professor, suddenly presented right hemiplegia and fluent aphasia with agraphia. Cerebral Computed Tomography scan showed a left parieto-occipital hematoma. The outcome was favorable with recovery of hemiplegia and aphasia; however, agraphia had persisted.

The neurolinguistic assessment showed that oral language, reading, oral spelling and direct copying were normal. At the dictation of 331 words from the Arabic Dyslexia-Dysgraphia Battery, EB had incorrectly wrote 41% of words and made mainly substitution and omission errors. Errors were more common on consonants (59%) than on vowels (32%) and were predominant on the end and the middle of the word. There was no effect of lexicality, concreteness or part of speech. Dictation of words with over 8 consonants leads to numerous substitutions of letters making the target words unrecognizable. Patient presented the same errors on reading non-words.

This pure agraphia is due to a dysfunction of the peripheral mechanism of writing, because patient makes mainly non-phonological errors both on writing words and non-words. Otherwise, the existence of an effect of word length and the predominance of errors on the end and the middle of the word, suppose a graphemic buffer dysfunction (Caramazza and Mecili, 1990) that underlying the writing cognitive disorders.

PHONOLOGICAL ALEXIA IN ARABIC LANGUAGE

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Since the first description by Beauvois and Derouesné (1979), cases of phonological alexia have been widely studied in various occidental languages, but no case has been reported in the Arabic language. We report a cognitive analysis of a single case of phonological alexia in Arabic.

AL, 48 year-old man, right handed, teacher of Arabic, presented at the age of 35 years an hemiplegia with severe aphasia. Cerebral Computed Tomography scan showed a wide left hemispheric infarct. In the outcome he developed a Broca's aphasia and an alexia. The neurolinguistic analysis of reading was evaluated by the Arabic Dyslexia-Dysgraphia Battery which consists on a corpus of 331 words on different parts of speech and reading task of non-words.

Patient had much more difficulty reading non-words than words (90% of errors versus 37%). This is the classical dissociation that characterizes phonological alexia. He produced mainly derivational, morphological and visual errors but no semantic paralexia. There was also an effect of grammatical class. Patient read better names than verbs, and functions words were most difficult to read.

The nature of errors produced by the patient is correlated with the morphological and semantic aspects of Arabic roots word effect. The phenomenon of derivational of Arabic words and the presence of grammatical markers (inflection, affixation) are crucial elements that determine a typical morphological access in reading Arabic words.

FRONTAL LOBE-MEDIATED BEHAVIORAL CHANGES IN AMYOTROPHIC LATERAL SCLEROSIS: ARE THEY INDEPENDENT OF PHYSICAL DISABILITIES?

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Objective: Several studies have indicated that frontal cognitive impairment is present in patients with amyotrophic lateral sclerosis (ALS). However, it remains to be elucidated whether the behavioral change is a direct consequence of ALS pathology or the measurements are confounded by the physical impairments. We examined frontal lobe-mediated behavioral dysfunction in daily living in patients with ALS by using the family- and self-rating forms of the Frontal Systems Behavior Scale (FrSBe) and assessed the relationship between the scores and motor impairments or ventilatory status.

Methods: We examined 24 patients with sporadic ALS, who were aged 65.7 ± 10.5 years with mean disease duration of 2.3 ± 1.7 years, Mini-Mental State Examination score of ≥24, normal Self-rating Depression Scale, no need of assistance in daily life, normal respiratory function, and normal arterial blood gas analytes. We examined the relationship between FrSBe scores and ALS Functional Rating Scale (ALSFRS), respiratory function, and arterial blood gas analytes.

Results: The scores of family- and self-rating FrSBe were significantly higher after onset of ALS than before onset, most notably in apathy. The family-rating FrSBe scores after onset were not correlated with ALSFRS, respiratory function, or arterial blood gas analytes.

Conclusions: The frontal-lobe-related behavioral dysfunction is present after the onset of ALS, but is independent of physical impairments.

INSULAR, A COMMON ANATOMICAL CORRELATE OF SELFISHNESS AND EMPATHY

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Background and purpose: Neurodegenerative diseases frequently affect brain regions that are important for emotional processing. There had been limited studies on the anatomical localization of the selfishness and empathy. We investigate the neuroanatomical correlates of the selfishness and empathy in patients with neurodegenerative diseases using voxel-based morphometry (VBM) method.

Methods: Eighty patients with Alzheimer's disease, frontotemporal dementia (FTD), semantic dementia, progressive non-fluent aphasia, corticobasal degeneration, and control subjects were evaluated. Degree of selfishness and empathy were measured by the selfishness and loss of empathy questions of modified Manchester Behavior Questionnaire. Total scores of the Selfishness and loss of empathy were correlated with structural MRI gray matter volume using VBM.

Results: Selfishness and loss of empathy score were highest in FTD patients. Voxels in the right insular, anterior and medial prefrontal regions were negatively correlated with selfishness scores. Similarly, those in the right insular regions were correlated with loss of expression of empathy ($P< 0.05$, FWE corrected).

Conclusion: Tissue damage to the right insular, and anterior and medial prefrontal regions may lead to dysfunction in regulating empathy and selfishness. The regions discussed above likely play important roles for the emotional perception and expression. These findings help to understand the exaggerate selfishness and loss of empathy in FTD patients.

CHRONIC EXPOSURE TO WIN55 ,212-2 DURING ADOLESCENCE BUT NOT DURING ADULTHOOD IMPAIRS LEARNING AND MEMORY

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The pathophysiological neural mechanism underlying impairment of learning and memory effects of chronic adolescent cannabinoid use may be linked to perturbations in monoaminergic neurotransmission. We tested this hypothesis by administering the CB1 receptor agonist WIN55,212-2, once daily for 20 days to adolescent and adult rats, subsequently subjecting them to tests of spatial memory using the Morris Water Maze. Chronic adolescent exposure but not adult exposure to low (0.25 mg/kg) and high (1.0 mg/kg) doses led to decreased fear or anxiety by reducing thigmotaxic behavior (swimming near the wall of the pool), while the high 1.0 mg/kg dose induced deficits in learning and memory.

This results suggests that long-term exposure to cannabinoids during adolescence may have effect on the maturation of neuronal circuits and anatomical, neurochemical and functional development of monoaminergic systems, which do not patent during later stages.

EVALUATION OF INTELLIGENCE QUOTIENT OF CHILDREN ATTENDING NEUROLOGY CLINIC IN ILORIN, NIGERIA. A PRELIMINARY REPORT

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Background: It is uncommon to see measurement of intelligence quotient (IQ) of children with neurologic challenge as part of routine checks in clinics despite the availability of tools such as Ziler draw-a-man test.

Methods: A prospective, cross-sectional study to measure the IQ of children attending neurology clinic was commenced in June 2010. With a semi-structured questionnaire, socio-demographic characteristics of each child were documented. After the routine evaluation, the child was provided with a plain sheet of paper, pencil, eraser and sharpener and instructed to “draw a person”. When the child was through, evaluation of the drawing was done using the standard key, and by the principal investigator. The score of the IQ was recorded. The parents were then counseled as required.

Results: As at September, 2010, forty nine children (28 males, 21 females) had been recruited into the study. (M:F = 1.3:1). The mean age of the subjects was 10.10±3.51 years. The predominant diagnoses were seizure disorder (67%), Attention Deficit Hyperactivity Disorder (6.1%), Cerebral Palsy (6.1%), Down syndrome (4.0%). The mean IQ was 48.06±18.86% and a range of 16.7-105%. Three children (6.1%) had profound MR(IQ < 20), 9(18.3%) had severe MR(IQ = 20-34), 13 had moderate MR(IQ=35-49), 15 (30.6%) mild MR(IQ=50-69), 8(16.3%) borderline(70-80)and 1 (2.0%) Normal.

Conclusion: Evaluation of IQ is achievable even in resource poor countries with a simple technique of Ziler draw-a-man test. The IQ of most children with neurological challenges falls within the range of mild - moderate MR thus they are educable and trainable.

FACTORS ASSOCIATED TO CEREBRAL PALSY AT LIBREVILLE

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Objective: To assess the relation between cerebral palsy and pregnancy history at Libreville.

Methods: We've conducted a case-control study. Cerebral palsy is diagnosed on the basis of clinical symptoms according to standard definition. Cases were recruited from Libreville Hospital. At least two control subjects per case were selected, matching on sex and age. Controls were free of neurological and other permanent disorders. The parents of case and control were asked for pregnancy past medical history and other information on the pregnancy; data for childbirth are recorded in their medical file.

Results: 60 cases and 120 controls were included. The mean age was 5.2+/-2.3 years. The main clinical features of cerebral palsy were hemiplegia (25%), diplegia (26.7%), quadriplegia (10%), reduced coordination (38.3%), communication and behavior disorder (91.7%) and epilepsy (36.7%) Multivariable analysis for a matched case-control study was carried out. There was association between cerebral palsy and low birth weight (OR: 3.9 (95%CI: 1.6-9.3), birth cranial perimeter OR: 2.0 (95% CI: 1.3-3.1), no follow-up of pregnancy OR: 4.9 (95% CI: 1.7-14.0), pregnancy followed by specialists OR: 0.4 (95%CI: 0.3-0.7) and site of birth (not hospital) OR: 21 (95% CI: 4.7-94.6).

Conclusion: This study suggests that the born outside of hospital and no follow-up of pregnancy are the main and stronger associated factors of cerebral palsy in Libreville.

PEDIATRIC CEREBRAL VENOUS SINUS THROMBOSIS; ANALYSIS OF SEVENTY PATIENTS

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Background: Cerebral venous thrombosis is uncommon in western population especially among children.

Objective: To analyze clinical, imaging features, risk factors, treatment options and outcome of cerebral venous thrombosis in a large pediatric cohort.

Methods: Retrospective review of patients charts.

Results: Seventy patients were included in study (25 neonates, 35%). The age ranged from 6 days to 12 years. Thirty eight (55%) were less than 6 months of age, and 28 (40%) were male. Presenting features included seizures (59%), coma (30%), headache (18%) and motor weakness (21%). Common neurological findings included decreased level of consciousness (50%), papilledema (18%), cranial nerve palsy (33%), hemiparesis (29%) and hypotonia (22%). Predisposing factors were identified in 63 (90%) patients. These included infection (40%), perinatal complications (25%), hypercoagulable/hematological diseases (13%), and various other conditions (10%). Hemorrhagic infarcts occurred in 40% of the patients and hydrocephalus 10% of the patients. Transverse sinus thrombosis was more common (73%) than saggital sinus thrombosis (35%). Three children underwent thrombolysis, 15 patients received anticoagulation, and 49 (70%) patients were treated with antibiotics and hydration. Nine (13%) patients (6 of them neonates) died. Twenty nine patients (41%) were normal, while 32 patients (46%) had a neurological deficit at discharge. Seizures and coma at presentation were poor prognostic indicators.

Conclusion: Cerebral venous thrombosis predominantly affects children age less than six months. Mortality is high (25%) in neonatal CVT. Only 18 (25%) patients were treated with anticoagulation or thrombolysis.

ANALYSIS OF SURGICAL INTRATHECAL [I.T.] BACLOFEN [ITB] IMPLANT RESULTS EMPHASIZING REVISION SURGERY IN A MIXED PEDIATRIC/ADULT POPULATION

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Introduction: Spasticity is a frequent condition with variable etiology which reflects on patients´ wellbeing (functioning, ADL, care, etc.).

Purpose: Emphasizing the issue that Implantable spasticity therapy becomes a valid alternative for these patients with proper handling of evolving complications.

Methods:

•Review of Our Series of 44 patients,

•Study period: 2002 - 2006,

•Single operative (NR & GMW) and clinical (NR, KAMcI & YA) team series retrospective, observational in one institution,

•All surgical patients: N = 44 (23 ♀ vs. 21 ♂) , 24 children (16 ♀ vs. 8 ♂), 20 adults (7 ♀ vs. 13 ♂).

Results: ITB revision surgery complications: 1.infection (4 cases).

•Post pump exchange 2° manufacturer- related mechanical pump failure,

•Post abdominal wound dehiscence → catheter exposure,

•P. aeruginosa in catheter left in situ during previous pump removal (>1 yr) at outside institution,

•Following abdominal wound dehiscence → catheter exposure.

2.Increasing ITB needs & withdrawal symptomatology.

Tear at metal connector to pump within protective silicone covering.

perforating tear at metal Connector to pump with protrusion of connector.

Retrieval of old intrathecal catheter Fragment Through limited hemilaminotomy with durotomy.

3.CSF Leakage: Catheter tear at pump connector site.

Conclusions:

•ITB is an implant surgery with significant morbidity, •Strive to reduce problems by:

•Meticulous attention to details of surgery.

•Thorough work-up to rule out implant system dysfunction if clinical evolution is atypical,

•pre-operative imaging (at least plain X-rays!, but low threshold to perform pump injection studies with contrast).

CEREBRAL PALSY AND CONGENITAL MALFORMATIONS

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Introduction: Cerebral palsy (CP) is a chronic disabling disease diagnosed in early childhood. Antenatal risk factors are thought to be important elements of the "causal pathway" to CP. A higher proportion of children with CP have congenital malformations.

Aim: To determine the proportion of children with CP who have congenital malformations.

Methods: We evaluate congenital malformation of a cohorte of 100 patients with CP followed-up in our department of neuropediatic, Hedi Chaker Sfax Tunisia. The malformations were classified as cerebral malformations or non-cerebral malformations.

Results: Overall 26 out of 100 children (26 %) with CP were reported to have a congenital malformation. The majority (16 % of all children) were diagnosed with a cerebral malformation. The most frequent types of cerebral malformations were microcephaly and hydrocephaly. Non-cerebral malformations were present in 10 CP children and in further 4 CP children with cerebral malformations. The most frequent groups of non-cerebral malformations were cardiac, facial clefts and limb and skeleton malformations. Children born at term had a significantly higher prevalence of cerebral malformations compared to children born before 37 weeks (12.1% versus 2.1%).

Conclusion: In conclusion the main findings in our study are the high prevalence of cerebral malformations in term born children with CP and a possible aetiologic and pathogenetic link between CP and malformations close to the brain (facial clefts and eye malformations).

NEURAL TUBE DEFECTS AND MTHFR GENE POLYMORPHISMS IN SLOVAK POPULATION

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Bacground and aim: Neural tube defects (NTD) are serious birth defects with significant worldwide differences in their incidence (0.2-8/1000). In Slovakia with natality about 50 000 liveborn/year, annually 10-20 children are born with NTD (0.28/1000); mostly with myelomeningocele. When including stillborn and selective abortions for NTD (mainly anencephaly), the number of NTD pregnancies is higher 0.35-0.52/1000. Folates´ preventive effect focused the research of NTD genetic background to enzymes of folate metabolism. One of the most important is MTHFR (methylenetetrahydrofolate reductase) whose common termolabile variant C677T reduces MTHFR activity to 30-40%. This polymorphism has been proven to be a risk factor for NTD in some populations; we evaluated it in Slovak children.

Methods: We analysed 91 Slovak children with nonsyndromic NTD and population control of 300 newborns without NTD for C677T and A1298C MTHFR gene polymorphisms.

Results: NTD patients and controls did not show any significant difference in the prevalence of TT genotype or T allele (OR=1.22 [95%CI 0,5-2,9]; OR=1,16 [CI 0,8-1,7] respectively). In A1298C, there was only significantly higher AC genotypes frequency in the patients (p=0,037, OR-0.60 [95%CI 0.38-0.97]). Combination of both heterozygote genotypes did not differ significantly between the patient and control populations (p=0.59).

Conclusion: This study did not confirm any association of MTHFR gene polymorphisms C677T and A1298C with NTD patients in Slovakia. Regardless of genetic background, periconceptional folate supplementation in women is absolutely recommended.

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JOUBERT SYNDROME: A CASE REPORT

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Joubert Syndrome was reported firstly by Joubert and Eisenring in 1969. It is a rare autosomal recessive disorder whose main clinical signs are respiratory disturbance in neonates, hypotonia, developmental delay, ataxia, abnormal eye movements. These may be associated with multiorgan involvement, mainly retinal dystrophy, renal and hepatic disturbance. The most characteristic imaging features on cranial MRI is the «molar tooth».

We report the case of a 7month-old infant, presenting a hypotonia and a lack of a visual contact. On neurological examination he had a generalised hypotonia, divergent strabismus and opto-cinetic nystagmus. The fundus appearance showed a retinal dystrophy.

The cranial MRI showed the pathognonomic sign: the molar tooth. The early neuro-ophtalmological findings in Joubert syndrome are not pathognonomic, but may lead to the diagnosis of Joubert syndrome in the early months and years of life. The diagnosis is confirmed by the MRI findings.

DISSOCIATION OF CENTRAL EXECUTIVE PROCESSES IN MOROCCAN DYSLEXIC CHILDREN

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Developmental dyslexia is defined by the World Federation of Neurology as a disorder manifested by difficulty in learning to read despite conventional instruction, adequate intelligence and sociocultural opportunity. Brosnan et al. (2002) found that that dyslexic individuals show deficiencies in executive functions relating to inhibition of distractors and to sequencing of events.

In this study the performance of developmentally dyslexic children and non-dyslexic children was studied upon a range of tasks that involved executive functioning in the aim to determine the functionning of executive process in developmental dyslexia.

Thirty dyslexic and 30 controls children, were assessed in inhibition, updating, switching, divided attention, manipulating capacities and storage capacity. Inhibition was tested with Hayling task and Stroop procedure; Updating with Update-Span; Switching capacities with Trail Making Test and Plus/Minus task. Divided attention was tested with Brown-Peterson procedure and manipulating capacities with Alpha Span procedure. Participants were also administered a classical and reverse verbal digit span test.

Results showed significant impairment in switching, resistance to interference and inhibition in dyslexia. Memory load and planning depend on the material used. The results are discussed with the study of Brosnan et al. (2002).

It would be interesting to make a longitudinal evolutive study to see if there is any age compensation on these children performances.

EXPRESSION OF DORSOVENTRAL PATTERNING MARKERS IN THE NEURULATION OF CHICK EMBRYOS: PRIMARY VS SECONDARY NEURULATION

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Aims: The goal of our study was to evaluate the expression of patterning markers during the process of neurulation.

Material and methods: Chick embryos of Hamburger and Hamilton stages 16~ 45 were harvested and tail sections were processed for neuronal antigen studies.

Results: O4, Shh, notch-1, pax-6, math-1, BMP-4 no remarkable staining at stage 16, slightly increased staining on the medullary cord and notochord at stage 18 ~ 26, and increased staining on the germinal and mantle layers at stage 30 ~ 45. Synaptophysin: no remarkable staining at stage 16 ~ 18, increased staining on the caudal cell mass at stage 22 ~ 26, increased staining on the germinal and mantle layers at stage 30 ~ 45, and positive staining of the marginal layer at stage 45; 3A10 (neurofilament associated protein): no remarkable staining at stage 16 ~ 26, scattered positive cells around the germinal layer and increased staining on the dorsal root ganglion, and dorsal white matters at stage 35 ~ 45. NeuN: no remarkable staining on the caudal cell mass, and positive staining on the notochord at stage 16, increased staining on the caudal cell mass at stage 22 ~ 26, strong positive reactions on the mantle layer just proximal to the caudal end at stage 35, decreased staining on the mantle layer at stage 40 ~ 45. Islet-1: no remarkable staining on neural structures at all stages.

Conclusions: Our results suggest that neuronal markers of secondary neurulation in chick embryos have their own chronological pattern of expression.

TREATMENT OF UPPER LIMB SPASTICITY IN CHILDREN WITH CEREBRAL PALSY: THE CONTRIBUTE OF ULTRASOUND-GUIDED INJECTION OF BOTULINUM TOXIN TYPE A

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Background: BoNT-A has been widely used in the management of spasticity in children with acquired or congenital brain injury in order to reduce hypertonicity and improve functional outcomes enhancing motor skill development.

One important factor influencing the treatment outcome is the accuracy in delivering the toxin to the target muscle. Manual needle placement is considered to be an acceptable technique for delivering the toxin to large, superficial muscles, but not to small, deeply seated muscles of upper limb.

Design/methods: BoNT-A was injected with UGT into the affected upper limb muscles of 10 hemiplegic CP.Outcome assessments, evaluated before and 3 months after the injection, included: Melbourne Scale, QUEST, Modified Ashworth Scale (MAS) and Passive Range of Motion.

Results: In all children the upper limb muscles were easily identified. Introduction of the needle and drug injection were entirely carried out under ultrasonographic guidance.Children had significantly greater reduction in spasticity (MAS, $p < 0.01$), which explains an improvement in upper limb function and quality movement measured with the functional scales ($p < 0.01$).

Conclusions: The UGT for BTX-A treatment of upper limb muscles spasticity allows the physician to verify the position of the needle before and during the injection. So, incorrect needle placement can be excluded as possible causes of nonresponse.UGT improves the effectiveness of BoNT-A promoting the functional use of upper limb.

THE EXAMINATION OF FETAL CEREBRAL CIRCULATION DURING DEFINED SOUND STIMULATION

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Introduction: The examination of auditory system functionality by registering fetal cerebral circulation changes could point to fetal condition in mother womb.

Aim: To examine fetal cerebral circulation changes in middle cerebral artery (MCA) caused by defined sound stimulus.

Methods: The procedure of Prenatal hearing screening (PHS), which is based on registering the fetal cerebral circulation changes caused by defined sound stimulation, was applied. The PHS procedure is presented in the paper. The sample comprised N=62 pregnant women divided into two groups: Control group (C=30) consisted of pregnant women with low risk pregnancies, while Experimental group (E=32) consisted of pregnant women with high risk pregnancies. The examination was performed in the period from 27th to 31st gestation week. Fetal cerebral circulation changes caused by defined sound stimulation were registered in middle cerebral artery (MCA). Doppler blood flow analysis was performed on the ultrasound apparatus Aloka SSD 1700. The Doppler wave analysis in observed artery was performed by registering the values of Pulsatility index (Pi) before and after the defined sound stimulation.

Results: Results showed that fetuses from high risk pregnancies demonstrated significantly higher relative Pi values changes in relation to fetuses from low risk pregnancies (17.4% : 11.4%).

Conclusion: The paper indicates the importance of early diagnostics based on fetal cerebral blood flow monitoring which enables applying the early prenatal stimulation procedures with aim to prevent pathogenesis of hearing impairment, speech and language disorders, learning and behavioral disorders in later stages of child development.

GROWTH RETARDATION REVEALING A POLY-AUTOIMMUNE ENDOCRINOPATHY WITH PITUITARY DAMAGE

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The anterior pituitary failure is defined as a partial or complete deficit, on one or more pituitary hormones.

We report the case of a patient 18 years old-ago of follow-up since the age of two years for celiac disease. Addressed by a pediatrician for failure to thrive, and in whom the examination is a physical and mental fatigue with apathy, impaired concentration, muscle cramps with no evidence of HIC in whom clinical examination is a lack of sex characteristics Secondary micro-penis, small testes with cryptorchidism soft, abdominal adiposity and failure to thrive. The functional pituitary is a global deficit pituitary thyrotropic respecting the line, and before the history of celiac disease to another location autoimmune disease was searched revealing thyroiditis and autoimmune hepatitis, pituitary MRI shows atrophy pituitary, the pituitary stalk is not identified.

In this particular observation, which follows the line reached pituitary thyrotropic we are faced with hypothyroidism original device realizing the need for a complete exploration of autoimmune polyendocrinopathy before any partial pituitary deficiency.

BOTULINUM TOXIN IN THE TREATMENT OF CEREBRAL PALSY

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Introduction: Cerebral palsy (CP) is a non progressive motor disorder secondary to early and definitive brain damage. Perinatal stroke in term infants and encephalopathy of prematurity are the most common causes. Botulinum toxin injection, in adjunction with rehabilitation, demonstrated its effectiveness in the management of this affection.

Methods: A retrospective and prospective analysis was conducted on patients receiving Botulinum toxin injections (Dysport®) for CP over a period of 5 years (2007-2011) at the Neurology Department of the University Hospital of Fes-Morocco. Patients were reviewed every three to six months with clinical and/or video evaluation. The post-injection deficit, if present, was also assessed. A subjective questionnaire of treatment effectiveness, using a scale from 1 to 3, was administered at follow up appointments or by phone. All our patients were treated with toxin associated to rehabilitation.

Results: We obtained good results marked by improvement in standing, walking, sitting and/or transferring in the majority of our patients. No serious side effects were reported in our series. Only moderate and transient pain at injection sites was described and a low percentage of injections caused moderate muscle weakness, mildly disabling compared to the benefit of injections.When the first injections were not effective, a new assessment was done and we adjusted the treatment. We considered that Toxin injections were unsuccessful after three injections without benefit.

Conclusion: Botulinum toxin injection, in adjunction to rehabilitation, stands at first line therapy of CP and requires close cooperation between the neurologist, the physiotherapist and the patient.

PEDIATRIC ISCHEMIC STROKE: A STUDY ABOUT 35 PATIENTS

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Introduction: Stroke in children is relatively rare. Research in this area suggests that risk factors, outcomes, and even presentation are different from those of adult stroke.

Aim: To characterize clinical aspect, etiologies and management of neonatal and childhood stroke.

Methods: We retrospectively evaluate 35 patients with ischemic stroke followed-up in our department of child neurology Sfax Tunisia between May 2008 and May 2011. All patients had extensive series of radiological and biological explorations.

Results: Children were aged from 7 months to 7 years. Sex ratio was 1.33. The most affected age group includes children from birth to 2 years, and neonates comprised 60% of patients. Clinical presentation was made essentially of motor disabilities and epilepsy. 71.42% of the children who had an ischemic stroke during per natal period suffered from severe anoxia, most of them developed mental retardation. Etiology has been identified in 48.57% of cases (Arteriopathies (20%), cardiac disease (11.42%), thrombotic disorders (8.57%) and infectious causes (11.42%)). Treatment has been based on motor rehabilitation, medication such as antithrombotic and antiepileptic. Most of the children had a satisfactory recovery.

Conclusion: Stroke in children are characterized by a wide array of etiologies but with a better prognosis thanks to cerebral plasticity. In our study, and despite the satisfactory recovery in most children, prognosis has been more severe for those who had suffered from per natal anoxia which is thought to be a result to intra-uterine stroke.

IMPROVEMENT OF GAIT AND POSTURAL FUNCTIONS AFTER ROBOTIC- ASSISTED TREADMILL TRAINING (RATT) IN PATIENTS WITH BILATERAL SPASTIC CEREBRAL PALSY

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Objective: To examine the effects and potential benefits of RATT on gait and gross motor functions in ambulatory and nonambulatory patients with bilateral spastic cerebral palsy (CP).

Methods: 49 children (26 males and 23 females) with bilateral spastic CP, aged 4-25 years underwent 20 sessions of RATT during 4-5 week period using driven gait orthosis Lokomat. Outcome measures were dimension A (lying, rolling) B (sitting), C (crawling, kneeling), D (standing) and E (walking, running, jumping) of the Gross Motor Function Measure (GMFM-88), 6-minute walking test (6 min WT), 10 - metre walk test (10 MWT), Functional Ambulantion Categories (FAC).

Results: To evaluate the results, we used Wilcoxon signed- rank test and Mann-Whitney U test. Patients demonstrated statistically significant improvements in all the dimensions of the GMFM-88. Improvements in the GMFM A, B, C were significantly greater in the more severely affected cohort (GMFCS III, IV, V) compared to the mildly affected cohort (GMFCS I, II). By contrast, improvements in the GMFM D, E were significantly greater in the mildly affected cohort. The mean (SD) maximum gait speed (0,72(0,50) to 0,86(0,53) m/s; p= .000, the mean (SD) 6 Min WT (152,8(111,2) to 189,73(124,4) m as well as the mean FAC (1,45(1,24) to 1,89(1,35) also showed statistically significant level of improvement (p= .000).

Conclusions: RATT is a promising treatment option for ambulatory as well as nonambulatory patients with CP. The severity of motor impairment affects the amount of the achieved improvement.

STABILITY OF LANGUAGE SKILLS DESPITE MARKED LEUKOENCEPHALOPATHIC CHANGES IN A CHILD WITH LEBER HEREDITARY OPTIC NEUROPATHY FOLLOWING CNS-DIRECTED LEUKAEMIA TREATMENT

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Background and aims: Chemotherapy-related leukoencephalopathic changes were previously documented on MRI between the ages of 5 years 6 months and 6 years 4 months in a child with Leber hereditary optic neuropathy treated for 19 months with aggressive treatment for acute lymphoblastic leukaemia from the age of 3 years 8 months. As injury to the neural networks in the maturing brain may result in children failing to make age-appropriate gains in developmental skills, the study aimed to evaluate the child's language trajectory over a two year period.

Method: Baseline assessment of general language skills and more complex higher-level language skills was undertaken at the age of 9 years 3 months. Follow-up language assessment was undertaken two years later. Change in performance scores was compared to the change in a control group of age-matched children.

Results: A series of modified t tests indicated that the child's score differences between initial and subsequent assessment were not significantly different to the mean score differences for the control group on all but one subtest, where his ability to interpret inferential language was significantly improved relative to that of his peers.

Conclusion: Despite a heightened risk of reduced language outcomes due to marked leukoencephalopathic changes following CNS-directed treatment administered during the critically-formative period of language development, the child presented with strong stable language skills. As complex high-level language skills continue to emerge and consolidate throughout adolescence and into early adulthood, the need for continued monitoring of language skill development is highlighted.

EFFECTS OF NITRIC OXIDE ON THE PREFRONTAL CORTEX IN STRESSED RATS

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Background: Nitric oxide(NO)exhibits both protective and detrimental effects in the central nervous system.

Objective: To investigate the effect of NO on the prefrontal codex in neonatal stressed rats.

Design time and setting: A randomized,controlled,animal study was performed at the Anatomical Department of Iran University of Medical Sciences from May 2007 to August 2008.

Materials: Forty-eight male, Wistar rats were obtained from Pasteur´s Institute, Tehran, Iran.

Methods: Rat stress models were established by immobilization and randomly received intraperitoneal injection of 2 mL physiological saline,L-arginine(200 mg/kg)as a NO precursor,N(G)-nitro-L-arginine methyl ester(20 mg/kg),or subcutaneous injection of 7-nitroindazole(25 mg/kg)as a NO synthase inhibitor.

Main outcome measures: After the rats were treated for 4 weeks,the frontal codex was harvested for histological observation and NO detection.

Results: Subcutaneous administration of N(G)-nitro-L-arginine methyl ester or 7-nitroindazole resulted in significantly lower prefrontal cortex thickness and NO production compared with subcutaneous administration of L-arginine($P < 0.05$).Prefrontal cortex thickness significantly increased in rats following L-arginine treatment,compared with physiological saline intervention($P< 0.05$).

Conclusion: NO exhibited protective effects on the prefrontal codex of stressed rats.

NEUROLOGIC VARIANT LARYNGOMALACIA AND SWALLOWING DIFFICULTIES ASSOCIATED WITH CHIARI MALFORMATION AND CERVICOMEDULLARY COMPRESSION: CASE REPORTS

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Brainstem dysfunction should be considered among the etiologies for laryngomalacia and swallowing difficulties. Especially in patients who fail supraglottoplasty or have other underlying comorbidities. The patients described in this presentation have variable presentatons but had significant improvement of their laryngomalacia or other symptoms following their brainstem decompressive procedures. This makes a case for pursuing subtile findings in children with Chiari malformations and may be further evidence supporting the neurologic theory of an etiology of laryngomalacia.

CLASSIFICATION AND THERAPY OF HABITUAL TOE WALKERS

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Objective: Habitual toe-walking can be a common variant in children's gait development. Persistent toe-walking presents a symptom that can occur in children with neurological disorders and may affect children´s physiological posture. By classifying habitual toe walkers in three different types and exclude neurologic toe walkers, the treatment with a Step-by-Step Concept increase the efficiency and benefit for the patient.

Methods: Over a period of 8 years 800 toe walker were treated. They were systematically examined (Parents' anamnesis, initial physical examination and re-checks in frequent intervals) with electromyography and a pressure measuring plate for gait analysis.

Results: The following types could be distinguished by the statistical evaluations of the parents' anamnesis and the results of the physical examinations.

Type 1 - congenital shortening of the calf muscle,

Type 2 - genetic predisposition,

Type 3 a/b - toe-walking in loaded situations, Type 3b shows additional behavioural problems, such as sensory disturbances.

After the classification a Step-By-Step Concept was applied and evaluated, which starts with pyramid insoles and optional physiotherapy. Further treatment can be completed by night splints and the injection of Botolinumtoxin. During the examination process, it was paid attention to a possible differential diagnosis like spastic toe-walking, hemi paresis, the Duchenne muscular dystrophy or autistic behaviour, which have been excluded from the Step-by-Step concept for habitual toe-walkers.

Conclusion: After distinguishing toe walkers in different types and by using the Step-By-Step Concept the efficiency of the therapy could increase by decreasing costs for treatment at the same time.

RETT SYNDROME: 3 TUNISIAN CASES WITH NOVEL MUTATIONS OF THE *MECP2* GENE

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Introduction: Rett syndrome (RS) is an X-linked neurodevelopmental disorder that mostly occurs in girls. Mutations in the gene MECP2 (Xq28) have been identified in most of typical-Rett cases and in some atypical cases. We report on 3 tunisian cases of genetically confirmed RS, with 3 novel mutations in the C terminal region of the *MECP2* gene.

Case reports: The first case, a typical case, presented with psychomotor regression at the age of 14 months and epilepsy at 16 months. Genetic study of MECP2 gene concluded to c.1030C>G (p.R344G) mutation.

The second and third cases were somehow atypical, with psychomotor delay, poor improvement and severe epilepsy in one case, and progressive motor improvement, autism and behavior disorders in the other. Genetic study of MECP2 gene showed a c.996C>T (p.S332S) mutation in the first case and c.1065C>A (p.S355R) mutation in the second.

Discussion and conclusion: Typical-RS is characterized by acquired microcephaly, loss of purposeful hand movements and autistic behaviors, following a period of normal growth and development. There are 5 forms of atypical Rett: the early-onset seizure type mainly caused by mutations in the *CDKL5* gene (Xp22), like our second case but mutation in MECP2 is rare in this form, the congenital variant, the forme fruste, the late childhood regression form, and the preserved speech variant.

There are probably several other phenotypes of RS and this diagnosis must be considered in all girls with severe mental delay and autistic features. A genotype-phenotype correlation study has to be conducted on a larger series.

FACTORS INFLUENCING COGNITIVE PERFORMANCE: STUDY COMPARATIVE IN STUDENTS A COLLEGE KENITRA, MOROCCO WEST

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The stady of certain cagntive fonctions for children has its importance in the fact that the results obtained can give a general idea about the future population.

Different reasons may act on the develepment of these cognitive performances among these factors are the social level of parents including the instruction level and the profession, the residency area and the consan guinity.

To study the effect of these factors on certain congnitive performances .a prospective inquiry was realized in the college Attakaddoum in the town of Kenitra 165 children of this collage were tested via the test of raven and they answered on a cartain number of questions concerning their parents. their age were between 12 and 17 years old.

The results obtained show that a significative relationship axist between the cognitive performances of the inquired students and all the studied factors.

COGNITIVE PROFILE OF INDIAN CHILDREN WITH GLOBAL DEVELOPMENTAL DELAY

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Objective: To determine the distribution of cognitive scores in a community sample of Indian children with GDD.

Methods: A sample of 252 children (Males = 56%, Mean age = 3.54 years, SD = 1.51 years), from middle and low income homes (monthly household income = ≤ 156 USD) were evaluated on the Developmental Assessment Battery (DAB; Sidhu et al., 2010). Any child scoring a Developmental Quotient (DQ) of < 80 on the domains or total test DQ was considered delayed.

Results: Almost 80% of children had no delay in any domain, 13.5% showed a delay in 1 domain, and 6.8% in two or more domains. Of the 29 children delayed on cognitive domain, 48.3% showed an isolated cognitive delay. Of the 11 children with delay in 2 domains, 82% children had a concomitant cognitive delay. Out of the 31 children having scores < 80 on the total test DQ, only 58% had a concomitant delay in cognitive DQ scores. Most children with GDD fell within the low average to mild deficiency range with 19.4% having scores < 70 on cognitive DQ, 38% having scores in the range of 70-79 DQ points and 16% in the range of 80-89 DQ points. Almost one-fourth of the children with GDD had average intelligence. Stepwise regression showed that 10.8% of the variance in the total DQ was explained by the education of the mother and the total household income (F=14.65, p=.000).

Conclusions: A diagnosis of GDD is not necessarily associated with cognitive impairment.

EEG THETA BAND NEURAL NETWORKS DURING SILENT READING IN CHILDREN WITH DEVELOPMENTAL DYSLEXIA

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Introduction: Numerous studies have used electrophysiological methods in attempts to discriminate dyslexic from normal readers and to identify brain mechanisms underlying specific reading disability. Connectivity between different brain regions is important for parallel information processing during reading.

Aim: The aim of the present study is to apply an analysis of large-scale neuronal networks to study brain connectivity dysfunctions in dyslexic children during silent reading and to compare results with their peers.

Methods: EEG signal was recorded from five dyslexic and five normal readers (three female and two male) using 10-20 International system for electrode placement and mono-polar montage. EOG electrodes were used in order to register horizontal and vertical eye movements. Subjects had a task to read simple story silently. Text was presented on computer screen with 40 cm distance from the subject's eyes. Five-second artefact free periods were analysed offline using spectral analysis (FFT algorithm). Amplitude correlations in Theta rhythm (4-7 Hz) between all 19 electrodes were calculated. Statistically significant correlations (p=0.01) were further used for neural network modelling.

Results: We found that dyslexic children had one closed neural network (C3-C4-Cz-P4) and three interhemispheric connections between homologous electrodes without complex intra- and interhemispheric connections. Normal readers had far more, both quantitatively and qualitatively, complex large-scale neuronal networks in fronto-temporal and centro-parietal cortex involving up to 6 collaborating regions.

Conclusion: Reading as a complex cognitive function require dynamic collaboration between close and distant cortical regions in order to achieve adequate connections for parallel information processing.

ELECTROENCEPHALOGRAPHIC FINDINGS IN CHILDREN AND ADOLESCENTS SUFFERING FROM HEADACHE

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Background and aim: Headache is common in children and adolescents and may be a symptom of numerous systemic and metabolic disorders. The objective of evaluation of a child or adolescent with headache is to determine whether the headache is primary or secondary and to decide on appropriate treatment accordingly. Our aim was to analyze electroencephalographic (EEG) findings in the routine evaluation of headaches.

Methods: This retrospective study included 105 male and female patients aged 3-20 years (mean age 15.8), who were evaluated and hospitalized for headache at our department over a period of two years. The admission diagnosis in all patients was headache lasting at least 6 months. All patients underwent an anamnestic interview, physical and neurological exam, as well as EEG and brain CT or MRI examination.

Results: Out of the 105 patients, 18 had abnormal neurological findings. EEG findings were normal in 51.5% of all patients, suggestive of dysrhythmic abnormalities in 42.3%, and specific for epileptic activity in 6.2%.

Conclusion: Although EEG is not performed routinely in headache patients, it has advantages over other diagnostic procedures because of its noninvasiveness, availability and repeatability. EEG changes seen in headache patients are not specific, however, they can prompt additional evaluation that may accelerate accurate diagnosis and timely management.

AUTOSOMAL RECESSIVE HEREDITARY SPASTIC PARAPLEGIA ASSOCIATED WITH MENTAL IMPAIRMENT, THIN CORPUS CALLOSUM AND EPILEPSY IN A TUNISIAN FAMILY

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Introduction: Hereditary spastic paraplegia (HSP) is a clinically and genetically heterogeneous group of neurodegenerative disorders characterized by slowly progressive spasticity of the lower extremities. Autosomal recessive hereditary spastic paraplegia associated with thin corpus callosum (HSP-TCC) is a recently discovered subtype of complicated HSP with at least eight genetic loci identified to date.

Objective: To report a new phenotype of recessive HSP-TCC in a Tunisian family.

Patients and methods: The authors investigated four affected and one healthy subjects from a Tunisian consanguineous family with recessive HSP-TCC and epilepsy. Clinical, neurophysiologic, and neuroradiologic studies were undertaken. The genetic study is being conducted.

Results: The 4 patients manifested a relatively similar combination of early-onset spastic paraparesis, mental deterioration with TCC, periventricular white matter abnormalities and cortical atrophy on brain magnetic resonance imaging. Tow patients developed epilepsy around the age of eight years.

Conclusion: Autosomal recessive HSP-TCC is a rare disorder which recently described in Japan. SPG11 is the most frequent gene reported in the literature. The major loci which were identified in Tunisia are SPG11 and SPG15. To our knowledge, recessive HSP-TCC with epilepsy has not been reported in Tunisia. Our findings further confirm the phenotypic heterogeneity of this disorder in Tunisia.

EEG BIOFEEDBACK NEW HIGHLY SOPHISTICATED NEUROREHABILITATION METHOD: RESULTS IN MOTOR DISABILITY IN CHILDREN

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Introduction: EEG biofeedback is therapeutical method that helps with specific mean by different neurological and psychological disorders. Aim of the work was to analyze effect of the EEG biofeedback therapy on motor skills of children and demonstrate improvement of attention and impulsivity.

Material and methods: Observations were conducted on the group of 30 children, age 7-12 years, with motor coordination disorder in combination with ADHD, ADD. Therapy consists of 30 sessions of EEG biofeedback, 2-3 time in a week, with 30-45 minutes sessions. Before and after therapy children were examine with PANESS test for their motor skills and CIT test for assessment of impulsivity and attention disorder. Standard therapy group consist of 30 children. Data were statistically assessed with paired t-test.

Results: *EEG group:* The mean paired difference achieved by gaits, hopping and stations was M= 14,067; SD=7.216; N=30 and t(29)=10.678, 2-tailed p=0.000. The mean paired difference of achieved time M=17.373; SD=22.159; N=30 and t(29)=4.294, 2-tailed p=0.000. The mean paired difference achieved by repetitive movements M=20.067; SD=15.465; N=30 and t(19)=7.107, 2-tailed p=0.000.

Control group: The mean paired difference achieved by gaits, hopping and stations was M= -1.933; SD=7.277; N=30 and t(29)=-1.455, 2-tailed p=0.156. The mean paired difference of achieved time M=21.831; SD=19.441; N=30 and t(19)=6.150, 2-tailed p=0.000. The mean paired difference achieved by repetitive movements M=-.833; SD=8.301; N=30 and t(29)=-.550, 2-tailed p=0.587.

Conclusion: In the EEG group of children EEG biofeedback therapy help to improve motor skills and also strengthen control of impulsivity and attention.

VAGAL RESPONSE TO THE DEEP BREATHING TEST AT YOUNG FOOTBALLERS

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Deep Breathing test is a simple and reproducible cardiovascular reflex test to assess parasympathetic function. The aim of this study was to compare the vagal response of a group of young footballers with that of a group of age-matched untrained normal subjects, using this test. Deep breathing test was performed in 2 groups: one group of 20 adult young footballers (average 19.3±0.6 years), and a second age-matched group of 20 untrained subjects (average 19.6±0.6 years). Subjects underwent the test after 30 min resting in supine position, and responses were expressed as a percentage of variation of the heart rate during the stimulation. Student´s t-test was used for each of the parameters, in order to evaluate statistical differences among the two groups. $p< 0.05$ was considered as significant. Vagal response to deep breathing test was significantly higher in the young footballers when compared to the untrained controls (72.6±16.2 % vs 55.0±12.8 %, respectively, p=0.03). The basal heart rate was significantly lower in footballers than in the Controls group (52.1±7.4 bat/min vs 69.8 ± 14.3 bat/min, $p < 0.01$). Our data point to a significant increase in basal parasympathetic response and a significant decrease of basal heart rate in adult young footballers compared to controls.

EEG IN ACUTE POST CABG ENCEPHALOPATHY

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Introduction: Acute Post CABG encephalopathy (aPCE) occurs in about 7% of patients. EEG may ascertain degree of encephalopathy, identify regional dysfunction and may points towards underlying etiology. We aim to determine the EEG findings associated with acute PCE

Methods: We reviewed EEG in all patients with diagnosis of aPCE (diagnosed as per DSM - IV) within 10 days of CABG, from 2006 to 2011. In addition, we looked at demographics and neuroimaging findings.

Results: We identified 17 (16 males and 1 female) patients with aPCE. Mean age (± SD) was 64.4(± 11.2) years. aPCE was diagnosed 3.6(range 1-9) days post CABG. Twelve patients had altered level of consciousness, and 5 presented with confusion out of which 3 had acute seizures. EEG patterns observed were: a).generalized theta ± intermixed diffuse delta in 7(41%); b).generalized theta with focal epileptic discharges in 3(18%); c). generalized triphasic patterns in 2(12%); d).generalized theta + lateralized delta in 2 (12%); e).generalized theta with PLEDs and BIPLEDs in 2(12 %); and f).One patient with electrographic seizure. Patients with generalized slowing, focal epileptic discharges, generalized triphasic pattern had no acute changes on imaging. EEGs which showed lateralized slowing, electrographic seizure and PLEDs had fresh infarcts. Patient with BIPLEDS had unremarkable imaging, but history of hypoxic insult.

Conclusion: Lateralized slowing, PLEDS and electrographic seizure were associated with acute cerebral insults. Altered level of consciousness was the commonest symptomatology in our cohort and could be related to hypoxic/toxic-metabolic etiology. Nonconvulsive seizure detected by EEG may clinically present as aPCE.

ALTERATIONS OF SOMATOSENSORY EVOKED POTENTIALS IN THE PATIENTS WITH SUBACUTE SCLEROSING PANENCEPHALITIS

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Subacute sclerosing panencephalitis (SSPE) is a progressive neurological disorder of childhood and early adolescence which is caused by persistent defective measles virus. Patients usually have behavioral changes, myoclonus, dementia, visual disturbances, and pyramidal and extrapyramidal signs. As disease advances non-specific manifestations evolve into disturbances in motor function and development of periodic stereotyped myoclonic jerks.

The purpose of this study was to investigate the alterations of somatosensory evoked potentials (SEP) in the patients with SSPE and myoclonic jerks.

SEP recordings were performed on SSPE patients (9, mean age 9.3 ± 3.6) and age and sex-matched controls. N20, P27 latencies and N20-P27 amplitudes were measured for all patients and controls. No statistically difference was found between two groups in terms of both latency and amplitude.

This study indicated that SEP recordings were not altered in the patients with SSPE and myoclonic jerks compare to the controls. This finding could be useful information in the investigation of the origin of myoclonic jerks in SSPE.

RECURRENT GUILLAIN-BARRÉ SYNDROME. A CLINICAL AND ELECTROPHYSIOLOGIC STUDY OF 18 MOROCCAN CASES

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Background: Guillain-Barre syndrome (GBS) is generally considered to be monophasic. In 2-5 % of the cases a relapse is possible. The objective of our work is to describe the clinical, electrophysiological features and outcome of 18 cases of recurrent GBS.

Methods: Out of a case series of 426 GBS diagnosed in the laboratory of neurophysiology from January 1998 to May 2011, 18 patients had recurrent episodes (4,2 %). The criteria of inclusions were two episodes or more of GBS, a time progression < 4 weeks and a clinical recovery between the episodes. All patients underwent clinical and electrophysiological examination.

Results: 36 episodes of SGB were counted with an average of 2 episodes by patient (2 to 4), the mean age at the first episode was of 31,7±18,2 years (range : 2-70 years). The mean interval of recurrence was 13,2 ± 15,9 years (range: 1-54 years). Mean time of progression was 3,4±1,9 days (range: 0,17-6 days). Most of the episodes were severe, 4 patients required mechanical ventilation, 14 patients had a complete tetraplegia, 6 patients had a bulbar impairment and 4 had facial diplegia. The polyneuropathy was demyelinating in13 patients, axonal in 5 cases. 3 patients had normalization of conduction velocities after the clinical recovery.

Conclusion: The normalization of nerve conduction between episodes in some patients added to the short progression time for all the recorded episodes were in line with the diagnosis of recurrent GBS rather than relapsing CIDP. This distinction is important regarding the therapeutic decisions.

INTEREST OF STUDY OF T REFLEX IN THE MECHANICAL RADICULALGIAS

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T reflex is one of the rare technics that allows to investigate proximal areas and roots of numerous nerves, while the study of H reflex is limited to the soleus. F waves investigate only a quite small number of motoneurones. The objective of our study is to compare the sensitivity of T reflex to nerve conductions and F waves in radicular damages.

A prospective study was made at the neurophysiology department of Mohamed V teatching military hospital-Rabat, in patients presenting with cervical or lumbar mechanical radicular damages. All patients had radiological examination (CT scan, MRI, or standard radiography) of cervical or lumbar spine. We explored the T reflex, F waves and nerve conductions, and compared them to the radiological and the neurological examinations.

Among the 35 patients we enroled, 12 patients with cervico-brachial neuralgias and 23 with lombosciatalgias. The age of the patients was between 21 and 72 years, there where 13 women and 22 men. There was a significant difference between T reflex and nerve conductions in 20 patients (57%).

We conclude That T reflex was more sensitive than the nerve conductions and F waves, which were normal in patients with clinical or radiological abnormalities.

SENSORY SYSTEM ABNORMALITIES IN AMYOTROPHIC LATERAL SCLEROSIS: AN ELECTROPHYSIOLOGICAL APPROACH

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Background: Several studies indicate involvement of the sensory nervous system in Amyotrophic lateral sclerosis (ALS). ALS patients present reduced efficiency of motor intracortical inhibition.

Objectives: We performed a prospective study :1. To evaluate the sensory nerve conduction studies in patients with ALS. 2. To investigate sensory cortical changes and habituation of somatosensory evoked potentials (SEP) in patients with ALS also to indirectly investigate the dysfunction of motor cortex.

Methods: We studied 35 patients (M:F=1,5; mean age 50.0±7,6 years)with definite/probable ALS without sensory abnormalities and 60 healthy controls with similar age range and gender distribution. Neurophysiologic studies were performed in our laboratory by standard methods and to study habituation four blocks of 100 responses were sequentially averaged of Erb's point (N9), cervical (N13), and cortical (N20) median nerve SEP.

Results: Mean sensory action potential amplitude (SAP) of sural nerve was reduced as compared to normal age-matched controls ((13.0±6.5 uV vs 18.1±6.1; p=0,001). Patients with ALS showed no habituation of N20 and N13 amplitude SEP components; on the contrary, potentiation was found. The central conduction time (CCT), the mean value of N20 latency and N13 latency were significantly increased (CCT 7,3±1,7 vs 6,1±0,7 $p < 0,05$; N20 latency 21,1±2,1 vs 18,8±0,7 p=0,0002; N13 latency 13,7±0,7 vs 12,7±0,4 $p< 0,0001$).

Conclusion: Results confirm that ALS affects also sensory system (at least subclinically) both at peripheral and central level. The evidence of lack of habituation of sensory responses may be expression of cortical reactivity to compensate the affected motor cortex in ALS.

RECOVERY OF CORTICAL EFFECTIVE CONNECTIVITY IN DISORDERS OF CONSCIOUSNESS

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Objective: Transcranial magnetic stimulation combined with electroencephalography (TMS/EEG) was employed to assess cortical effective connectivity at the bedside of brain-injured patients with disorders of consciousness.

Methods: TMS-evoked potentials were recorded in 17 patients. A first group of 12 patients (Group I) underwent a single session. Five of these patients were diagnosed as vegetative state (VS), five were minimally conscious (MCS) and two were in a locked-in syndrome (LIS). A second group of five patients (Group II) underwent longitudinal measurements. Three of them recovered consciousness evolving from VS through MCS to emergence from MCS.

Results: In Group I, in VS patients, TMS triggered a stereotypic and local response indicating a breakdown of effective connectivity. On the contrary, in MCS patients, TMS triggered rapidly changing, widespread responses similar to the ones recorded in LIS and healthy awake subjects. In Group II, a simple response to TMS was also recorded in all VS patients. In the three patients who recovered consciousness and functional communication, intracortical effective connectivity resurged soon after they switched from VS to MCS as well as they emerged from MCS.

Conclusion: TMS/EEG measurements performed suggest that clear-cut differences in intracortical effective connectivity underlie the subtle clinical discrimination between VS and MCS patients. TMS/EEG measurements performed in Group II showed that cortical effective connectivity resurged in VS patients who recovered consciousness as soon as they recover to MCS. Thus, this change in the brain´s capacity for internal communication occurred at an early stage before the subject could reliably communicate with the environment.

EEG AND CLINICAL CONFRONTATION IN THE DIAGNOSIS OF DEMENTIA WITH LEWY BODIES VERSUS ALZHEIMER'S DISEASE

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Introduction: Frontal interrmittent rhythmic delta activity (FIRDA) is an abnormal EEG pattern found in primary and secondary involvement of the brain in a wide variety of diseases. The occurrence of FIRDA in degenerative dementia could be considered as an indicator supporting the diagnosis of Dementia with Lewy Bodies (DLB).

Objective: To investigate the correlation between FIRDA and DLB in comparison with Alzheimer's disease (AD).

Methods: 88 patients with dementia were ascertained: 44 DLB and 44 AD, age and sex matched. Diagnoses were established according to international criteria. EEGs were performed on 47 patients as part of a routine dementia assessment using standard techniques. Recordings were examined blind to diagnosis following these criteria: dominant frequency, presence of other frequencies, asymmetry, mean amplitude and presence of focal abnormalities including spikes, sharp waves, triphasic waves or transient slow wave activity.

Results: A total of 18 records from the DLB group and 29 records from the AD group were examined. Eight of 18 patients (44.5%) with DLB showed a main pattern of FIRDA. In AD group, FIRDA occurred in 10 patients with severe dementia (34.5%). The difference between the two groups was significant (p: 0.03).

Conclusion: We found a significant correlation between FIRDA and DLB. Our results are in concordance with recent findings in literature. This pattern when found in early stages, could be helpful for diagnosis, however this pattern could not be considered specific for DLB.

LOW AUDITORY EVENT-RELATED POTENTIAL AMPLITUDES IN TYPE 1 DIABETES - RELATION TO SIGNS AND SYMPTOMS OF PERIPHERAL NEUROPATHY

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Introduction: Patients with type 1 diabetes (T1DM) may suffer from a mild decline in mental function, and studies have indicated that psychomotor speed is the most affected cognitive domain. The cause of the cognitive decline is not known. We have previously found a decrease in EEG beta power and in auditory ERP N100 amplitude in T1DM, and that subjects with low N100 amplitude have lower psychomotor speed.

Objectives: To identify if young adults with T1DM have abnormal EEG and auditory ERP and to elucidate possible correlations with signs and symptoms of peripheral neuropathy, recent HbA1c and disease duration.

Methods: Patients (age 28±5.5 years) with T1DM (N=53) and age- and sex-matched healthy control subjects (N=55) were examined with quantitative EEG and auditory ERP. Auditory ERP was obtained with an odd-ball and a choice reaction paradigm. Electroneurography (peroneal and sural nerves), quantitative sensory thresholds examinations, neuropathy impairment and symptom assessment were performed.

Results: Diabetes duration was 20±5 years. The most prominent difference was a decrease in auditory N100 peak amplitude in patients, which was most pronounced in frontal and central regions. *E.g.* in the frontal midline electrode N100 was -6.2µV in patients and -8.5µV in control subjects ($p< 10^{-4}$). Preliminary analysis showed that average fronto-centro N100 amplitude had only a weak correlation with peroneal motor conduction velocity ($p< 0.05$), but not with diabetes duration or recent HbA1c.

Conclusion: Our findings confirm our previous results of abnormal N100 in T1DM and suggest that its cause is different from that of peripheral neuropathy.

A STUDY OF PERIPHERAL NERVE CONDUCTION AND VISUAL EVOKED RESPONSES IN PATIENTS WITH ACUTE DISSEMINATED ENCEPHALOMYELITIS AND ACUTE TRANSVERSE MYELITIS

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Aim: To study the electrophysiological abnormalities in consecutive patients with acute disseminated encephalomyelitis (ADEM) and acute Transverse myelitis (ATM)

Materials and methods: All consecutive patients admitted with ADEM and ATM who underwent Nerve conduction studies (NCS) and visual evoked potentials (VEP) were included in the study. The diagnosis of ADEM and ATM was made based on the clinical presentation and suggestive MRI findings.

Results: The sample consisted of 36 patents with ADEM with mean age of 28.7 years (range 4 to 65 yrs) and 20 cases of ATM with mean age of 30 years (range 3 to 60 yrs). Acute febrile illness preceded the onset of neurological symptoms in 72 percent of ADEM patients and 80 percent of ATM patients. NCS abnormalities were found in 31 percent of patients with ADEM and 56 percent of ATM. The commonest abnormalities were prolonged F wave latencies , reduced motor conduction velocities ,prolonged distal latencies and reduced motor action potential in that order. The commonest nerves involved are peroneal followed by median, ulnar and tibial nerve respectively. VEP were abnormal in 64 percent of ADEM and 50 percent of cases with ATM. The commonest abnormality was prolonged P100 latencies which were bilateral in 75 percent of ADEM and 100 percent of ATM cases.

Conclusion: Abnormalities of NCS and VEP are common in patients with ADEM and ATM. They provide the evidence that these diseases have more subclinical involvement and these tests may help in the diagnosis in the absence of clear radiological changes.

EFFECTS OF ENDOGENOUS SEROTONIN POTENTIATION ON PASSIVE AVOIDANCE LEARNING AND MEMORY IN RATS

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Introduction: Activation or blockage of serotonin receptors can induce alterations in learning and memory. The physiologic role of serotonin in different models of learning and memory processes, is not clearly understood.

Objective: In this study the role of endogenous brain serotonin on acquisition, consolidation and retrieval steps of passive avoidance learning and memory was investigated.

Material and methods: In this study,in the case groups Fluoxetine was administrated either orally before training (group 1) or retention (group 2), or by intraperitoneal injection after training of passive avoidance learning and memory tasks (group3), wjhile the control groups only received Saline without Fluoxetine. The data were analyzed by student t test for parametrical data, and Mannwhitney test for nonparametrical data.

Results: The number of learning trials for acquisition in the group receiving Fluoxetine before training, was more than control group. There were no significant differences in the step trough latency to the dark compartment and the time spent in the dark compartment between groups that received Fluoxetine or saline after training (consolidation),or the groups receiving oral Fluoxetine or saline before performance during the retention test.

Conclusion: It is concluded that, in the passive avoidance learning and memory task, potentiating serotonin function in the synapses, could decrease acquisition ($P < 0.05$), but cause no significant effect on consolidation and retrieval ($P=0.3$).

CERVICAL VESTIBULAR EVOKED POTENTIAL (CVEMP) BY AIR-CONDUCTED CLICKS IN VESTIBULAR NEURITIS

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Background and aims: The Vestibular evoked myogenic potential (VEMP) is introduced as an accepted method for testing the vestibulospinal pathways. Cervical VEMPs (cVEMPs) are ipsilateral inhibitory responses of the contracted sternocleidomastoid (SCM) muscles, which are elicited by loud clicks. Vestibular neuritis (VN) is a focal unilateral lesion of presumed viral etiology which results in partial or complete impairment of the peripheral vestibular system. We investigated the cVEMPs in patients with VN to characterize the changes.

Patients and methods: Twenty-five patients (16 BPV and 9 VN) were enrolled. cVEMPs were recorded using bilateral surface electrodes over the sternocleidomastoid (SCM) from air-conducted clicks via headphones. Patients were reclined in the supine position and instructed to lift their head against gravity during stimulation to activate the SCM.

Result: Among the 25 patients, 4 showed no cVEMPs bilaterally. The latencies of p13 were 12.4 ms in affected side and 12.8 ms in unaffected side. N23 latency was 21.2 ms in affected and 20.4 ms in unaffected side. The latencies of n34 and p44 were 32.5 ms and 42.0 ms in affected and 32.4 ms and 42.5 ms in unaffected side. The amplitudes of the click VEMP was 119.1 uV on affected side and 130 uV on unaffected side. No significant difference was observed between two groups.

Conclusion: Though click-evoked cVEMPs are reproducible and easy to perform, their diagnostic value in peripheral vestibular dysfunction seems to have limitation, and can be useful addition to existing vestibular function tests.

PSEUDORESISTANCE IN A SERIES OF 69 PATIENTS REFERRED FOR PRESURGICAL EVALUATION FOR 'REFRACTORY EPILEPSY': CAUSES AND CONSEQUENCES OF MISDIAGNOSIS

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Purpose: Among patients with drugs refractory epilepsy referred to our unit of epileptology for presurgical evaluation, different cases of misdiagnosis have been identified. Our purpose is to determine the causes and the consequences of such diagnostic errors.

Methods: Since 2005, detailed case histories of 302 'refractory labelled' patients have been collected. We excluded 72 cases because of their 'pseudorefractoriness' (suboptimal use of antiepileptic drugs (AEDs) or poor compliance). The remaining patients underwent video-EEG monitoring, MRI and neuropsychological exams.

Results: Within a series of 230 patients, 161 were good candidates for temporal lobectomy, 51 of which were successfully operated (82% Engel's class I). However, an erroneous diagnostic was found in 69 cases: 48 patients had psychogenic seizures (associated or not with epileptic seizures) and 21 had generalized idiopathic epilepsy including juvenile myoclonic epilepsy (12 cases) and absence (9 cases). All these patients were aggravated with inadequate AEDs. The complications were: repeated status epilepticus in 7 cases, reversible encephalopathy in 2, more frequent and severe seizures in 8 and a complete change of the clinical and/or electrical patterns in 4. Good outcome was observed under adequate AEDs. The factors leading to misdiagnosis included incomplete history-taking and misinterpretation of non usual lateralised EEG or MRI abnormalities.

Conclusion: In order to ovoid such misdiagnosis and their severe consequences, detailed case histories with careful analysis of electro-clinical and anatomical data in specialized unit of epileptology is always needed before claiming AEDs refractory response. When a doubt persist, video-EEG monitoring has also to be performed.

UNUSUAL NEUROMUSCULAR DISEASES AS COMPLICATIONS OF GRAFT VERSUS HOST DISEASE (GVHD)

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Introduction: Neuromuscular complications GVHD have been described but some features are unusual and diagnosis may be defying.

Patients and methods: The authors present 3 cases of neuromuscular complications that occurred in allogenic graft recipients. These neurological complications either occurred in the context of already known chronic GVHD or heralded an acute GVHD.

Results: Patient 1 who was diagnosed a few months earlier with a chronic GVHD after receiving allogenic hematopoietic stem cells for a type 2 refractory anemia with excess blasts, presented with painless asymmetric and rapidly progressive (over one month) upper limbs amyotrophic weakness. Electrophysiological studies (EMG and Evoked Motor Potentials) results were consistent with a motor neurone disease. Patient 2 presented with isolated, diffuse, rapidly progressive painful limbs retraction 6 months after receiving allogenic hematopoietic stem cells for an acute lymphoblastic leukemia. EMG was normal but MRI and histopathological examination showed evidence of fasciitis. Eighty four days after allogenic bone transplantation for a T-cells lymphoblastic leukemia patient 3 presented with an acute right upper limb painful and rapidly progressive muscle weakness and amyotrophy. EMG study was consistent with a brachial plexopathy.

Conclusions: Our observations emphasize the diversity of neuromuscular complications of GVHD as well as they may contribute to extend the etiological spectrum of some neuromuscular diseases.

CORTICAL ACTIVATION TO ACTION OBSERVATION AND MOTOR IMAGERY IS ASSOCIATED WITH MOTOR LEARNING: EEG EVIDENCE

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Introduction: Consisting evidence indicates that motor imagery (MI) and action observation (AO) are effective cognitive tools for motor learning, but data comparing the corresponding pattern of brain activation are lacking.

Objectives: To compare AO and MI in promoting early learning of a complex, unusual coordination task of the four limbs, using EEG and kinematic analysis.

Methods: Thirty healthy non-athlete right-handed participants (age 22,87 ± sd 3,26 years; M/F 13/17) were randomly assigned into 3 groups: AO (N=9), MI (N=12), Control (N=9). Subjects read a written explanation of the task followed by 7-minute training: AO watched a video of the task, MI

imagined it, Control (C) computed mathematics. Then they performed the task (3 min) with kinematics with error-time calculation. Task-related power was calculated with 32-channel EEG during training and execution, within four EEG frequency bands: α1 (10-11 Hz), α2 (12-13 Hz), β1 (16-17 Hz), β2 (22-23 Hz).

Results: AO performed significantly better than MI, with significant lower values of ET. During the training period α1 desynchronization was higher for AO group than MI group over the left frontocentral and bilateral parietal areas. During task execution the AO group had a stronger β1 synchronization than MI and C groups over left parietal region.

Conclusions: Sensorimotor activation to action observation was related to enhanced motor learning, corresponding to a lower, more efficient cortical activation during subsequent actual performance. The possible efficacy of action observation in promoting learning of a novel complex task may have rehabilitative implications.

AN UNUSUAL CASE OF SUBCLINICAL PERIPHERAL NEUROPATHY AND CERVICAL SPONDYLOSIS IN ATOPIC MYELITIS: REPORT OF A NEW CASE OUTSIDE JAPAN

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Object: Atopy is characterized by an overactive immune response to environmental factors. It may be associated with various neurological disorders, such as Hopkins' syndrome, Hirayama disease, idiopathic myelitis, mononeuritis multiplex (MNM) and cervical spondylosis (intervertebral disc degeneration). These conditions are related to allergic inflammation in the central/peripheral nervous system. Many cases of atopic myelitis have been reported in Japan since 1997, however very few described in western countries. Here we present a case of atopic myelitis with subclinical asymmetric peripheral neuropathy that had cervical spondylosis, hyperIgEaemia and atopic dermatitis.

Case presentation: An 82-year-old woman with a past medical history of atopic dermatitis and asthma presented with progressive paresthesia (tingling) of both hands and tetraparesis. Before the onset of neurological symptoms, she complained of ichthyosis of both legs for 5 weeks. Magnetic resonance imaging demonstrated multi-segmental degenerative arthritis and degenerative disc disease and abnormal spinal cord signal intensity over several cervical segments, suggesting the diagnosis of myelitis. Total serum IgE level was elevated. Nerve conduction studies revealed asymmetric axonal sensorimotor neuropathy. The cerebrospinal fluid specimen showed lymphocytic pleocytosis and elevated protein level. Based on clinical, imaging and laboratory findings, atopic myelitis was diagnosed.

Conclusion: We report a patient with tetraparesis due to subclinical asymmetric peripheral neuropathy, cervical spondylosis and myelitis. The diagnosis of atopic myelitis should be considered in myelopathy patients with history of atopy and elevated serum IgE levels.

DISFACILITATION OF FACIAL REFLEX RESPONSES PRESENTING AS PERIPHERAL FACIAL PALSY

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Objective: A case-report of facial disfacilitation that presented as peripheral facial palsy.

Patient presentation: A 71 years old female patient was admitted because of facial weakness and lateralized walk. Her medical history was relevant for aortic bioprosthesis 6 years ago because of aortic insufficiency, COPD and hepatic cholangiocarcinoma treated with surgery two months before.

Her physical examination showed right hemifacial weakness, horizontorotatory nystagmus to left lateral gaze, ataxia of left limbs, and a spinothalamic syndrome affecting the left hemibody. The DWI sequences in the MRI demostrated several ischemic infarctions, affecting the right lateral bulbar territory, the middle left cerebellar peduncule and the right pons. An EMG was performed for evaluation of the right hemifacial weakness, which was graded IV in the House-Brackmann scale.

In the blink reflex, the responses obtained from stimulation on the ipsilateral side of the paralysis were strictly normal, consistent with functional integrity of the right trigemino-facial pathway. In contrast, the R2c response to stimulation of the left (contralateral) supraorbital nerve was absent, while the left R1 and R2 remained normal. The facial CMAP showed a completely preserved excitability of facial motor axons, with an amplitude of 2.8 mV on the right side and 3.0 mV on the left side.

Conclusion: Our results indicate a dysfunction in the pathway between the left trigeminal and the right facial nerves, with integrity of the right trigemino-facial reflex arc. We hypothesize that facial palsy in this case could have been due to disfacilitation of facial reflexes.

ELECTROPHYSIOLOGICAL EVALUATION OF P40 AND CCT IN EARLY STAGE OF AMYOTROPHIC LATERAL SCLEROSIS

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Introduction: The advent of potentially effective drugs to stop or slow the progression of ALS has renewed in the past decade interest in the natural history and early diagnosis of the disease.

Objectives: Determine changes of latency P40 and CCT in lumbar area of PESSt in course of the common wealth.

Methods: We studied P40 in 32 patients with a confirmed diagnosis of ALS according to El Escorial criteria (mean time from symptoms onset: ten months) and CCT localized in L1, using norms of department.

Results: We analyzed P40 component latency and CCT in L1. Absolute P40 latencies were increased above the upper limits of normality for age and height in 25 of 32 patients. The CCT was absents in 3 patients and 2 shows prolonged above 30 mseg.

Conclusion: Presence of interconnections between the system and pyramidal neurons in the sensory areas, given the influence of the motor cortex in the ascending sensory pathways, we might explain these findings.The absent of CCT lumbar would have any relations with problems in medulla or encephalic area in specifics. We are sure that the PESSt to would help in future to understanding the progress and possible cure to ALS. If any years ago, the P40 was helped in the differential diagnostic in patients with ALS, at this moment this criteria can varieties, and to open the universe of study with the incorporation of the electrophysiological studies in ALS.

GUIDING OR CONFIRMING VALUE OF INTRAOPERATIVE NEUROPHYSIOLOGICAL MONITORING IN INTRAMEDULLARY SPINAL CORD MASS LESION SURGERY?

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Objectives: Intraoperative neurophysiological monitoring (INM) of motor responses has beneficial value during intramedulary spinal cord tumours (IMSCT) surgery.

Aims: Assess proportion of INM guided surgery.

Determine rate of INM guiding value according to histological type of lesion.

Material and methods: From 1/2004-9/2010 there were operated 64 patients suffering from IMSCT with obligatory INM, (17-84 years old).

Preoperative modified McCormick scale (mMCS): 1-2: 40 (62.5%), 3-4: 24 patients (37.5%).

INM: muscle MEPs (mMEPs) were monitored in 64, D-wave in 53 pts (82.8%). Monitorability was in mMEPs: 43 (67.2%), D-wave: 52 (98.1%). All patients had monitorable at least one of responses.

Results: Radical resection was achieved in 43 cases (67.2%)- (ependymomas in 16 of 21 patients (76.2%), astrocytomas in 4 of 10 (40%)).

mMCS 3 months after surgery was 1-2: 42 (65.6%), 3-4: 21 pts (32.8%), one patient died (1.6%).

Cohort was divided into 2 groups:

1) INM guided surgery (GS) - resection progress was modified according to significant INM changes.

2) INM controlled surgery (CS) - progress of surgery was conducted only by neurosurgeon.

Group 1 - GS: 38 (59.4%), group 2 - CS: 26 (40.6%).

INM influence on histology: ependymomas: GS - 10 cases (47.6%), CS - 11 (52.4%), astrocytomas: GS - 7 (70%), CS - 3 (30%), cavernomas: GS - 3 (30%), CS - 7 (70%), hemangioblastomas: GS - 2 (25%), CS - 6 (75%).

Conclusion: IMSCT surgery was guided by INM in almost 60% cases. INM guiding value was pronounced mainly during astrocytoma resection.

INTRAMEDULLARY SPINAL CORD TUMOURS SURGERY - VALUE OF INTRAOPERATIVE MONITORING

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Objectives: Intramedullary spinal cord tumour (IMSCT) surgery still belongs to high risk procedures. Intraoperative neurophysiological monitoring (INM) of motor tracts is thought to decrease rate of bad outcome.

Aims: Comparison of surgical treatment results before and after establishing INM using transcranial motor evoked potentials (TcMEPs).

Material and methods: Group A- Non-IOM: 29 patients (18 males, 11 females), mean age 49.6, period from 1/98 to 12/04, were reviewed retrospectively. Preoperative modified McCormick scale (mMCS) 1-2: 15 (51.7%), 3-4: 14 (48.3%); mMCS 3 months after surgery 1-2: 12 (41.4%), 3-4: 17 (58.6%).

Histological findings: Ependymoma 16x (55.2%), astrocytoma 2x (6.9%), others 11x (37.9%).

Group B - IOM: 61 patients (37 males, 24 females), mean age 42.8, period from 1/05 to 6/10, operated with routine INM using TcMEPs . Preoperative mMCS 1-2: 36 (59.0%), 3-4: 25 (41.0%); mMCS 3 months after surgery 1-2: 35 (57.4%), 3-4: 25 (41.0%), 1 patient died (1.6%) 3 days after surgery - multiorgan failure.

Histological findings: ependymoma 22 (36.1%), astrocytoma 9 (14.7%), cavernoma 9 (14.7%), hemangioblastoma 7 (11.5%), others 14 (23.0%).

Results: Radical and subtotal resection were achieved in 9 patients (31.3%) in group A and 42 (68.9%) in group B (p=0.0007). Postoperative worsening 3 months after surgery was nonsignificantly higher in group A.

Conclusions: INM on motor tracts belongs to one of significant factors influencing postively outcome of IMSCT treatment.

Comparing to non-IOM group radicality increased highly significantly withou any increase of permanent morbidity.

VISUAL EVOKED POTENTIALS IN B12 VITAMINE DEFICIENCY: A PRELIMINARY STUDY

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Background and objective: Cerebral white mater, dorsal spinal cord and peripheral nervous system involvement are common features of vitamin B12 deficiency. However, optic neuritis is a rare complication of the disase. Previous magnetic resonence imaging (MRI) and evoked potential (EP) studies performed in vitamin B12 deficiency, demonstrated the existence of demyelination at the white mater of spinal cord and optic nerve.The aim of this study is to investigate the possible relationship between serum vitamin B12 levels and P100 latency and amplitudes in patients with vitamin B12 deficiency without optic neuritis via visual EP.

Materials and methods: Nineteen patients (6 female, 13 male) who are diagnosed as B12 deficiency in our outpatient neurology clinic were enrolled to the study. None of them had optic neuritis. Mean age was 52.68±15.10 years old (range=19-75 years). Mean vitamin level was 60.41±44.59 pg/ml (range=78-230 pg/ml).

Results: Statistical analysis were performed by nonparametric correlation test and Spierman´ s rho test. There was no statistically significant correlation between serum vitamin B12 level and P100 latency and amplitudes.

Conclusion: Our study revealed that there is no significant correlation between serum B12 levels and P100 latency and amplitudes in vitamin B12 deficient patients without optic neuritis.

EFFECT OF ATYPICAL ANTIPSYCHOTICS, ZIPRASIDONE AND QUETIAPINE, ON NITRIC OXIDE AND INTERLEUKIN-8 PRODUCTION BY LIPOPOLYSACCHARIDE-ACTIVATED OLIGODENDROCYTES

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Schizophrenia is a chronic, severe, and disabling brain disorder, characterized by neuroinflammatory process associated with an increased serum concentration of several pro-inflammatory cytokines. Ziprasidone and quetiapine are novel antipsychotic drugs and shown to have superior ability in the treatment of cognitive symptoms in schizophrenia in comparison to typical antipsychotic drugs. The aim of this study was to evaluate whether treatment with atypical antipsychotics ziprasidone and quetiapine have an anti-inflammatory effects on lipopolysaccharide (LPS)-activated mouse oligodendrocytes (OLP) by measuring nitric oxide (NO) production and interleukin (IL)-8 release, involved in neuroinflammation and immunogenetics in schizophrenia. LPS-activated OLP were treated with ziprasidone and quetiapine at 1 and 10 µM for 72 hours. Cell viability was evaluated by MTT assay. NO production was determined with a colorimetric assay, using Griess reagent. IL-8 release was quantified through a specific ELISA kit. The results demonstrated that both atypical antipsychotics significantly and in concentration-dependently inhibited NO production by LPS-stimulated OLP, while only quetiapine notably inhibited IL-8 release. Under the experimental conditions in the present study, tested drugs did not show any significant cytotoxicity, both in stimulated and in unstimulated cells. In conclusion, atypical antipsychotic ziprasidone and especially quetiapine may have anti-inflammatory effect via the inhibition of OLP activation which are known to sustained inflammation in central nervous system by pro-inflammatory and neurotoxic factors.

THE PREVALENCE OF PSYCHOGENIC NON-EPILEPTIC SEIZURES IN AN EPILEPSY MONITORING UNIT

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Psychogenic non-epileptic seizures (PNES) are an increasing phenomenon and yet continue to pose a diagnostic challenge to clinicians. Video-electroencephalographic monitoring (VEM) is widely considered to be the gold standard for the diagnosis of PNES given the clinical similarities they can share with epileptic seizures (ES).

A retrospective study of 27 patients (20 female, 7 male; mean age 41 years) with a confirmed diagnosis after undergoing VEM in the epilepsy monitoring unit of a tertiary referral hospital from January 2010 to May 2011 was reviewed.

The prevalence of PNES was found to be approximately 45% (11 female, 1 male) contrary to literature estimations of 10-30%. The comorbidity rate of patients with a previous diagnosis of epileptic seizures who presented with PNES was approximately 16.7%. The consequences of these findings play a significant role given the complexities faced with diagnosis, extensive patient waiting lists, debilitating health care costs and the importance of ongoing care for patients diagnosed with PNES.

AN ANALYSIS OF NERVE CONDUCTION STUDY: DEMOGRAPHIC AND ELECTROPHYSIOLOGICAL CHARACTERISTICS

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Background: Nerve conduction study (NCS) assesses peripheral nerve functions and is indicated in nerve or/and muscle disorders. This study is an attempt to describe the pattern of neurological disorders.

Objective: To study demographic and electrophysiological profile of patients.

Setting and design: Retrospective study done in electrodiagnosis Lab II of Department of Physiology, Dharan, Nepal.

Materials and methods: Demographic profiles, provisional clinical and electrophysiological diagnoses of 475 NCS recorded since Nov 2006 to Aug 2010 were analyzed.

Statistical analysis: Detail descriptive statistics was done. Pearson´s Chi-squared test was used to find correlation between clinical and electrophysiological diagnoses.

Results: Age of the patients' ranged from 2.5 to 88 (41.5±18.6) years. Middle age (36-60 years; n=203, 42.73%) group was the most commonly referred. Males (n=284, 59.8%) were more referred with tingling sensation (n=71, 17.88%) as the most common complaint followed by weakness of extremities (n=64, 16.12%). Maximum referrals were from Internal Medicine (n=320, 67.4%). Maximum cases were diagnosed as neuropathy (n=314, 66.1%), chronic axonal type (n=169, 53.82%) being the most common. Carpel tunnel syndrome was the second commonest diagnosis. Mixed nerves (n=186, 60.8%) were most commonly involved followed by motor (n=74, 24.18%), and sensory nerves (n=46, 15.03%). A significant correlation ($p < 0.01$) was seen between clinical and electrophysiological diagnoses.

Conclusion: This study showed that the males of middle age group were the most affected/referred with a commonest complaint of tingling sensation. It provided different pattern of neurological disorders and confirmed the correlation of electrophysiological diagnoses with provisional clinical diagnoses.

DEVELOPMENT OF CHRONIC FATIGUE SYNDROME IN STUDENTS

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The aim of the study was to determine factors that are responsible for the development of chronic fatigue syndrome. In order to identify the presence of chronic fatigue syndrome we used “The degree of chronic fatigue syndrome” test. 191 healthy volunteers (women and men) - students aged 17 to 24 years participated in this study. In 95 volunteers the symptomes of chronic fatigue were absent, in 37 we found the primary stage of chronic fatigue, in 28-apparent stage, in 21-acute stage and 10 volunteers were diagnosed with pathological states. The correlation analysis was carried out using the Speerman rank test. The Wilcoxon test was carried out for the comparison the independent samples data. It is shown that both in men and women the development of chronic fatigue is determined by levels of neuroticism, anxiety, trait anxiety, emotional response to the influence of environmental factors, strengths of excitation, inhibition and mobility of nervous processes. EEG was registered over a period of 3 minutes during the rest state. The spectral power density (SPD) of all frequencies from 0.2 to 35 Hz was estimated. We detect SPD increase in gamma-band (F7, C3 registration sites), theta-1 (F3, Fz, T4, C3, P3, O1) and theta-2 (F3, Fz, P3) subbands in volunteers with pathological states. We observed also a local SPD increase in alpha-1 (P4), alpha-2 (F4) and beta-2 (T4) subbands. Thus, we demonstrated the determinants of chronic fatigue syndrome in students and figured out the manifestations of chronic fatigue that border on the pathological states.

UNUSUAL BLINK REFLEX: ABSENT R1 RESPONSE ON IPSILATERAL SUPRAORBITAL NERVE STIMULATION BUT PRESENT DURING CONTRALATERAL STIMULATION

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Background: Early or R1 motor response from the orbicularis oculi (o. oculi) muscle is obtained only unilaterally from ipsilateral supraorbital nerve stimulation, while the late or R2 response is present bilaterally during ipsilateral and contralateral stimulation.

Case material: A 29-year-old woman developed horizontal diplopia, left facial numbness, and occasional left eyelid twitching. Otherwise, she was healthy. Examination showed left 6th cranial nerve palsy and decreased left facial sensation. There was no blepharospasm, myokymia, or facial muscle weakness.

Electrophysiologic findings: Motor nerve conduction study of both facial nerves and needle EMG of left facial muscles showed no abnormality. Blink reflex study revealed no R1 response from the left o. oculi muscle on ipsilateral supraorbital nerve stimulation, but present during contralateral stimulation (latency = 11.4 ms). R2 responses from the left o. oculi muscle showed normal latencies during contralateral (31.2 ms) and ipsilateral (30.8 ms) stimulation. R1 latency from the right o. oculi muscle was 10.0 ms and the R2 responses showed normal latencies during contralateral (31.0 ms) and ipsilateral (31.9 ms) stimulation.

Conclusions: Absent R1 response during ipsilateral stimulation suggests abnormalities in the main sensory nucleus of the pons. Presence of an R1 response from the o. oculi muscle during contralateral supraorbital nerve stimulation is unusual. This may indicate cross excitation of the facial nucleus from contralateral trigeminal sensory nerve impulses that are not involved in the usual multisynaptic pathways responsible for eliciting the R2 contralateral response. Perhaps this is a result of CNS demyelination.

EFFECTIVENESS OF INTRADERMAL ONABOTULINUMTOXINA IN INTRACTABLE POSTHERPETIC NEURALGIA

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Purpose: OnabotulinumtoxinA (BoNT) has recently been tried as one of the treatment modality for refractory pain. This report includes 8 cases of IPHN treated successfully with intradermal BoNT.

Material and design: Eight cases of IPHN (Mean age =48 ±34 years; Age range =50-80 years, M:F=5:3) were enrolled. Six had cranial trigeminal nerve (V1, V2) and two had segmental involvement (thoracic). The duration of IPNH ranged from 7 to 48 months (mean: 16.7 months). IPHN was defined as severe, persistent pain which failed to respond to 2 or more maximally tolerated doses of conventional drugs. Pain severity was assessed using visual analogue scale (VAS-0: no pain; 10: maximum pain). Ice cubes were applied for one minute before injecting BoNT to reduce injection associated pain. Intradermal BoNT (Botox-Allergan® Inc. USA) 2.5 units was given at multiple sites 2 cm apart in the affected regions (face/trunk). VAS was administered at baseline, and at weekly intervals.

Results: Five out of eight had significant pain relief on BoNT injections. Two reported worsening of pain. Total BoNT dose ranged from 50-100 units. Onset of effect was on 7th day. Mean VAS score dropped from 8.14 ±0.90 to 2.29±0.76 (p-< 0.0001, 95% CI 4.89 to 6.82). Improvements also occurred in allodynia and dysaesthesia. Mean duration of effect was 74 ±21 days. No local or systemic side effects were noted.

Conclusion: BoNT showed statistically significant improvements in IHPN.

EVALUATION OF THE EFFECT OF VITAMIN E ON PELVIC PAIN REDUCTION IN WOMEN SUFFERING FROM PRIMARY DYSMENORRHEA

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Objective: To evaluate the effect of vitamin E on the reduction of pelvic pain in women suffering primary dysmenorrhea.

Methods: A double blind randomized clinical trial was performed on 120 women suffering primary dysmenorrhea.94 women finished the study.

In the case group (n= 42) vitamin E and in the control group (n=52) placebo was prescribed. Pain severity was evaluated using Visual Analogue Scale (VAS) .

Results: There was no significant difference between the two groups according to blood group, age, family history of dysmenorrhea, educational status, and BMI (body mass index).

The mean pain severity before the study did not show any significant difference between the two groups. (7.15± 1.75 in the case group and 7.47±1.82 in the control group, P=0.3).

Pain severity during the first month of the study was 5.41 ±2.4 in the case group and 5.76±2.08 in the control group (P=0.1) and 4.73±1.89 and 5.35±2.05 in the case and control group respectively during the second month of the study (P=0.6).

Pain severity during the first (P=0.001) and second (P=0.001) months of treatment with vitamin E and placebo was lower than the pain severity before treatment.

The mean reduction of pain in the case group (-2.7±2.1) was more than the control group (-1.8±2.4), during the second month of the study (P=0.04).

Therefore vitamin E can lower the pain severity of dysmenorrhea more than placebo.

Conclusion: Vitamin E and placebo both, may reduce the pelvic pain of dysmenorrhea, but vitamin E can cause a more significant reduction.

HOME BASED CARE OF PARAPLEGICS/QUADRIPLEGICS BY PALLIATIVE CARE PHYSICIANS IN A DEVELOPING COUNTRY -RAY OF HOPE FOR THE PHYSICIAN ABANDONED

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Introduction: Primary neurological illness accounts for a major chunk of the palliative care receiving patients (30-40%), within which paraplegic/quadriplegics contribute ~20%.

Objectives:

1) To identify the problems faced by the paraplegic/quadriplegic patient's and their families at their residence.

2) To know whether regular home-based or hospital based follow up care is beneficial.

Materials and methods: Prospective study conducted at 2 major palliative care centers in Kerala-Trivandrum & Thrissur from 2007-July to 2009 -July. All patients (both cancer & non cancer) registering was included and screened for neurology related problems and referred to the neurologist who would visit their houses with the palliative care team. He would first confirm the diagnosis and treat the treatable if any. Then they would be administered a multimodal management at home which consist of medical, physical and psychosocial rehabilitation of the patient and their family. Monthly follow up was performed. Appropriate scales (ADL) were applied too. In this study only data regarding patient´s with traumatic spinal cord injury is presented.

Observation: Comparing the data received from 2 centers, (Trissur: 1543-total, 239-purely neurological,41-paraplegics/4-quadriplegics & Trivandrum:1165-total,184-purely neurological,28-paraplegics/4-quadriplegics) spinal cord injured patients accounted for ~20% of the neurological patients.76%had not seen a neurologist for at least 6 months. 20% paraplegics had improvement in ADL at 1yr followup.

Conclusion: ADL of paraplegics improve if proper interventions are given even at a late stage. Home based follow up care was found to be more acceptable for the city inaccessible& lower socioeconomic groups than hospital-based care.

GAYET-WERNICKÉ'S ENCEPHALOPATHY. A STUDY OF 13 CASES OBSERVED IN A REFUGEE POPULATION HOSPITALIZED AT THE CONAKRY TEACHING HOSPITAL

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The authors report 13 cases of Gayet-Wernicke's encephalopathy observed in 13 patients of arefugee population. 11 presented the classical triad: oculomotor signs, cerebral ataxia and state ofconfusion and in 2 patients, only 2 symptoms were noted. The etiological factors: chronic alcoholism,malnutrition, incontrollable vomiting, HIV and tuberculosis were identified. The outcome wasevaluated on the basis of the disappearance of symptoms after treatment with 500 mg of thiaminein 7 patients, 1 death and 5 patients progressed toward Korsakoff amnesic syndrome.

INSUFFISANCE CARDIAQUE GLOBALE RÉVÉLATRICE D'UN SYNDROME DE FAHR ASSOCIÉ À UNE PSEUDOHYPOPARATHYROIDIE

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La maladie de Fahr associe des troubles neuropsychiques divers à des calcifications des noyaux gris centraux. La présence de troubles du métabolisme phosphocalcique définit le syndrome de Fahr. La cardiomyopathie hypocalcémique secondaire à une pseudohypoparathyroidie (PHP) est une association très rare.

Nous rapportons l'observation d'un jeune patient de 30ans suivi depuis son enfance en neurologie pour une epilepsie généralisée. Il était admis dans un tableau d'insuffisance cardiaque globale. L'échocardiographie met en évidence une dysfonction biventriculaire sévère. Le bilan phosphocalcique a objectivé une hypocalcémie profonde associée à une hyperphosphatémie avec un taux sérique de parathormone normal. La tomodensitométrie cérébrale réalisée devant l'apparition de trouble psychique a révélé des calcifications bilatérales des noyaux gris centraux. La correction des troubles phosphocalcique amena à une légère amélioration clinique et biologique. Le patient est décédé dans un tableau de choc cardiogénique.

Le syndrome de fahr est rarement associé à une PHP. Le mécanisme de la dysfonction ventriculaire secondaire à la PHP est mal connu mais reste lié principalement à l'hypocalcémie. Cette insuffisance cardiaque est généralement réversible à une supplémentation par du calcium et de la vitamine D, d'où l´intérêt de les doser systématiquement devant une cardiomyopathie avec dysfonction ventriculaire ainsi que devant des manifestations neuropsychiques associées à des calcifications des noyaux gris centraux.

PYOGENIC BRAIN ABSCESSES CAUSED BY *SERRATIA MARCESCENS* IN A BRAZILIAN PREMATURE NEONATE. CASE REPORT

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Introduction: Brain abscess is a serious infectious life-threatening condition.

Case report: A male was born by cesarean at 32 weeks of weighting 1985g, patient started presenting shortness of breath and chest discomfort. He was cyanotic with blood oxygen saturation between 78% and 82%, despite the continuous positive airway pressure (CPAP). The patient underwent mechanical ventilation and surfactant associated with empiric antibiotic therapy was initiated. An atrial septal defect was also identified on day 4 during echocardiogram. On day 11, the patient started presenting fever, tachypnea and reduced activity on bed. Blood culture yielded *Serratia marcescens* and antibiotics were changed to Meropenem, according to in vitro sensibility assays. Over the next nine days, his clinical conditions gradually improved. On day 21, however, fever and laboratorial studies worsened. Ultrasound exam revealed a large heterogeneous mass on the right frontal lobe and Magnetic Resonance Imaging (MRI) showed the equivalent lesion with regular gadolinium-enhancing boards and water restriction on Diffusion-Weighted MRI. Spectroscopy revealed lipid content on the lesion. As no other abnormality was found, a diagnosis suspicion of multiple brain abscesses was raised. Neurosurgical consultation was immediately requested for abscess drainage by direct needle aspiration. Culture of abscess fluid also revealed *Serratia marcescens* with similar sensibility spectrum to antibiotics.

Conclusions: *Serratia marcescens* is an important agent of brain abscess in premature newborn in NICU. Early suspicion, proper diagnostic measures and immediate neurosurgical consultation - associated with aggressive antibiotic therapy - seems to be the essentials steps on the management.

SARCOID MYOPATHY: ONE CASE REPORT

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Introduction: Sarcoidosis is a multisystem granulomatous disorder of unknown etiology characterized by non caseating granulomas. Nervous system involvement occurs in less than 10% of the patients with sarcoidosis. Asymptomatic muscle involvement commonly happens in patients with sarcoidosis varying from 50 to 80% of cases. Muscle involvement with clinical repercussion is a rare condition and it has already been described in less than 0, 5% to 2, 3% of the patients diagnosed as being afflicted by sarcoidosis.

Case report: The patient a woman aged 36 developed chronic myopathy wich was predominantly proximal, painful and had normal level of CPK. The EMG was myopathic, the muscle biopsy showed a mononuclear cell infiltrate with the formation of non caseating granulomas. A thoraco abdominal CTScan was performed and showed mediastinal and abdominal adenopathy.

Discussion: Symptomatic muscle involvement in neurosarcoidosis is rare. In our case the myopathy was the initial manifestation of sarcoidosis.The involvement of other systems was noted while laboratory values and imaging were performed. The patient partially responded to steroids.

Conclusion: Chronic myopathy has been the most frequently reported type of sarcoid myopathy. The response to prednisone is unpredictable. Excellent results have been obtained in certain cases, while in others there has been no response to corticosteroids.

OCCULT SPINAL DYSRAPHISM PRESENTING AS ASEPTIC MENINGITIS

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Introduction: Spinal dysraphism is known to have diverse consequences. We describe a case of chemical meningitis resulting from ruptured dermoid cyst with associated congenital dermal sinus.

Case report: A 17-years old college boy presented with three days of headache, vomiting, photophobia and low grade fever. The symptoms started after minor head injury. Headache was constant, moderate in intensity, over occipital and neck regions. Examination revealed signs of meningism. His fundoscopy showed papilledema. He was noticed to have a hyper-pigmented nodule at the back of his neck at level C3 of spine. CSF analysis had high white cell count (97% neutrophils), high protein(58mg/dl) with normal glucose level. CSF gram stain, culture, PCR for different viruses and mycobacterium were negative. MRI Spine showed multiple foci of fat densities in the subarachnoid space and within the ventricles, with evidence of fibrous band extending from the dorsal aspect of the cervical spinal cord to the subcutaneous tissues at the upper cervical region with associated dermoid cyst seen at C1-C2 level. There was associated spina bifida of the posterior neural arch of C1& C2.

Conclusion: The patient had congenital dermoid cyst, sheer force of trauma ruptured the cyst leading to spillage of its content to the surrounding CSF space. The fat droplets traveled rostrally along the CSF pathway. The subarachnoid fat goblets are thought to incite chemical reaction leading to leukocyte response and meningitis. This case emphasizes the need for a vigilant radiological work up for spinal dysraphism in cases of aseptic meningitis.

VITAMIN B12 DEFICIENCY MANIFESTED BY COMBINED SPINAL SCLEROSIS AND THROMBOEMBOLIC EVENTS

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Introduction: Vitamin B12 deficiency can cause hematologic manifestations, and more rarely neurological complications and thromboembolic accidents probably explained by hyper-homocysteinemia.

Case report: A 56−year−old man was hospitalized for combined sclerosis syndrom. Two months ago, he had a deep venous thrombotic event involving the left leg complicated by bilateral pulmonary embolism with a thrombus in the inferior vena cava. The biological data showed macrocytic anemia, low level of vitamin B12 and hyperhomocysteinemia. The diagnosis of Vitamin B12 deficiency with a secondary hyperhomocysteinemia was diagnosed. The patient improved under anticoagulant treatment combined with oral vitamin B12.

Conclusion: Vitamin B12 deficiency can cause acquired hyperhomocysteinemia, which is considered as a risk factor for deep venous thrombosis. Thus, vitamin B12 deficiency should be considered when thrombosis occurs along with combined sclerosis syndrom or macrocytic anemia.

NEUROLOGICAL MANIFESTATIONS OF CELIAC DISEASE

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Introduction: The celiac affection of the adult is a frequent pathology with various neurological manifestations.

Case report:

Case N 1: 33-year-old woman without considerable pathological history waits which presents, for 6 months before its hospitalization, disturbance of gait of progressive installation and a chronic diarrhea, the clinical examination found a tétra-pyramidal and blurred syndrome of the deep sensibilté.

Case N 2: 33-year-old man without considerable pathological history which presents, for 2 months before its hospitalization, disturbance of gait of progressive installation and a chronic diarrhea, the clinical examination found a cerebellar syndrome static and kinetic. The cerebral imaging was normal, the balance sheet objectivized a deficiency in vitamin B12 and in folic acid, a nutritional anemia.

Case N 3: 16-year-old woman, without pathological history, presented 5 years ago movement disorder of blateral upper limbs with right predominance. General and Neurological exams found an anaemia and a generalized chorea. Brain MRI was normal. Vitamin B12 and Vitamin E were decreased. The oeso-gastroduodenal fiberscopy with fundic, antral and jejunal biopsies performed the diagnosis of celiac affection. The evolution was unchanged under vitamin B12 and E supplementation and gluten free regimen.

Discussion: The celiac affection is an auto-immune chronic inflammatory enteropathy provoked by a food antigen the gliadine of the gluten. The neuropathologic aspects are heterogeneous, the implied mechanisms are badly known.

Conclusion: Neurological manifestations of celiac disease are diverse. This disease can occur at any age. The precocious diagnosis and adequate treatment can ovoid severe complications.

NEUROLOGICAL INVOLVEMENT IN BEHÇET'S DISEASE: DEMOGRAPHIC, CLINICAL AND GENETIC FEATURES IN 121 TUNISIAN PATIENTS

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Introduction: The aim of our study was to show the frequency of neurological involvement in Behçet's disease and to analyze their demographic, clinical and genetic features.

Patients and methods: Files of BD patients followed between 1987 and 2009 were retrospectively studied. Magnetic resonance imaging was performed, when it is possible, in case of headache or focal neurological signs. Demographic, genetic and clinical data was compared in patients with and without neurological involvement. Statically analysis was made by SPPS 11.0.

Results: 430 patients with BD were included. Neurological involvement was documented in 121 patients (28.1%). They were 78 men and 43 women. Their mean age at diagnosis was 29.7 years. The mean delay to BD diagnosis was 5 years. 56 patients complained of headache. Pyramidal syndrome, cerebellar signs and bulbar syndrome were noted respectively in 86, 9 and 9 cases. 5 patients present convulsive seizure. Nine patients had presented a peripheral neuropathy. 40 patients had aseptic meningitis. MRI was done in 92 patients. Central nervous parenchymal involvement was noted in 74 patients (80.4 %): lesions were hemispherical in 41 cases and concerned the brainstem in 20 patients. Both spinal cord and cerebellar lesion were noted in 4 cases. Cerebral vascular lesions was seen in 35 cases (34.9%), cerebral venous thrombosis in 24 patients, arterial thrombosis in 11. Isolated intracranial hypertension was observed in 7 cases.

Conclusion: Comparison between patients with and without neurological involvement shown that only HLA B51 was significantly less frequent in patients with neurologic lesions.

CLINICAL AND NEUROIMAGING MANIFESTATIONS OF NEUROSARCOÏDOSIS

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Introduction: The clinical features of sarcoïdosis are protean and varied. It affects the nervous system in 5-10% of patients.

Objective: To describe clinical and neuroimaging manifestations of neurosarcoidosis in a cohort of 92 sarcoïdosis patients.

Patients and methods: We reviewed records of 7 patients with sarcoïdosis and central nervous system manifestations followed between 1997 and 2010, with emphasis on neuroimaging findings and associated clinical and laboratory evidence of sarcoïdosis.

Results: A total of seven patients (7.6%) were diagnosed with neurosarcoidosis. All our patients were female with an average age of 38 years old. Neurosarcoidosis was inaugural in two cases. One patient presented acute meningitis and seizures. Five patients presented with chronic headache. Four patients developed neuropsychiatric troubles. Symptoms and signs of meningitis were present in 5 patients. Neuro-endocrine manifestations were reported in three cases to type of secondary amenorrhea. Cranial nerve palsies were reported in 4 cases. The CSF examination was carried out in 5 of 7 patients and showed hypercellularity in 5 cases, hyperproteinorachia in 3 cases and hypoglucorachia in 1 case. MRI showed abnormalities in the clinically affected area in all cases. Leptomeningeal enhancement was found in 6 cases. Granular lesions imaging were noted in the basal cisterns (2 cases), the optic nerves, pituitary stalk and the brain stem in one case. Ventricular dilatation was recorded in two cases and in one case we report isolated large cystic temporal lesions which give rise to temporal commitment.

Conclusion: Sarcoïdosis is associated with diverse neurological manifestations and neuroimaging findings.

SYSTEMIC DISEASES REVEALED BY NEUROPSYCHIATRIC FEATURES

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Introduction: Isolated or predominant neurological signs may reveal a systemic disease. They carry out a clinical picture usually serious and atypical. Their diagnosis is difficult and often delayed.

Observations: We report 12 observations of patients admitted in the internal medicine department of Razi neuropsychiatric hospital, between 2000 and 2010 and suffering from a systemic disease announced by neuropsychiatric signs. They are 3 men and 9 women, aged from 24 to 80 years: four cases of Sjögren´s syndrome, three cases of systemic lupus, one case of primary antiphospholipid syndrome, two cases of Behçet disease, one case of polyarteritis nodosa, and one case of dermatomyositis. The neurological features are central in 9 cases, peripheral in 2, central and peripheral in 1. A biological inflammatory syndrome is found in 10 cases, anti-nuclear antibodies are positive in all cases of connective tissue diseases. Brain lesions are detected by imaging in 7 of 10 of central nervous impairment cases. The specific treatment of systemic disease is followed by neurological disorders improvement in 10 cases of 12.

Discussion: Connective tissue diseases are the most frequently involved especially Sjögren syndrome and systemic lupus. Some clinical extra-neurological clues should be sought thoroughly (Raynaud´s syndrome, sicca syndrome, skin rash, vascular purpura) as signs of great diagnostic orientation value. Biology is also useful in objectifying an unexplained biological inflammatory syndrome, almost constant.

Conclusion: Systemic disease should be systematically discussed in any neurological symptoms, regardless of age, especially in women. The specific treatment of the disease improves neurological signs.

BEHÇET'S DISEASE IN BLIDA HOSPITAL

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Introduction: Behçet´s disease is a complex multisystemic disease, its cause still unknown. Neurological involvement is observed according to the series in5 to 35% of the cases and constitutes the leading cause of morbidity and mortality.

Methods: We report a retrospective study of 43 cases of Behçet´s disease with neurological attack examined in the department of neurology (CHU Blida) over a period from January 2004 to December 2010.

Results and discussion: All the patients answered the Diagnostic criteria for Behçet's disease at the inclusion. The onset can occur at any age, but is it most common during the third decade 33.5 years. The sex ratio was 1. Oral ulcerations were present among all our patients. The clinical presentation was polymorphic, it was dominated by meningoencephalitis (parenchymal) and venous thrombophlebitis (non-parenchymal). MRI has a fundamental role, it remains the gold standard in this disease, it has a variable expression and topography. Unlike The parenchymal attacks which had most often unfavourable evolution, the non-parenchymal attacks had a favorable one.

Conclusion: Behcet´s disease is relatively a frequent pathology in the Mediterranean. It should be considered in any nervous system's recurrent and/or severe inflammatory process especially in patients from a highly endemic.

ISOLATED MYELITIS IN BEHCET´S DISEASE: REPORT OF SIX CASES

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Introduction: Neurological complications of Behçet´s disease (BD) usually include dural sinus thrombosis and meningoencephalomyelitis. Isolated myelitis has been reported in only a few cases.

Result: We report six cases of isolated myelitis during BD, four men and two women; with mean age of 27 years and a mean follow up of 40 months. All patients fulfilled the clinical criteria for the International Study Group for BD. The myelitis was acute in 4 cases; subacute in 2, and it was manifested by sensory-motor symptoms with or without sphincter or sexual dysfunction. The spinal MRI showed multifocal signal abnormalities in cervico-dorsal level in four cases, a longitudinally extensive lesion in one, and was normal in one case. Cerebral MRI was normal in all cases. The CSF analysis was done in four cases and shows a high pleiocytosis in two, and elevated protein in one. Infectious and immunological tests were negative. All patients received corticosteroids, with combination of intravenous cyclophosphamide in four. The follow up was marked by a partial improvement in all patients without recurrence.

Discussion: The isolated spinal cord damage is very rare in NBD. Only ten cases have been reported in detail in the English literature (Jiro Fukae, 2010). The spinal MRI usually showed multifocal T2 hypersignals with contrast enhancement, located in the cervical or thoracic cord. The treatment protocols are not much different than other neurological involvements, whereby steroids with immunosuppressive therapy is usually recommended. Recently, it has been reported that interferon-α could be a good alternative (Calguneri, 2004).

THE MYELOPATHY SECONDARY TO DURAL ARTERIOVENOUS FISTULA ABOUT TWO CASES

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Introduction: Dural fistulas are the most common vascular malformations of the spinal cord. responsible for boards of myélopathy progressive.They are of unknown origin.Aggravation of the clinical manifestations, either spontaneously or after invasive procedures, has been described.

Case report: We report the case of two patients hospitalized with a few months of myelopathic syndrome Intravenous corticosteroid treatment (1g) given for a suspected inflammatory disorder the same day as the lumbar puncture, induced a dramatic flare-up of the neurological symptoms which were reversible within 48 hours after corticosteroid withdrawal.

Result: Dural fistulas are an uncommon cause of myelopathy. Their origin is unknown.Myelopathy secondary to venous hypertension by arterialization of a vein draining the medullary level.The worsening of the symptoms can spontaneously or spinal cord facilitated by some invasive procedures.Through these two cases the authors will try to clarify the pathophysiological mechanisms explaining the worsening of symptoms after corticosteroid therapy and the lumbar puncture.

Conclusion: The causal effect of the steroid treatment and the lumbar puncture is discuss.

NEUROLUPUS: A DIFFERENTIAL DIAGNOSIS OF PRIMARY DEMYELINATING DISEASE

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Introduction: Systemic Lupus Erythematosus (SLE) is a multiorganic idiopathic autoimmune disease. The neurologic complications vary between 20-40%, and may be the presenting symptom of the disease. Recurrent myelitis and optic nevritis are rare and potentially severe manifestations.

Case report: Female, 48 years-old, presenting with multiple episodes of recurrent myelitis since February 2002 and right optic nevritis in March 2003, interpreted as Multiple Sclerosis (MS), witch resulted in spastic/ataxic paraparesis, urine loss and impairment of right eye vision. The brain and spinal MRI showed multiple demyelinating lesions, suggestive of MS. There were positive ANA, Anti-SSa, SSb, Anti-DNA antibodies and oligoclonal bands in the serum and liquor. She first started IFN-B1a without improvement and subsequently mitoxantrone, which led to stabilization. In September 2008 she was admitted for investigation of asthenia, arthralgias, mildly elevated temperature and pancytopenia, with the diagnosis of SLE. She started Prednisolone and Hidroxicloroquine. After evaluation by the Neurology department, new neuroaxis MRI revealed multiple subcortical cavitated lesions, compatible with vascular disease. The NMO-IgG antibodie was negative. The presence of clinical and laboratorial criteria sugestive of SLE, as the atypical imagiology for MS excluded the initial diagnosis.

Conclusion: Optic nevritis and recurrent myelitis are common manifestations of MS, Devic's Disease and Systemic Autoimmune Diseases. The knowledge and distinction of their clinical, laboratorial and imaging features is crucial for a precise diagnosis and treatment planning. In this particular case, the immunosupressor treatment led to clinical stabilization which may reflect common pathophysiological mechanisms.

PARANEOPLASTIC ENCEPHALITIS, MYELITIS AND POSTERIOR COLUMN DEGENERATION IN A PATIENT WITH BREAST CANCER

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Objective: Neurological paraneoplastic syndromes PNS are rare, and have been classified into "classical" and probable syndromes according to clinical manifestations and antibody profile. Many PNS are associated with onconeuronal antibodies, but failure to detect these antibodies does not exclude the diagnosis.

Methods: We report a 40year old female patient who presented neurological symptoms and signs suggesting multiple sclerosis or neuromyelitis optica. The diagnosis of breast cancer led to further investigations and hypothesis of paraneoplastic myelitis.

Case report: A 40 years old lady suffered from vertigo and blurred vision for 2 months. Due to progression of symptoms and ataxic gait, she was admitted.

She presented with rotatory nystagmus, diplopia, ataxia of the trunk and lower limbs.

MR of the brain was normal, MR of the spine revealed a myelopathy of the cervical spinal cord. CSF was pleocytotic with 30 cells and had oligoclonal bands. Onconeuronal antibodies and surface antibodies for PNS were negative.

NMO could be ruled out. The symptoms worsened, and an apallesthesia of the lower extremities suggested posterior collumn lesion, which could be demonstrated in MRI. Finally CT scan of the thorax showed enlarged lymph node in the axilla, biopsy showed a moderate classification of breast cancer.

Discussion: The patient presented with an encephalitis like onset of nystagmus, diplopia with truncal ataxia. Consecutively cervical myelitis with a progressive posterior collumn degeneration resulting in apallesthesia appeared. The newly discovered breast cancer, the oligoclonal bands and the pleocytosis suggest a paraneoplastic origin. The involvement of posterior collumns is a new obervation.

CEREBELLAR SYNDROME COMPLICATING AN ANTERIOR PITUITARY DEFICIENCY OF POST PARTUM

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Introduction: Sheehan's syndrome is postpartum pituitary necrosis, neurological manifestations are well known but their association remains rare.

Observation: We report a case of Sheehan's syndrome, post partum pituitary necrosis, concerning a thirty years old woman, misknown during four years at least. They recall the interest of clinical history in the diagnosis of this disease and association to atypical neurologic symptoms. During his hospitalization for acute decompenasation the patient presented a cerebellar syndrome with ataxia, occulomtricity disorder and peripheral neuropathic syndrome. After a month of hormone substitution treatment, the patient fully recovered.

Conclusion: This observation illustrates a rare association of a cerebellar syndrome as part of an anterior pituitary deficiency. The rare cases were reported in review of literature.

CEREBRAL INFARCT IN A PATIENT WITH A PREVIOUS HISTORY OF SYSTEMIC ARTERIAL AND VENOUS THROMBOSIS FROM ESSENTIAL THROMBOCYTHEMIA

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Introduction: Hematological disorders are relatively rare causes of stroke. Essential thrombocythemia (ET) may have a high incidence of thrombotic complications. We report a patient with ET who developed recurrent ischemic events involving both arterial and venous systems.

Case report: A 46-year-old man suddenly developed tingling sensation in his left side. The patient had first been seen at our hospital eight years earlier because of abdominal pain. Abdominal CT showed splenic infarctions with splenic vein thrombosis. Laparoscopic splenectomy was performed. His platelet count was 729,000/uL. Bone marrow biopsy revealed ET. Hydroxyurea was prescribed since ET was diagnosed. Six years ago, the patient visited our hospital because of severe chest pain. A diagnosis of ST elevation myocardial infarction was made. His platelet count was 821,000/uL. He had no risk factors for cardiovascular disease. On neurologic examination, he presented decreased sense of all modalities on the left body. MRI showed a high signal lesion in the right lateral thalamus. A cardiologic evaluation excluded possible sources of cardioembolism. However, repeated tests showed high platelet counts. ET was identified as the cause of the acute cerebral infarct. We increased the dosage of hydroxyurea. On discharge from the hospital, he did not have any neurological deficits.

Conclusion: Prior thrombosis is a well-established risk factor for re-thrombosis in ET. The cause of recurrent ischemic events involving both arterial and venous systems can be explained by sustained elevation of the platelet counts over 400,000/uL. Aggressive cytoreduction therapy should be considered for protecting against recurrent thrombosis.

SYPHILITIC LIMBIC ENCEPHALITIS

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Introduction: Limbic encephalitis is an inflammatory disorder of the limbic system; the clinical features are diverse, characterized by the development of neuropsychiatric symptoms.Three patients with syphilis limbic encephalitis are described.

Cases reports: All patients were men whose average age is 44 years old, presenting seizures, behavior disturbance and memory disorder. Neurological examination of the first patient was normal, the second one have irritability and discrete memory disorders, the third patient examination revealed tetrapyramidal syndrome, a paralytic dysarthria and impaired memory. Cerebral MRI revealed hyperintensity on T2 and FLAIR in the temporo-limbic regions. The serology tests of syphilis were positive in blood and cerebrospinal fluid. Other investigations including PCR for herpes virus, serology for HIV infections, the hepatitis B and C, the thoraco-abdominopelvic CT were negative. The diagnosis of syphilis limbic encephalitis was made considering clinical, biological and radiological arguments. Two patients received specific treatment of neurosyphilis by penicillin G, the third by the cyclines. Evolution was favorable.

Discussion: Limbic encephalitis is an inflammatory disorder of the limbic system. The etiologies are diverse, paraneoplastic, inflammatory, autoimmune and infectious diseases especiallyherpetic;However syphilis is a very rare clinical entity, it has been reported in only a few items, and only eight cases have been reported in literature. A specific treatment of neurosyphilis successfully stopped and improved the clinical status of our patients.

Conclusion: Syphilitic etiology of limbic encephalitis should be searched; especially in countries where Syphilis remains a more frequent, because an early diagnosis and treatment will improve otherwise stabilize the symptoms.

NEUROLOGICAL MANIFESTATIONS IN GOUGEROT-SJOGREN SYNDROME: STUDY OF 16 CASES

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Introduction: GougeroteSjogren Syndrome (GSS) is an auto-immune exocrinopathy characterized by a xerophthalmia and a xerostomia. It is a multisystemic affection more frequent among young women. Neurological manifestations in GSS are valued differently. This is essentially the achievement of the peripheral nervous system.

Objective: To describe clinical and physiopathological aspects of neurological involvement in neurological GSS and to overview biological markers and therapeutical aspects.

Materials and methods: We report a retrospective study of 16 cases hospitalized between January 2003 and February 2011 for a syndrome of GSS generally revealed by neurological manifestation, in the service of Neurology of the Military Hospital of Instruction Mohammed V. GSS diagnosis was retained according to Americano-European group criteria consensus revised on 2002.

Results: They are 14 women and 2 men, of average age of 43,68 years. Peripheral nervous system manifestation occurred in 31%. Central nervous system involvement was observed in 56%.

Discussion: Neurological complications during GSS may occur between 8.5 and 70%. Peripheral nervous system involvement is frequent but data concerning central nervous system (CNS) symptoms have been rarely described. J.Seze paid more precisely in a recent study the heterogeneity of the neurological manifestation in GSS. Recently new biological of GSS such as alpha-fodrin antibodies have been described but there interest remain controversial. Furtheremore, therapeutical data are scarce and there is to date no consensual guidelines for the therapeutical approach.

Conclusion: The neurological attacks related to the GSS are varied and of difficult diagnosis bus often occurring before the diagnosis of GSS.

PRIMARY HIV VASCULITIS: THE CHALLENGES OF DIAGNOSIS AND TREATMENT, A DISCUSSION OF TWO CASE STUDIES

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HIV vasculitis of the CNS is a rare disorder characterized by inflammation of small and medium vessels. This condition is often associated with secondary infections with pathogens such as Herpes Zoster, Epstein Barr Virus, and Cytomegalovirus. In a small amount of cases no infective pathogen is found and a diagnosis of primary HIV vasculitis is made.

We discuss the diagnostic and treatment challenges of two cases of primary HIV vasculitis, both cases male in their early 40's. They both presented with worsening confusion, stroke like episodes and visual field defects. MRI scanning in both demonstrated ill defined, asymmetrical, patchy signal change, thought to be associated with progressive multifocal leukenopathy. The presence of evolving haemorrhage, however, went against this diagnosis. CSF and serum samples tested negative to a range of common suspected viral and bacterial pathogens, and tests included a negative lymphoma screen. Eventually brain biopsies were carried out, confirming primary HIV vasculitis. Both cases were treated with 3 days of IV methyl-prednisolone on a six monthly cycle, this lead to clinical stability and improvement.

In summary primary HIV vasculitis is a rare condition, however its diagnosis should be considered in young patients presenting with stroke like features. We conclude that brain biopsy is essential in its diagnosis, and with confirmation treatment with steroids, even in immunocomprimised patient's yields beneficial results.

NEUROLOGICAL MANIFESTATIONS OF CHRONIC INFLAMMATORY BOWEL DISEASE

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Introduction: Several extra-intestinal manifestations of inflammatory bowel disease have been reported, although reports of neurologic disorders are rare.

Case reports: We report 6 cases of peripheral and central neurological manifestations of inflammatory bowel disease. 4 of our cases developed acute inflammatory demyelinating motor polyneuropathy in association with Crohn´s disease, the electromyography showed an axonal polyradiculoneuritis. There symptoms improved with immunomodulatory therapies. After long term follow up, neurological signs disappeared completely and electromyography normalized.

2 cases, previously diagnosed with crohn's disease that subsequently developed ischemic stroke Brain CT with angiography diagnosed a cerebral thrombophlebitis in 1 patient. The 2 patients receive a specialized care.

Conclusion: The neurologic dysfunction in Crohn disease has multifactorial etiology with both peripheral as well as central nervous system involvement. We discuss notably thromboembolism and immunological abnormalities.

CASE REPORT-DIFFICULTIES IN MAKING DIAGNOSIS NEUROMYELITIS OPTICA

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Neuromyelitis optica (NMO) is an idiopathic, severe, inflammatory demyelinating disease of the central nervous system that selectively affects optic nerves and spinal cord.

Patient S.D., (1967), in march 2009 was admitted to the Neurology Clinic, University Clinical Center of Sarajevo. She had spastic quadriparesis, C2/C3 sensory level, feces and urinary retention. Brain MRI was normal. Spinal MRI revealed T2 inhomogenous hyperintense changes from C1 level till Th3. Differential diagnosis: syringomyelia, vascular, inflammation, tu process. Intravenous methylprednisolone lead to complete recovery in 2 months.

Decembar 2009, severe spastic quadriparesis, control spinal MRI and neurosurgeon suspected of expansive process. The surgical procedure excluded tumor. After that we have received positive finding of NMO-IgG antibodies from Mayo Medical Laboratories. We made the diagnosis neuromyelitis optica spectrum disorders. Plasmapheresis did not improve. IVIG leads to a slight improvement.

The left optic neuritis occurred for 4 month. Papilla n.optics MRI shows edema left. We finaly had dg Neuromyelitis optica. After treatment with intravenous methylprednisolone vision recovered. She was immobile. In the following months we also included **Cyclophosphamide** i.v. once a month with oral prednisone. In January 2011. this therapy is excluded, (the deterioration-optic neuritis in both eyes, and hepatopatia). Plasmapheresis led to recovery of vision, and continued once a month.

Conclusion: The diagnosis was made after 18 months. Dilemma: inflammatory or expansion process, was solved by neurosurgical intervention. NMO-IgG serum analysis set a definitive diagnosis. We think that there was no therapeutic errors, but earlier diagnosis would contribute to adequate family and patient attitude.

NEUROLOGICAL MANIFESTATIONS OF BEHÇET'S DISEASE: A RETROSPECTIVE STUDY

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Introduction: Neurological manifestations in Behçet's disease represent between 4 to 49% of systemic manifestations and remain the leading cause of morbidity and mortality.

Aim of study: This report describes clinical features, therapeutic aspects and follow up of Neurobehçet's disease.

Methods: Retrospective series of 56 Neurobehçet cases fulfilling the International Study Group criteria for Behçet's disease were consecutively recruited over a period of June 2004 and December 2010. All patients had clinical and ophthalmologic examinations; they underwent laboratory and imaging investigations.Patients with severe conditions (parenchymal involvement and cerebral deep venous thrombosis) received cyclophosphamide and corticosteroids. The other patients received only corticosteroids. Anticoagulants therapy was given to patients with cerebral venous thrombosis. Patient's follow up and tolerance to treatment were analyzed.

Results: The average age at diagnosis was 34 ± 12 years, with a sex ratio of 1.15. The clinical presentation was dominated by the meningoencephalitis (50.9%), cerebral deep venous thrombosis (43.4%) and myelopathy (5.7%). Of the 56: 16 patients were treated by corticosteroids and 40 patients received cyclophosphamide associated with corticosteroids. All patients, despite two aggravated cases, evolved positively with clinical improvement and good tolerance.

Conclusion: The demographic and clinical aspects of our series are similar to those reported in the literature. In contrast to previously reported cases of a poor prognosis in severe neurobehçet's disease, our study suggests that immediate and aggressive treatment by cyclophosphamide may ameliorate the prognosis. However, a multicenter study is needed to confirm the possible efficacy of cyclophosphamide and further assess the long term tolerance.

PSYCHIATRIC PRESENTATION OF LEIGH´S DISEASE IN A YOUNG ADULT

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We report a 23 old man case, whit behavioral disorders. History began at 20 with a suicid attempt. No psychotic symptom nor depressive syndrome appeared at psychiatric expert opinion.

Neurological exam only showed loss of deep tendon reflexes. Neuropsychological status showed slowness in executive tasks, slight short and long term memory involvement. The EEG was normal. Flair and diffusion MRI showed bilateral and changing high signal abnormalities. Spectro-MRI showed high lactate level, reduction of NAA and no glial reaction. CSF was normal, blood tests to (ie lactat and coenzym Q) except a low Vit B9 level EMG was consistent with a sensory axonal neuropathy. DAT-scan was normal.Respiratory chain's I and IV complexes were deeply low. Muscular biopsy didn't show ragged red fibers, there was strongly diminished Cox-activity.

Characterized by symmetrical necrotic lesions in the central nervous system, Leigh´s disease is an inherited neurodegenerative disease mainly seen in infancy and childhood with central nervous system and extra-central nervous system disorders. Clinical phenotype is mainly variable. There are no specific markers for this disease. The most common defects are biochemical deficiencies of pyruvate dehydrogenase complex, complex IV (or cyto-chrome C oxidase), in the complex I of respiratory chain or in the ATPase. The S-MRI is of great value .

Leigh syndrome (LS) is a mitochondrial disorder of heterogeneous origin. Many specific point mutations and deletions can result in this progressive disorder. Prognisis in bad.

In most cases diagnosis is suspected by MRI especially in atypical forms.

MULTIPLE SCLEROSIS IN GABON: DEFINE REALITY

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Background: The data on multiple sclerosis are scarce in sub-Saharan Africa. Since the introduction of MRI and other diagnostic tools many cases are reported in sub-Saharan Africa.

Objective: The objective of this study was to.

Methods: We reported four cases of disease in Gabonese. They were hospitalized in Neurology department at Libreville and all of them had had clinical, biological tests and brain and spinal MRI for diagnosis.

Results: Since 2000 year there were 3 women and one man aged 20 to 46 years old. They were born and lived in Gabon excepted one who 12 years in France (between 8 and 20 years old).The symptoms at onset were:- Optic neuritis- Paraparesis in two cases- Cerebella syndromeThe MRI in all cases showed multiple disseminated plate of demyelination. Oligoclonal profile of cerebrospinal fluid was observed in all cases. Another diagnosis was excluded by appropriate investigations.

Conclusion: These add data on multiple sclerosis in Africa and suggest that MS exists in Gabon.

EXTRAPONTINE MYELINOLYSIS CAUSING NEUROPSYCHIATRIC SYNDROME

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Objective: To present an atypical case with extrapontine myelinolysis, review the etiologic factors, neuroimaging and clinical features.

Methods: Case report.

Results: We report a case of a 64-year-old female with subacute onset of global aphasia, amnestic syndrome and behavioral changes starting four days after the rapid correction of hyponatraemia. Initial serum sodium concentration was 107 mmol/l and it increased by 23 mmol/l within 48 hours. Hyponatraemia was caused by oxcarbamazepine treatment of epilepsy and was worsened by acute gastroenteritis. Bilateral, symmetrical laminar necrosis of the temporal and insular cortices was shown by the MRI of the head with similar high T2, FLAIR and diffusion weighted signal intensities in the in the amygdala and basal ganglia on both sides. Cerebrospinal fluid tests were normal, but oligoclonal gammopathy was found. Mainly the motor component of the aphasia and the neuropsychiatric symptoms improved during the 3-month follow-up period: anomic aphasia was present and neuropsychologic tests proved mild dementia (MMSE 25/30) with severe dysexecutive syndrome. MRI showed the same picture without the high diffusion signal.

Conclusion: We present a case of extrapontine myelinolysis with unusual MRI morphology and with predominantly neuropsychiatric symptoms caused by rapid correction of hyponatraemia and discuss the atypical features causing difficulties in the differential diagnosis.

HASHIMOTO ENCEPHALOPATHY, THE ENIGMATIC DIAGNOSIS: STUDY ABOUT THREE CASES

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Hashimoto encephalopathy (HE) is a rare condition, of still unknown etiology, characterized by the association of neuropsychiatric signs and thyroid auto-immunity. We report three cases of HE with mean age of 50 years. Different pathological presentations were encountered and corticosteroids were used with spectacular response. HE is a diagnosis to be considered in the absence of other etiology explaining the symptoms.

SUSAC SYNDROME: REPORT OF THREE CASES AND REVIEW OF THE LITERATURE

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Introduction: Susac syndrome(SS) is a rare disease of unknown pathogenesis. It is caused by a microangiopathy affecting the arterioles of the brain, retina, and cochlea.

Methods: We report a series of three patients with Susac syndrome followed in our department. MR imaging, retinal fluorescein angiography, and audiography findings enable diagnosis.

Results: There were three women (mean age at onset : 40 years). Clinical symptoms at onset were neurological (*n* =3), ophthalmological (*n* =2), auditory (*n* =1) and clinical triad (*n* =0). Neurologic symptoms included encephalopathy, headache, vertigo, Focal deficits. Psychiatric disorders were present in two patients. Brain MRI showed T2 lesions in the white (*n* =3) and grey (*n* =1) matter, corpus callosum (*n* =1) and gadolinium-enhanced lesion(*n* =1). Cerebrospinal fluid contained an elevated protein level in one case. One patient was treated by steroids associated with aspirin .Two patients were spontanneously improved.

Discussion: SS was first described in two young women presenting with the clinical triad of subacute encephalopathy, retinal arteriolar branch occlusions, and sensorineural hearing loss. Petty et al named this condition " retinocochleocerebral vasculopathy ".In the literature, most cases of SS occur in women aged 18-40 years .The disease is frequently misdiagnosed as multiple sclerosis, migraine, lupus erythematosus, and even schizophrenia. Characteristic findings on brain MR images, retinal fluorescein angiography, and audiogram should facilitate the diagnosis.

Conclusion: SS is a rare, commonly underdiagnosed, disease that is characterized by brain, retina and inner ear involvement and usually found in healthy people of middle age, predominantly in women.

PRIMARY GOUGEROT- SJÖGREN'S SYNDROME WITH CENTRAL NERVOUS SYSTEM INVOLVEMENT: A STUDY OF 6 PATIENTS AND REVIEW OF THE LITERATURE

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Introduction: Primary Gougerot Sjögren's syndrome(PGSS) is an autoimmune disease. Neurologic involvement occurs in 20% of patients with PGSS . However, central nervous system (CNS) manifestations have been described rarely.

Methods: We report 6 cases of CNS manifestations associated with PGSS .A short literature review about epidemiology, clinical aspects and pathophysiology follows.

Results: We retrospectively studied 6 patients (4women and 2 men) with CNS manifestations associated with PGSS. The mean age at neurologic onset was 46 years. Neurologic involvement preceded the diagnosis of PGSS in all patients . Sicca symptoms were present in four patients.CNS disorders were mostly focal or multifocal (66%). One patient had spinal cord involvement (chronic myelopathy) . Three patients had brain involvement. One patient had movement disorder. The disease mimicked relapsing-remitting multiple sclerosis (MS) in three patients.We also recorded diffuse CNS symptoms: Two patients are presented with cognitive dysfunction. Two patients had psychiatric disorders. All patients had magnetic resonance imaging (MRI) of the brain and the spinal cord. 83% had T2-weighted hyperintensities in the brain. Only one patient had abnormalities in the spinal cord. Only two patients had also peripheral nervous system disorders.

Discussion: CNS lesion of PGSS could be monofocal, multifocal or diffuse involvement with wide-spectrum clinical manifestation. Its clinical course could be insidious, remitting course, or progressive. Cerebral vasculitis has been considered to be the pathologic mechanism of CNS manifestation of PGSS.

Conclusion: PGSS may have variable CNS manifestation and could precede the classic sicca symptoms. That's why PGSS is frequently misdiagnosed.

THE EXPERIENCE AND MEANING OF INDIVIDUALS LIVING WITH NEUROLOGICAL CONDITIONS AND PRIMARY CAREGIVERS: PERCEPTIONS AND DETERIORATION IN QUALITY OF LIFE

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Background: Patients with neurological disorders in most cases are studied from the biomedical approach. In this paradigm excludes the knowledge of the subject with neurological disease, their experiences and meanings about health-disease process, so it is considered necessary to reconstruct reality as individuals watch and experience.

Methods: We conducted a joint investigation, qualitative, based on a phenomenological approach, using unstructured interviews with six subjects between 30 and 65 years of age, three female and three male and quantitative questionnaires to primary caregivers of patients treated at the National Institute of Neurology and Neurosurgery (INNN). The purpose of this study was to explore the experience and meaning of the subjects with neurological diseases, symptoms, diagnosis and physical difficulties, psychological and social caused by the disease and experience of primary caregivers.

Results: Subjects with a complex situation, faced daily deterioration, disability, dependency, social exclusion, which reduces their quality of life. Participants have a concern about the evolution of the disease and the future, expressing the overprotection of family / carer, ie all have a strong psychological and emotional impact that they have to live and face a new world social stigmatization and a steady deterioration in the quality of life.

LIMBIC ENCEPHALITIS ASSOCIATED WITH 4 AUTO-ANTIBODIES (ANTI VGKC, AMPA, GAD, IA2)

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Introduction: Limbic encephalitis is a neurological syndrome that may present in association with cancer, infection, or as an isolate clinical condition often accompanying autoimmune disorders.

Observation: We describe a 43-year-old women without any particular past history ; presented with acute temporal lobe seizure and cognitive impairment (bradypsychia and anterograde amnesia).

Temporal seizures were recorded by video-EEG. Brain MRI showed bilateral hippocampal sclerosis and FDG- PET showed hypermetabolism in both medial temporal lobes.

Additional evaluation revealed no evidence of neoplasia or central nervous system infection. Significant high titers of anti-VGKC, anti-AMPA, anti-GAD and anti IA2 antibodies were present in the serum and cerebrospinal fluid.

Intravenous immunoglobulin infusion was initiated and continued monthly. Association with antiepileptic drugs resulted in improvement of cognitive impairment and disappearance of seizures.

Discussion: The association between acute encephalopathy and the presence of circulating autoantibodies has been recognized over the past for decades. These disorders have been categorized as poor-prognosis paraneoplastic encephalitis associated with antibodies targeting intracellular antigens. In the last years a new variety of auto-antibodies (directed against membrane antigen) have been identified with new neurological disorders which are less often associated to neoplasia and carry a better prognosis.

Nevertheless, the underlying trigger for the immune-mediated process and the role of these auto antibodies in the pathogenesis of limbic encephalitis remain to be clarified.

Conclusion: We report an unusual observation of limbic encephalitis associated with 4 auto-antibodies targeting both intracellular and cell membrane antigens. Early and intensive treatment resulted in recovery of neurological condition and seizure remission.

A CASE OF MESALAZINE NEUROTOXICITY

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Mesalazine or 5-aminosalicylic acid (5-ASA), is an anti-inflammatory drug used to treat Crohn´s disease. Neurotoxicity is rare.

We report the case of a 45 year old man treated by mesalazine for Crohn's disease. After treating for one month with mesalazine he developed a rapidely progressive limbs weakness with confusional state. MRI showed multiples supra tentorial white matter lesions. Etiological investigations were negative. Full neurological recovery was achieved after withdrawal of mesalazine.

Two cases have been published in the litterature with the same neurological manifestations and the same evolution.

CEREBRAL VENOUS THROMBOSIS AND SYSTEMIC DISEASE IN TUNISIA

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Background: Cerebral venous thrombosis (CVT) is a rare neurovascular disorder in Tunisia. The presence of systemic disease has been suggested as a risk factor for CVT.

Objective: To describe the clinical, radiological presentations and the outcome of CVT associated with systemic disease in south Tunisia.

Methods: We realize a retrospective study between 1996 and 2010 including patients with CVT associated to a systemic disease. The clinical presentations, time of onset, clinical symptoms, neuroimaging features, treatment and evolution were studied.

Results: We identified 12 patients (8 men and 4 women) with mean age of 28.8 years (range 12-48 years). Two patients had history of spontaneous venous thrombosis (22.2%). The most common symptoms at onset were headache (83.3%), vomiting (83.3%) and seizure (16.7%). Cerebral MRI show venous thrombosis of the transverse sinus (66.7%) and/or superior sagittal sinus (33.3%). Causes of CVT were Behçet´s disease (66.7), anticardiolipin antibodies syndrome (25%) and systemic lupus erythematosus (8.3%). The TVC preceded the diagnosis of the systemic disease in 1 case (8.3%). It was concomitant in 6 cases (50%) and after a mean duration of 6.4 years in 5 cases (41.7%). All patients were treated by anticoagulants. After a mean duration of 6.5 years, only one patient developed optic atrophy.

Conclusion: Systemic diseases are rare cause of TVC in Tunisia. TVC should be suspected in patients with Behçet's, lupus disease and anticardiolipin antibodies syndrome who complain of persistent headache, especially in the presence of neurological symptoms.

NEUROPSYCHIATRIC SYSTEMIC LUPUS ERYTHEMATOSUS

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Background: Diverse psychiatric and neurological disorders may complicate the course of Systemic lupus erythematosus (SLE).

Aims: To evaluate prevalence and characteristics of different neurological and psychiatric presentations in patients with SLE (NPSLE).

Methods: In this retrospective study, we examined the medical records of patients with SLE who were referred to the department of Neurology and Internal medicine in Sfax (Tunisia) from 1996 to 2009. All patients fulfilled the American College of Rheumatology (ACR) criteria for SLE. Patients of NPSLE were included in this study. Clinical manifestations were classified according to the ACR.

Results: Of the 185 study patients, 24.5% had neuropsychiatric complications. Among these 45 patients, 42 (93.3%) were female and 3 (6.7%) were male. The mean age at diagnosis of SLE was 31.4 years [14-55]. The neuropsychiatric manifestations preceded the diagnosis of the SLE in 9 cases (20 %) of 15.8 years; he was concomitant in 21 cases (46.7%) and after a median of 4.7 years in 14 cases (31.1%). The neuropsychiatric complications are neurological syndromes (53.3%), psychiatric syndromes (22.2%), are neurological associated with psychiatric syndromes (24.4%).The most frequent findings were seizure (48.9%), mood disorders (37.8%), psychosis (15.5%), acute confessional state (11.1%), peripheral neuropathy (11.1%) and cerebrovascular disease. The treatment strategies for the various neuropsychiatry manifestations based on prednisone (62.2%) and cyclophosphamide (8.9%). The median observation time was 7.5 years.

Conclusion: NPSLE have a variable clinical presentation. Eextensive investigations should be carried out in all patients with unusual neurological symptoms, since an early diagnosis of SLE.

NEUROLOGICAL MANIFESTATIONS OF SYSTEMIC DISEASES: ABOUT 26 CASES

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Introduction: Neurological involvement in systemic diseases is common and can sometimes be inaugural. The diagnosis is based on a set of clinical, biological and radiological arguments.

Material and methods: This is a retrospective study of 26 cases of Neurological manifestations of systemic diseases. Collected in Neurology department of Hassan II university hospital Fez in a period of 7 years between 2004 and 2010.

Results: The series consists of 14 men and 12 women with a sex ratio of 1.16. The mean age is 33 years. The neurological manifestations are dominated by: a syndrome of intracranial hypertension (8 cases), a Pyramidal syndrome (17 cases), cerebellar syndrome (8 cases) sphincter disturbances (7 cases), a pseudobulbar syndrome (6 cases), seizures (2 cases), cognitive and psychiatric disorders (3 cases). The lumbar puncture revealed lymphocytic meningitis (5 cases), elevated proteins (2 cases) and Intrathecal IgG synthesis in CSF (2 cases). MRI brain and or spinal cord was normal (1 case), it showed Brain lesions in the white matter (16 cases) brainstem lesions (10 cases), cerebellar lesions (5 cases), and spinal cord injuries (6 cases).

Discussion: Neurological involvement in systemic diseases may be central or peripheral. Our series shows diverse neurological manifestations. The inaugural forms are always a differential diagnosis. Data treatment remains incomplete.

Conclusion: The neuroBehçet tops the list of systemic diseases in our context. It is necessary to consider treatment protocols and controlled multicenter to better improve the management of these potentially disabling conditions.

NEUROLOGICAL MANIFESTATIONS OF SYSTEMIC DISEASES: SERIES OF 26 CASES

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Introduction: Neurological involvement in systemic diseases is common and can sometimes be inaugural. The diagnosis is based on a set of clinical, biological and radiological arguments.

Materials and methods: This is a retrospective study of 26 cases of Neurological manifestations of systemic diseases collected in the Neurology Department of the University Hospital of Fes-Morocco between 2004 and 2010.

Results: We registered in our series 14 men and 12 women (sex ratio of 1.16). The mean age is 33 years. The history is marked by the presence of recurrent oral ulcerations (19 cases), bipolar ulcerations (9), red eye (4), dry eye or mouth (3), skin lesions (10), inflammatory arthralgia (5). The neurological manifestations are dominated by: Intracranial Hypertension Syndrom (8 cases), pyramidal syndrome (17), cerebellar syndrome (8) sphincter disturbances (7), pseudobulbar syndrome (6), seizures (2), cognitive and psychiatric disorders (3). The lumbar puncture revealed lymphocytic meningitis (5 cases), elevated proteins (2) and Intrathecal IgG synthesis in cerebrospinal fluid (2). MRI brain and or spinal cord was normal in one case, it showed Brain lesions in the white matter (16 cases) brainstem lesions (10), cerebellar lesions (5) and spinal cord injuries (6).

Discussion: Neurological involvement in systemic diseases may be central or peripheral. Our series shows diverse neurological manifestations. Inaugural forms always raise differential diagnosis problems. Treatment data remain incomplete.

Conclusion: NeuroBehçet tops the list of systemic diseases in our context. It is necessary to consider controlled multicentric treatment protocols to improve the management of these potentially disabling conditions.

VIRAL INFECTIONS AND NEUROFILAMENT IN NEUROPSYCHIATRIC SYSTEMIC LUPUS ERYTHEMATOSUS

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The incidence and pattern of neuropsychiatric (NP) involvement varies widely but is an important cause of morbidity and mortality in patients with systemic lupus erythematosus (SLE). Viral infections are good candidates as environmental triggers to neurological involvement in SLE. The mechanisms of brain injury in neuropsychiatric manifestations of SLE are unclear and a neurofilament can be a biomarker for this organ involvement.

Aim: Identify a common viral precipitant or variation in response to a common viral agent that would be associated with SLE with or without neurological involvement and whether serum levels of NFL correlate with NP involvement.

Methods: Review of the clinical characteristics of the people with neuroSLE followed in a Neuroimmunology Clinics and a cross-sectional measurement of serum IgG antibodies to EBV, VZV, CMV, Measles and HSV-1 and NFL with enzyme linked immunoassays. The control groups consisted of ten people with SLE without neurological manifestations and 19 healthy controls.

Results: Seventeen patients had NP-SLE, six as first manifestation. The characteristics of neurological involvement were widely varied in manifestations and severity. There were no differences between the levels of serum antibodies for the common viral infections. The levels of serum NFL were barely detectable in our cohort or in the control cohorts.

In conclusion, there was no correlation between the humoral immune response to virus and the NP-SLE. NFL was not detected in the serum of our cohort of patients with neuroSLE. This can imply a mild level of axonal injury or reflect the presence of NFL antibodies.

CADASIL (CEREBRAL AUTOSOMAL DOMINANT ARTERIOPATHY WITH SUBCORTICAL INFARCTS AND LEUKOENCEPHALOPATHY) - FIRST REPORT FROM ISRAEL

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Background and purpose: CADASIL is a monogenic form of hereditary cerebral microangiopathy that is caused by over 170 different mutations in the *NOTCH3* gene at locus 19p13.1-13.26. We report a family case of CADASIL in a 39-year-old woman presented with migrainous headache with aura. Her mother had had a history of seven years of subcortical dementia.

Methods: The patient and her mother underwent series of clinical exams, neuroimaging, pathologic evaluation of skin and brain biopsies analyzed by electron microscopically. Molecular analyses of the gene defect analyzed by sequencing the products of PCR of exons 3 and 4 of the *Notch3* gene.

Results: The patient's exams revealed normal hemogram, and no vascular risk factors or chronic diseases. Lumbar puncture was normal. Cranial CT scan revealed bilateral diffuse hypodensities over the subcortical white matter. Cranial MRI showed hyperintense lesions within the cerebral white matter on T2-weighted images. On electron microscopy a characteristic granular osmiophilic material within the basement membrane surrounding pericytes and smooth muscle cells of small and medium-sized vessels were found. Molecular analyses of the gene mutation of the NOTCH3 gene was performed showing automatic sequencing of exon 3 and 4 (and intron-exon boundaries) which shows the nucleotide substitution **c.268C>T**, leading to the pathogenic aminoacidic substitution **p.Arg90Cys**, which confirms the diagnosis of CADASIL. These findings were similar to the mother's.

Conclusion: CADASIL occurs in Jews, with clinical phenotype and genotype similar to that in other ethnic groups and our finding suggests that CADASIL may be more frequent than anticipated.

REHABILITATION OF VETERANS WITH COMBAT RELATED NEUROLOGIC INJURIES

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Objectives: As of January 2011 over 5,800 U.S. military personnel have been killed and more than 37,000 wounded in combat in Operations Iraqi and Enduring Freedom (OIF/OEF). The primary objectives of this 36 month study at the James Haley Veterans Administration (VA) Medical Center at Tampa, Florida (Tampa VA) is to 1) Provide medical care coordination to meet the needs of OIF/OEF veterans with combat related neurologic injuries and 2) Determine the immediate and sustained effects of rehabilitation on patient outcomes including function, cognition and community participation

Study design: This 36 month study which started in June 2008 utilizes a quasi-experimental design to evaluate telerehabilitation care provided to a random sample of 75 OIF/OEF veterans discharged from the Tampa VA with a diagnosis of mild or moderate TBI and or Post Traumatic Stress Disorders (PTSD) incurred in combat theaters.

Methods: Data is collected in multiple ways including administrative data bases and validated instruments to monitor physical functioning, cognition, integration into society using repeated measures every six months. We study changes in outcomes over time using univariate and multivariate statistical analysis.

Findings:

1) Functional capabilities measured by locomotion and mobility appear to have stabilized among our cohort of veterans while deficiencies in cognition (memory, problem solving), psychosocial adjustment (anger, emotional status) and problems in integrating into society pose challenges and

2) Those with comorbid PTSD appear to linger in employability and ultimate integration into society. Detailed findings will be presented at the Congress of Neurology at Marrakesh, Morocco.

A CASE OF ISOLATED GLOBAL AMNESIA INVOLVING LEFT HIPPOCAMPUS IN BEHCET'S DISEASE

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Behcet's disease is known to have a triad of recurrent oral, genital ulcers and uveitis. Many patients present with various neurological deficits indicating central nervous system involvement. We report isolated global amnesia with involvement of left hippocampus in a patient of Behcet's disease.

A 37-year-old woman was admitted with acute onset, severe global amnesia since two days ago. She showed repetitive questioning and remote memory impairment about experiences that occurred several months in the past. She had uveitis on her right eye about one year ago, and suffered from oral and genital ulcers in past years. On admission, the vital signs were normal and she had a few oral aphthous ulcers. Neurological examinations revealed prominent memory disturbance without other focal neurological deficits. Routine laboratory test showed mild elevated C-reactive protein(1.3mg/dL), but were otherwise normal. Cerebrospinal fluid examination disclosed lymphocyte-dominant pleocytosis(WBC 11/mm3) and an elevated protein level(69mg/dL). Brain MRI revealed a T2-hyperintense lesion at left hippocampus, but no definite enhancement. During hospitalization, we administered empirical anti-viral agent at first, because her symptoms, CSF profile and MRI findings were compatible with viral encephalitis(especially herpes encephalitis). However, blood and CSF viral markers were all negative, and patient showed no clinical improvement. Therefore we tried oral prednisolone as treatment for CNS involvement of Behcet's disease, although the isolated hippocampus lesion had never been reported in Behcet's disease. After then, her memory impairment showed significant improvement.

Our case shows that CNS involvement of Behcet's disease can be manifested as isolated amnesia and unilateral hippocampus involvement.

1H-PROTON MAGNETIC RESONANCE SPECTROSCOPY (1H-MRS) OF OSMOTIC DEMYELINATING SYNDROME IN A PATIENT WITH END-STAGE RENAL DISEASE

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"Osmotic demyelinating syndrome" (ODS) is a rare neurological disorder that occur following rapid correction of hyponatremia. The demyelination involves white matter of the central pons, called "central pontine myelinolysis" (CPM), or extra-pontine gray and white matter called "extrapontine myelinolysis" (EPM), or both. Other risk factors are chronic alcoholism, malnutrition and transplantation encephalopathy. We herein report 1H-proton magnetic resonance spectroscopy (1H-MRS) of ODS in a hypertensive elderly woman with recurrent strokes, end-stage renal disease under chronic hemodialysis, and hyponatremia with slow correction of the hyponatremia. Akinetic mutism, dysphagia, limb rigidity, focal dystonia, spastic tetraparesis, fluctuated mental confusion, and myoclonic jerks of the extremities developed 2 to 3 weeks following slowly correction of hyponatremia. MRI showed heterogenous signal intensity at right basal ganglion on both T1WI and T2WI suggesting an acute demyelination and petechial necrotic infarction, and hyperintensity at the central pons and paraventricular white matter on T2WI suggesting demyelination. 1H-MRS showed decrease N-acetyl aspartic acid (NAA) to creatine ratio and increase choline to creatine ratio of the lesions both in the white and grey matters suggesting neuroaxonal damage and cell membrane degradation. Follow-up 1H-MRS 3 months later showed gradual normalization of the NAA/Cr. The dysphagia, limb rigidity, dystonia, and tetraparesis may improve, and the lesions on neuroimages may resolve over time; however, permanent neurological sequelae such as akinetic mutism and dementia remain even after 2 years of follow-up.

A PROSPECTIVE STUDY ON THE EFFECT OF ZOLPIDEM IN CHRONIC DISORDERS OF CONSCIOUSNESS

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Zolpidem has been reported as a « miracle drug » in some patients with disorders of consciousness (DOC) after both traumatic and non-traumatic aetiology (Demertzi et al Expert Rev Neurother 2008). We here present the results of a prospective uncontrolled unblinded study on the effect of zolpidem in chronic disorders of consciousness.

Patients were assessed using Coma Recovery Scale-Revised assessments directly before and one hour after administration of a single 10 mg dose of zolpidem. Inclusion criteria were: >3 weeks after traumatic or non-traumatic acute brain damage, clinical diagnosis of vegetative state/unresponsive wakefulness syndrome (VS/UWS), minimally conscious state (MCS) or emergence from minimally conscious state (EMCS) with severe amnesia as defined by Post-Traumatic Amnesia Testing. Data were analysed with SPSS using non-parametric statistics (Wilcoxon's signed-rank test).

65 patients were successively included (mean age 35±15 y; 18 women; mean duration since insult was 4±5.5 y; 33 traumatic). At the group level zolpidem resulted in a decrease of CRS-R total scores (pre- versus post-zolpidem scores were 9±6 *vs* 8±4, respectively, p=0.001). Analyses of subscore changes showed only a decrease on arousal scores (p=0.003). Two patients showed a zolpidem-related improvement in clinical diagnosis. A 30-y-old man, 9y post-trauma evolved from MCS to EMCS (functional object use) and a 24-y-old man, 11 months post-trauma evolved from VS/UWS to MCS (command following).

Our data show that zolpidem only very exceptionally (3% in the present cohort) shows a paradoxical effect in DOC and the observed effects were moderate in the present prospective uncontrolled series.

VITAMIN B12 SUPPLEMENTATION IN TREATING MAJOR DEPRESSIVE DISORDER: A RANDOMIZED CONTROLLED TRIAL

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Background: This study has aimed to compare the clinical response of SSRI-monotherapy with that of the B12-augmentation in a sample of depressed patients with low normal B12 levels who responded inadequately to the first trial with the SSRIs.

Methods: Patients were enrolled at Aga Khan University Hospital, Karachi Pakistan during 2009- 2010. Low normal B12 level was defined as B12 level ranging between 191pg and 300 pg/ml. Patients with depression and low normal B12 levels were randomized by a computer program into control arm (antidepressant only) and treatment arm (antidepressants and Injectable vitamin B12 supplementation). A decline in HAM-D score of 20% or more from baseline indicating an improvement in Depression was defined as a primary outcome.

Findings: A total of 199 depressed patients were screened for B12 levels. Vitamin B12 deficiency was present in 44(22%) patients. Out of 73 patients with low normal B12 levels 34 (47 %) were randomized in the treatment group while 39 (53 %) were randomized to control arm. Both groups were matched at the baseline except higher depression scores in the treatment group, three months follow up treatment group showed 48% reduction in HAM-D scores as compared to baseline while control group showed 26% reduction in HAM-D scores as compared to the baseline(< 0.001).

Interpretation: B12 deficiency and low normal B12 levels are common and may be associated with depression and a poor response to the antidepressant treatment in patients with depression. Vitamin B12 supplementation with antidepressants has significantly improved depressive symptoms in our cohort.

MOVEMENTS DISORDERS AND SJORGEN GOUJEROT: ASSOCIATION OR COINCIDENCE?

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Introduction: Neurological complications during primitive sjorgen goujerot(PSG) may occur between 8.5 and 70%. Peripheral nervous system (PNS) involvement is the most common neuroligic manifestation and central nervous system (CNS) symptoms is rarely dercribed. We report a case of movements disordres revealing primitive Gougerot-Sjogren syndrome.

Purpose: Describe the clinical and laboratory features of sjorgen goujerot patients with movements diosorders and to report their clinical outcome.

Case report: 45-year-old woman, three miscarages in her past history ; presented with abnormal movements(dystonia ; chorea ;athetosis and intention tremor) on the left side mostly and on the head. Neurolgical examination was without abnormalities . Paraclinical investigations suggested primary Sjögren´s syndrome. Eye tests and a salivary gland biopsy confirmed this diagnosis. Serologic evidence showed positive antinuclear antibodies; negative Anti-Ro/SSA or anti-La/SSB, negative VDRL-TPHA and HIV antibody. Biologic features was negative .Magnetic resonance imaging of the brain didn't show any lesions. SpecificTreatment with prednisone and azathioprine and symptomatic treatment of movement disorders didn't give any improvement of the neurological symptoms.

Conclusion: Gougerot-Sjogren may be associated with movements disorders ; however an etiological relationship is not proven .The pathophysiological basis of PSG -associated hyperkintic movements is still unclear. The response to corticosteroids or immunosuppressive therapy is unpredictable. To date, movements disorders in association with primary Sjögren´s syndrome has not been reported.

TRIGEMINAL AUTONOMIC CEPHALGIAS - CASE REPORT

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Introduction: Trigeminal autonomic cephalgias are primary headaches, which pathophysiology is still poorly understood and causes one of the most painful conditions in humans.

Case report: A 55 years-old man, smoker and alcoholic, referred a history of sudden and intense headache, which started 45 days before admission, frontal, pulsing, associated with sensitivity to light and sound, and changes in one side of the head, which got teary and swollen, nasal obstruction, lasted a few seconds, with a pattern of 6 episodes per day. He was hospitalized for investigation and brain MRI with angiography was normal. Hypotheses were: SUNCT, cluster headache or paroxysmal hemicrania, all of them with a trigeminal component. Patient was treated during the attack with oxygen through a mask, seated, with relief of symptoms. He went out of hospital with orientations and a prescription of verapamil, 80 mg/dia.

Conclusions: The trigeminal autonomic cephalalgias are a group of disorders involving short-lasting pains, often unilateral, accompanied by autonomic features, like conjunctival injection, lacrimation, rhinorrhea or nasal congestion and ptosis. This group includes episodic and chronic cluster headache, paroxysmal hemicrania and SUNCT syndrome, all of them different in response to therapy, frequency and duration of the attacks. It is important to exclude secondary causes, such as mass lesions, because of the possible serious and treatable underlying causes. This patient responded to therapy with oxygen and prophylaxis with verapamil. Thereby, the diagnostic was cluster headache. All exams were negative for secondary causes and the he is currently being followed by outpatient appointment.

A CROSS-SECTIONAL SURVEY OF HEADACHES AMONG SECONDARY SCHOOL STUDENTS IN ABEOKUTA, NIGERIA: PRELIMINARY DATA

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Background: Headache is the commonest neurological disorder in population-based surveys with significant impact on productivity and quality of life. However, its profile among secondary school students in Nigeria is poorly documented.

Aims of study: We aimed to determine the prevalence and clinical characteristics of primary headaches among secondary school students in Abeokuta and evaluate its impact on their general well being and productivity.

Methods: A cross sectional survey. A self- administered questionnaire (the adolescent headache survey questionnaire) was administered to 600 randomly

selected respondents in 3 randomly selected secondary schools in Abeokuta, Nigeria. Migraine was diagnosed using the ICHD-2 criteria .Data analysis was with SPSS 15.0 for windows.

Results: The response rate was 85.5%. The mean age of the respondents ± SD was 15.9 ±1.28 years. The frequency of migraine was 14.6%.This was similar in both females (7.9%) and males (6.7%) (p= 0.53). The frequency of tension- type headache was 11.9%, and was slightly higher in females (8.1%) compared to males (3.8%)(p=0.059).Only 76(31.8%) of people with primary headaches sought medical consultations while the rest 155(64.9%) self medicated.

The number of school days missed± SD was 1.23±2.5. The predictors of reduced productivity associated with the headaches were the number of headaches episodes (p=.001), duration of headache (p=.035) and self medication (p=.047)

Conclusion: Headache is prevalent among this secondary school student population and significantly impairs productivity. The high rate of self medication probably reflects the severity and /or low level of headache education in this population.

LOW BACK PAIN AND POSTURAL STABILITY IN A STABILOMETRIC STUDY: DOES NEUROPATHIC INVOLVEMENT MAKE A DIFFERENCE?

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Low back pain (LBP) is shown to be one of the most debilitation and often seen complaints that alter significantly health related quality of life in patients of different ages (Akhmadeeva L. et al, 2009). A neuropathic pain component could be present in 20% - 35% of such patients (Freynhagen R. et al., 2009).

The aim of our study was to see if neuropathic component in patients with LBP is associated with postural stability.

Patients and methods: We made clinical and computerized stabilometric assessment in 50 patients with LBP from 20 to 78 years of age at the neurology ward of the University Hospital in Ufa, Russia. Area of stabilogram during the Rhomberg test was measured along with intensity of pain and diagnosis of neuropathic component clinically and with “painDetect” scores. The study was supported by a grant #P1256 from the Russian Ministry of Education and Science.

Results: Subjectively experienced pain severity was rather weakly correlated with the painDetect scores: the correlation coefficient is −0.002. Sex, age and severity of pain were shown to be not important for the model. We divided the patients into three groups, with the different probabilities of neuropathic pain, and made the box plot of the stability. Significant correlation between the stability and presence of neuropathic component of LBP was seen using ANOVA in patients standing in “European” stance with open eyes (p=0.013).

Conclusions: Neuropathic component of LBP makes standing and keeping balance more difficult for patients regardless of gender, age or pain severity.

RESISTANT HEADACHE, CEREBRAL CALCIFICATIONS AND VITAMIN D DEFICIENCY: A CAUSE-EFFECT RELATIONSHIP?

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Backround: Both headache and vitamin D deficiency have high prevalence in the general population. Recently, implication of vitamin D deficiency in the genesis of chronic headache has been proposed. Pallidal calcifications are found in 2% of adult population and could be considered as physiological.

Aim: We report on 5 patients with persistent headache, cerebral calcifications and vitamin D deficiency.

Methods: We included all cases with persistence headache and physiological calcifications in CT scan . We performed vit D and calcium metabolism tests. All patients in whom Vit D deficiency was found were put under Vit D supplementation.

Results: There were 4 females and one male aged from 49 to 59 year-old (mean 53,6 years). Four patients had tension type headache and one patient had migraine. Four patients had signs due to hypocalcaemia, such as muscular cramp, myalgia, paresthesia, sleep disorders and mood disorders. CT scan revealed bilateral pallidal calcifications in 4 patients and parasagital calcifications in one. Disturbances of calcium metabolism and vitamin D deficiency were noted in all cases. All patients responded poorly to conventional therapy for headache but well responded to vitamin D and calcium supplementation.

Conclusion: We suggest the possible role of vitamin D deficiency in the genesis of chronic headache. This headache was responsive to vitamin D and calcium supplementation in patients with “physiological calcifications”. Nevertheless, these results must be taken with precaution since larger studies are mandatory to confirm this hypothesis.

DOPAMINE THERAPY IN PRIMARY PAIN SYNDROMES IN PATIENTS WITH PARKINSON'S DISEASE

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Introduction: Many reseachers discussed about role of dopamine in functional activity of antinociceptive system(ANS). Parkinson's disease(PD) is an example of common dopaminergic failure, accompanied by widespread pain syndromes.

Aim: To investigate the relationship of primary pain (pain without peripheral sources) in patients with PD and activity of ANS using nociceptive-flexion reflex(NFR).

Patients and methods: 12 patients with PD and primary pain(PD+PP), mean age 63,35±9,04, mean duration of PD 5,68±0,48, 15 patients with PD and low back pain(PD+LBP), mean age: 63,23±10,11, mean duration of PD 5,42±4,8, and 20 patients with low back pain without PD(LBP), mean age: 62,09±9,27, were enrolled in the study.

Pain intensity by visual analog scale(VAS), NFR thresholds(NFRTh) were determined.

Patients undergone clinical examination before and after treatment of motor sign by dopaminergic drugs. Patients had no significant differences in the received therapy, the stage of PD or motor symptoms PD.

Results: Patients PD+PP had significantly($p < 0,05$) higher pain intensity(7,25±1,76 VAS) then PD+LBP(6,73±1,39 VAS), without significantly different with LBP(7,38±1,50 VAS). Patients PD+PP had significantly($p < 0,05$) more types and localizations of pain (2,75±1,48), then PD+LBP(1,63±0,67) and LBP(1,12±0,38). NFRTh was significantly($p < 0,05$) higher in PD+PP(19,25±6,21), and PD+LBP(18,31±4,76), then in LBP(18,3±4,76).

After dopaminergic therapy all PD patients showed decrease intensity of pain. Decreasing was more significantly($p < 0,05$) in PD+PP(5,1±1,72 VAS). NFRTh significantly($p < 0,05$) decrease(14,37±4,78). Any correlations between pain reduce or NFRTh increase and improving of motor signs wasn't received.

Conclusion: Primary pain in PD maybe an example of dopaminergic-assosiated pain due to dopaminergic dysfunction and incompetence of ANS.

CENTRAL PAIN SYNDROME: A CASE OF SYRINGOMYELI MIMIC RADICULAR PAIN

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Background: Syringomyelia may occur after trauma of central nervous system, and due to meningitis, cerbral tumor, hemorrhage, arachnoiditis. Symtoms and clinical findings, appear following months or years after the initial injury. These are pain, weakness, and sensory symptoms.

Methods: 47-year-old female has complained with right shoulder and arm pain for 10 days, she has described the pain as burning, strikelike, tingling sensation. It has radiated to forearm and its severity has eight according visual analogue scale (VAS) and did not change its severity with any position. Proprioseptive and vibration sensation, motor system examination and deep tendon reflexes were normal.

Results: Biochemical and hematologic laboratory findings has been found insignificant. Her electrophysiologic evaluation were normal Contrast enhancement cervical MRI revealed syrinx to extend cervical 5-6 spinal cord and Arnold -Chiari Malformation on kranial MRI. She has started on amitriptyline and gabapentine. Relief of her pain were six (VAS :6) she had operated for occipital decompression and during the follow up 8 months gradually her pain decreased and now VAS score: 2.

Conclusion: I present this case because of interesting presentation like radicular pain.

THE EVALUATION OF ATHEROSCLEROSIS BY MEASUREMENT OF CAROTID INTIMAE THICKNESS IN MIGRAINE PATIENTS

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Objective: Inflammation plays an important role in the pathophysiology of atherosclerosis and increased carotid intimae media thickness (CIMT) is a marker of generalized atherosclerosis. We aimed to assess CIMT in migraine patients.

Material and method: This study included 30 patients and 60 healthy controls aged between 20-40 years. Episodic migraine diagnosis was made according to the criteria of International Headache Society (IHS). Healthy controls without any form of headache were selected from among hospital and laboratory staffs. All subjects were evaluated some parameters and features known to be associated with migraine and vascular changes, i.e. gender, age, body mass index, blood pressure, cholesterol, smoking habits, used hormonal contraceptives and history of disease. The left common carotid arteries of the subjects were examined and CIMT was measured with real-time gray-scale sonography. Mean values and standard deviations were calculated. All measurements were made in migraine free period.

Results: Migraine patients and control subjects were well-matched for those parameters known to be associated with vascular changes, i.e. gender, age, BMI, blood pressure, and cholesterol. CIMT values were higher in patients. The results showed that the mean CCA IMT values were 0.493 ± 0.074 mm and 0.409 ± 0.053 mm in migraine patients and controls respectively ($p < 0.001$).

Conclusions: It is well known that there is a relationship between atherosclerosis and inflammation. The risk of cranial inflammatory arteriopathy increases in repeated attacks of migraine. Our study also supports that high number of attacks and attack duration are important in development of atherosclerosis.

DEPRESSION AND PAIN IN MCI PATIENTS - COGNITIVE REHABILITATION

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Objectives: Pain symptoms are a common reason for seeking treatment and are often associated with depression. However, little is known about the association of pain and depression in MCI patients.

Therefore, the study set out to explore pain symptoms and their associations with a current depressive episode in MCI patients.

Methods: A total of 290 patients aged between 55 and 75, referred to our Ana Aslan Memory Clinic from Bucharest, Romania, were assessed with a proper battery of psychometric tests (Visual Analogue Scale - VAS), Faces Pain Scale, Hamilton Scale for Depression, Yessavage Scale) and enrolled in the study. The inclusion criteria were the presence of depression and MCI.

Results: Of the 290 patients in the study, n=247 (85.2%) indicated at least one pain symptom. About a fifth of the patients (n=63, 21.7%) suffered from a current depressive episode. The patients with depression suffered significantly more often from at least one pain symptom (94% vs. 83%; $p< 0.05$) and reported significantly more often three or more symptoms of pain (73% vs. 40%; $p< 0.01$) than those without depression.

Conclusion: Study findings highlight the complex significance of pain symptoms in MCI patients, in which pain symptoms must be thoroughly investigated both physically and psychologically and carefully interpreted in the patient's clinical context.

NEUROLOGICAL MANIFESTATIONS OF CELIAC DISEASE ABOUT 13 CASES

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Clinical aspects of celiac disease are very polymorphous, it can be revealed by isolated neurological manifestations which are rare and often severe.

Patients and method: A retrospective study including 156 patients followed for a celiac disease in our unit during 16 years.

Results: Out of 156 case of celiac disease, 13 patients presented with neurological manifestations 8.4%. Sex ratio was 0.3, median age was 35.61 years.

These manifestations were represented by: migraine headache in 7cases 53.9%, lower limbs paraesthesia with muscle weakness in 3cases 23%, cerebellar syndrome in 1 cases 7.7%, confusional syndrome in 1 case 7.7% and epileptic seizures with conscience troubles in 1 case 7.7%.

In the 3 cases where electromyography was realised, it showed an axonal polyradiculoneuritis. Brain CT with angiography diagnosed a cerebral thrombophlebitis in the patient presenting seizures, and was normal in patients with cerebellar and confusional syndromes. In the 2 cases where electroencephalogram was realised, it was normal in migraine patient and showed signs in favour of metabolic encephalopathy in patient with confusional syndrome.

In all cases gluten free diet was initiated, associated in 3cases to vitaminotherapy.

In 2 cases the immediate evolution was fatal in reanimation unit, in one case because of cerebral thrombophlebitis and in the other due to metabolic encephalopathy.

Conclusion: Migraine and peripheral neurological manifestations respond to gluten free diet. Central lesions seem to have a severe prognosis in our series.

PREVALENCE OF CHRONIC MIGRAINE, HEADACHE-RELATED DISABILITY AND SOCIODEMOGRAPHIC FACTORS IN US POPULATION: RESULTS FROM AMERICAN MIGRAINE PREVALENCE AND PREVENTION (AMPP) STUDY

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Background: International population-based studies utilizing various chronic migraine (CM) criteria reported the majority of prevalence estimates between 1.4% and 2.2%.

Objective: Estimate the prevalence of CM in the US population by sociodemographic sub-groups and headache-related disability.

Methods: In 2004 surveys were mailed to a stratified sample of 120,000 US households; 162,756 individuals aged ≥12 returned surveys; 28,621 reported severe headache. CM was defined as ICHD-2 migraine with headache frequency ≥15 headache days/month. Crude and sociodemographically adjusted prevalence ratios (PRs) were generated.

Results: 19,189 individuals (11.8%) met ICHD-2 criteria for migraine (17.3% of females; 5.3% of males); 0.9% met criteria for CM (1.3% of females; 0.5% of males). Prevalence was highest in males and females aged 40-49. When compared with persons aged 12-17, adjusted PRs in the 40-49 age group were as follows: females 4.71 (95% CI 3.24-6.83), males 3.31 (95% CI 1.99=5.49.) Rates of CM were inversely correlated with annual household income. Severe headache-related disability was reported by 38.0% of CM vs. 9.5% of EM respondents.

Conclusions: Prevalence of CM in the US was 0.9%, and was highest in adjusted models among females, in mid-life, and households with the lowest income. Severe headache-related disability was most common among persons with CM.

A RARE FORM OF MIGRAINE: SPORADIC HEMIPLEGIC MIGRAINE: CASE REPORT

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Hemiplegic migraine is a rare variety of migraine with aura driving. Besides the familial, sporadic cases have been described. We report a case of sporadic hemiplegic migraine (MHS). A 15 years old patient with no notable medical history, had 4 years of episodes of hemiparesisduring fifteen to thirty minutes, associated with dysarthria and scotomas. It followed bilateral throbbing headache with vomiting and sono-photophobia. These episodes lasted an average of eight hours and were partially relieved by conventional analgesics. Apart from crises, neurological examination, the laboratory tests and brain imaging were normal. The normality of the clinical examination and paraclinical exams in our patient are in favor of the diagnosis of MHS (classification of the IHS 2004). His prevalence is estimated at one in 20,000. It is linked to a mutation of a gene from the MHF (CACNA1A, ATP1A2 and SCNA1). The mutation can be de novo or transmitted on the patient by a parent with incomplete penetrance explaining the generational leap. Clinically, the motor deficit is always associated with at least one other symptom, such as sensory disturbances (98%), visual disturbances (89%) or language disorders (79%). The duration of the aura can vary from ten minutes to two or three days. Unilateral or bilateral headache usually settles after the disappearance of the aura, but may precede or settle the same time. Sporadic hemiplegic migraine is described as a particular subtype of migraine with aura. The diagnosis is mainly clinical, the prognosis is usually good and the management is easy.

INVESTIGATION OF AQUAPORIN-4 ANTIBODIES IN PATIENTS WITH IDIOPATHIC INTRACRANIAL HYPERTENSION

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Objectives: Idiopathic intracranial hypertension (IIH) is characterized by increased intracranial pressure of unknown etiology, although several mechanisms have been proposed. It has also been suggested that anti-aquaporin-4 (AQP-4) water channel antibodies, affecting cerebrospinal fluid (CSF) secretion and absorption, may be involved in IIH pathophysiology by leading probably to parenchymal oedema; however, it could not be proven in a previous study. The aim of this study was to investigate the presence of anti-AQP-4 antibodies in IIH patients.

Methods: Patients fulfilling the modified Dandy's diagnostic criteria for IIH were included. We investigated their clinical features, medical history and CSF findings from their files. An indirect immunofluorescence test was performed to determine anti-AQP-4 antibodies in serum samples.

Results: We included a total of 19 patients diagnosed with IIH. The mean age was 39,1±12,8 years, and 17 of them were female. There were no other associated medical conditions except, hypothyroidism in 2, and glaucoma in 1 patient. The mean body mass index was 29.7±4,5 kg/m² and opening CSF pressure was 347±110 mmH2O. We could not detect any anti-AQP-4 antibodies in the serum of our series.

Conclusion: There is only one report investigating the presence of anti-AQP4 antibodies in IIH. Our study with a larger sample of patients supported that anti-AQP4 antibodies did not seem to be linked in IIH pathogenesis.

IDIOPATHIC HYPERTROPHIC PACHYMENINGITIS: STUDY OF 3 CASES

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Hypertrophic pachymeningitis (HP) is an uncommon disorder that causes a localized or diffuse thickening of the dura mater and has been associated with infections, carcinomatosis and inflammatory diseases. It's named idiopathic Hypertrophic pachymeningitis (IHP) when no cause is found.

We report three cases of female patients with IHP aged 7, 30 and 35 years old. Neurological symptoms included headache and seizures in all patients, multiple cranial neuropathies (VII, VIII, IX, X and I) in two cases, visual disturbance and ataxia in one case. Magnetic resonance imaging (MRI) with gadolinium revealed linear thickening and enchancement of the falx cerebri in two cases, tentoriun cerebelli in one. A meningeal biopsy revealed dense fibrous tissue infiltrated by mononuclear inflammatory cells which excluded secondary causes.

All patients were treated with corticosteroids, with complete resolution in two cases. In the child's case, steroids alone were insufficient. Despite additional immunosuppressive therapy, patient developped an hydrocephalus having required ventriculo peritoneal shunt.

IHP is a chronic inflammatory process, mainly described in adults and exceptional in child. Patients usually present with chronic headaches (92%), cranial nerve palsies (62%) and ataxia. Typical MRI findings are consistent with dural thickening which can be diffuse but often predominant on the tentorium cerebelli and the falx cerebri. The diagnosis was based on biopsy and pathological confirmation. Corticosteroid therapy is often effective, but other immunosuppressive therapies must be use in some cases.

THE ROLE OF COMPLEMENTARY AND ALTERNATIVE MEDICINES IN THE MANAGEMENT OF FIBROMYALGIA. A SYSTEMATIC REVIEW

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Introduction: Fibromyalgia (FM) is a chronicwidespread neurologic pain condition with no consistently effective treatment**.** The aim of this research is to critically evaluate the evidence regarding complementary and alternative medicines (CAMs) taken orally or applied topically for the treatment of FM.

Methods: Randomized controlled trials of FM using CAMs, in comparison with other treatments or placebo, published in English up to June 2011, were eligible for inclusion. They were identified using systematic searches of bibliographic databases and manual searching of reference lists. Information was extracted on outcomes, and statistical significance, in comparison with alternative treatment or placebo, and side effects were reported. The methodological quality of the primary studies was determined.

Results: Single studies on four CAMs, and three on different approaches to homeopathic care were identified. None was published in the last three years. The methodological quality of the reports was moderate. All studies were small, but each reported an improvement in pain. The effects of anthocyanidins, capsaicin and S-adenosylmethionine each showed at least one statistically significant improved outcome compared with placebo. However, the studies of anthocyanidins and capsaicin only demonstrated an improvement in a single outcome, sleep disturbance and tenderness, respectively, of several outcomes considered. No evidence of efficacy was found regarding Soy in a single study. Most of these CAMs were free of major adverse effects and usually associated with only minor adverse effects such as dizziness, nausea and stomach upsets.

Conclusion: There is insufficient evidence on any CAM, taken orally or applied topically, for FM. The small number of positive studies lack replication. Further high-quality trials are necessary to determine whether these initial findings can be supported by a larger evidence base.

HYPERTROPHIC CRANIAL PACHYMENINGITIS: DIAGNOSTIC AND THERAPEUTIC CHALLENGES

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Introduction: Hypertrophic cranial Pachymeningitis (HCP) is an inflammatory process that thickens the dura mater. This disease has various etiologies. The aim of this study was to describe clinical and laboratory observations and therapeutic options of patients with HCP.

Cases report: The clinical features, neuroimaging findings, and treatment outcomes for three patients with different causes of HCP are reported here. The first patient presented with subacute intracranial hypertension syndrome, the second with visual disturbances, and the third suffered from orthostatic headache. In all patients, brain MRI revealed a variable extent of thickened dura mater. Investigations lead to three different diagnosis: tuberculosis of the central nervous system, sarcoidosis and spontaneous intracranial hypotension.

Treatment included anti-tubercular therapy for the first patient, corticosteroid and immunosuppressive drugs for the second one and epidural blood patch for the third. During follow-up, all patients have significant clinical recovery. On serial imaging, the lesion resolved partially in patient having tuberculosis, and remained the same for the rest.

Discussion: Hypertrophic cranial pachymeningitis is an uncommon disorder with few studies correlating clinical, imaging and histopathological features. Clinical manifestations depend on the location of lesions. Headache is the most common sign, and can reach 100% in cases of idiopathic HCP. Involvement of cranial nerves is also frequent especially the VI's pair, none of our patients had cranial nerves involvement. MRI confirms the diagnosis of HCP, assesses its intensity and the lesions distribution, and also detects possible complications.

Conclusion: This report highlights the challenges of the diagnosis and management of hypertrophic pachymeningitis.

MARKERS OF ENDOTHELIAL ACTIVATION IN PRIMARY HEADACHE DISORDERS

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Epidemiological studies show an association of migraine, especially with aura, with cardio- and cerebrovascular events. A dysfunction of the vascular endothelium is suggested to be the underlying pathology connecting these different disease entities. Our study aimed to analyze serum levels of the endothelial activation markers Ang-1, Ang-2 and their receptor Tie-2 in patients with migraine and cluster headache further investigating the role of the vascular endothelium in headache patients.

Bi-center prospective trial enrolling three groups of patients: episodic migraine with and without aura, episodic cluster headache and healthy individuals, who did not take non-steroidal anti-inflammatory drugs or triptans 48 hours prior to blood sample collection. In migraineurs and patients with cluster headache, venipuncture was performed twice: outside attack/bout and during typical migraine attacks/cluster bouts prior to pain medication. Analysis of Ang-1, Ang-2 and Tie-2 was performed using enzyme-linked immunosorbent assay technique.

Levels of Ang-1 were significantly elevated in patients with cluster headache (in bout) compared to migraine patients during and outside attacks as well as healthy controls. In migraine patients Ang-2 levels were significantly increased during migraine attacks compared to headache-free periods. Ang-2 serum concentrations were significantly higher in cluster headache patients in bout compared to healthy individuals. Tie-2 was significantly elevated in patients with cluster headache in comparison with healthy controls.

Our findings of alterations in Ang-1, Ang-2 and Tie-2 serum levels might reflect endothelial activation in this patient population and further corroborate the hypotheses of an important affection of the vascular endothelium in migraine and cluster headache pathogenesis.

PRACTITIONERS FIRST CONSULTED BY PRIMARY HEADACHE PATIENTS ATTENDING THE NEUROLOGY UNIT OF THE YAOUNDE CENTRAL HOSPITAL

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Introduction and aims: The majority of patients with primary headache live in developing countries (Mateen *et al*., 2008). The first practitioner to evaluate these patients plays a key role in their disease outcome. The goal of this study was to determine the first practitioners consulted for headache management in an urban setting.

Patients and methods: We included 216 patients suffering from a primary headache, tension-type headache (TTH) or migraine according to the ICHD-II presenting to Yaounde Neurology Unit from November 2007 to December 2008. They were asked who they consulted the first time for their headache.

Results: Of the 216 patients included in our study 83.33% were diagnosed of TTH (frequent episodic TTH and chronic TTH) and 16.67% of migraine. Mean age was 35.88 ± 12.98 years and female to male ratio was 1.86. General practitioners (GPs) were first consulted by the majority, 47.06% of TTH and 63.63% of migraine patients. Other physicians consulted less frequently included ophthalmologists (13.73% of TTH and 18.19% of migraine patients) and neurologists (17.65% of TTH and 9.09% of migraine patients). Only TTH patients consulted a psychiatrist initially (9.80%). Surprisingly, priests were also seen initially by TTH and migraine patients (7.84% and 9.09% respectively). Traditional practitioners and nurses were least likely to be first consulted by TTH patients (1.96% and 1.96% respectively) and were not consulted by migraine patients.

Conclusion: Initial and continuous medical education on headache should be provided for GPs, given that they are the first practitioners to whom patients with headache present.

SELF MANAGEMENT OF HEADACHE: A CROSS-SECTIONAL SURVEY IN THE GENERAL PUBLIC OF ISLAMABAD, PAKISTAN

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Introduction: Self-management is a common choice of treatment which can be challenging if remedies taken without professional opinion result in unfavorable consequences [(1)]. Headache is a common ailment for which the general population relies on self-management rather than seeking a professional's advice [(2)].It is important to define patterns of self-management in the local population in order to devise future preventive measures [(3)]

Objective: To quantify frequency of self management for headache by adult population aged 18 and above in urban Islamabad.

Design: A cross-sectional study.

Methods: Systematic sampling of households was done in I-8 sector Islamabad. 248 people above 18 yrs age were interviewed on an interviewer administered structured questionnaire.

Results: Male to female ratio was 1:1 with a mean age of 32±12.5 years. 87.9% of the study sample suffered from headache. Out of those suffering from headaches majority (81.3%) employed self management. Pharmaceutical-drugs (87.1%) were the commonest modality employed while vitamins (3.4%), Massage (4.5%), herbal remedies (2.2%) and homeopathic medicines (2.8%) were infrequently utilized. Acetaminophen was the commonest pharmaceutical drug (58.9%), followed by salicylic acid (28.0%). Self-management was slightly more frequent among the Females, and in the below matriculation group . 84.7% claimed to be satisfied with their self-management. Rationale to practice self-management were mildness of illness (47.5%), previous success with self-management (33.9%), financial issues (10.7%) and doctors' unavailability (7.9%).

Conclusion: Self-management of headaches is increasingly prevalent among general public. The majority seek to pharmaceutical drugs, preferring acetaminophen as the mainstay. Most are satisfied with their self management.

ALLEVIATION OF HEADACHE, SULFUR AMINO ACIDS-TAURINE & ANALOGUES IN NUTRITION: A HOPE TO COPE

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Migraine headache is accumulative effect of deficiency symptom, toxin and its complexity. Pathogenesis of migraine is not well understood, yet it is believed; neuronal hyper-excitation, cortical spreading depression, platelet activation and sympathetic hyperactivity are part of complexity. Besides these, stressful life is partial responsible for such happening. It is recorded that chromo-pathological forms of magnesium depletion is involved in physiopathology of migraine. There is increasing evidence that magnesium and taurine are complement to each over. Taurine has neurotransmission/neuromodulatory role. In CSF, taurine has been noted to be high in migraine patients. Plasma taurine levels in patients with migraine are correlated negatively with severity of headache. The higher taurine level in CSF may be due to accumulation of taurine via transport to site of action to participate in Preventive measure .In mechanistic view such taurine liberation during migraine crises may be due to spontaneous depolarization or defensive action of cerebral homeostatic processes. Metabolic platelet defect in migraine patient has been found, with higher taurine platelet concentration during headache. It seems, taurine has a role in prevention of migraine. Another cause of migraine headaches is neurotoxin monosodium glutamates. It is believed that taurine neutralizes its effect. Dietary supplementation of magnesium and taurine has alleviating effect on migraine. To provide Synergetic effect of both, magnesium taurate has been found to be effective. No one can deny the role of pharmaceutical in therapy of migraine, yet nutritional intervention is a right choice for safe and effective solution to cope with running life style.

DOUBLE BLIND STUDY OF TOPICAL SALICYLATE WITH PHOTOPROTECTIVE MASK AS TREATMENT FOR MIGRAINE AND/OR TENSION HEADACHES

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Objective: A placebo-controlled double-blind study was performed to determine the efficacy of a topical anticephalgic premedicated mask in the treatment of migraine and/or tension headaches.

Design and methods: The patients were given masks and numbered bottles of topical medication containing topical salicylates or placebo. They were instructed to apply the medication to their frontalis region in the event they should suffer a headache, put on the photoprotective mask. Furthermore, they were instructed to take oral medications, if required, for relief of the headache.

Results: Seven out of 20 of the patients who received the placebo stated the medication and mask helped and gave it an average rating of 4.31 on a 0-10 scale. Twenty-eight out of 34 of the patients receiving the active medication stated it was effective, rating it 7.42 on the 0-10 scale. Furthermore, the majority of the patients receiving the active medication stated the duration of their headaches was significantly reduced as was their need for analgesic and/or narcotic medications for relief of the headaches.

Conclusion: This study demonstrates a significant difference between the placebo and the true medication in association with the photoprotective mask in treating migraine and/or chronic muscle tension headaches.

IDIOPATHIC INTRACRANIAL HYPERTENSION (IIH) IN SUDANESE PATIENTS; CLINICAL PRESENTATION, DIAGNOSIS AND RESPONSE TO TREATMENT ;KHARTOUM, SUDAN 1999-FEB 2011

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We hypothesized that **Idiopathic intracranial hypertension(IIH)** runs a benign course in Sudanese population , its presentation is typical to what is written in the western literature.

Objectives: To assess the presentation, diagnosis and treatment response of IIH in Sudanese population. And to highlight the diagnostic difficulties in resources -limited areas like Sudan with prevailing brain infections.

Design: Prospective, retrospective ,descriptive and follow up study of 86 patients. Carried in Khartoum area in both public and private setting over 1999-2005 and 2006- Feb 2011.Excluded were those who turned to have alternative diagnosis. Assessment was done using a questionnaire for clinical data, CT in all patients and MRI/V in 55 patients, CSF analysis and routine laboratory investigations. Patients were reassessed at two weeks after treatment, 50% were followed up for 1 year and a half. Sampling was inclusive. Informed patients consents were obtained. Statistical analysis was done using SPSS 15.

Results and conclusion: IIH is not uncommon in Sudan . Sudanese patients with IIH ran a benign course when followed up for a mean of 1 year and half. It is still possible to diagnose IIH without sophisticated neuroimaging, provided that meticulous follow up is guaranteed. The group of patients diagnosed after 2005 were younger, more obese, had the same clinical presentation and incidence of cranineuropathy, higher CSF pressure .They were picked sooner after onset of their disease , but still had low incidence of vision loss as the former group(1999-2005).

PAIN IN FINE ARTS

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Depicting traumatic pain has been quite common since the antiquity but describing the pain that stems from illnesses is far-between.

Pain alters the appercipiation of reality. It frequently makes patients overly indignant and moreover it renders focusing attention more diffikult. It can be expressed by painting figures with eyes deviated outward, using offset, complementary colors and by distorting propportion.

Altering the classic, Polikleiton proportion of the body always generates tension. Dissonance: disturbing, thretening feeling in contrast with the universal harmony of the golden section.

Referring to gothic sculptures and baroque paintings as prefigurations, expressionist masters used this technique consciously.

Strong phisical pain alters perception of space and time as well. Not only the figures but perspective as well is destorted. This what makes Van Gogh´s and Munch´s compositions so thrilling.

Pain is powerful enough to dilate a moment to eternity.

Simple cognitive algorithms, rules of causality can come undone in the mind of the sick person. Surrealist painters depict bizarre and surprising associations suggestively.

An ailing person tends to see pain as an unbelivable nonsense, something incomprehensible or alien, an out of body feeling.

Pain can be alleviated by medicine but to understand and process is the task of art.

Pain alters the relation to reality.

Most common distortions of reality perception generated by pain:

1. failing to focus attention

2. oversensitivity

3. disturbance in perception of space and time

4. cognitive dysfunctions

5. anxiety

6. losing touch with the outside world

7. beeing incapable of objective judgement

REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION AND STOCHASTIC RESONANCE THERAPY AS ALTERNATIVE METHODS FOR TREATMENT OF NEUROPSYCHIATRIC DISORDERS

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Repetitive transcranial magnetic stimulation (rTMS), a non invasive brain stimulation technique has been suggested to be effective for the treatment of depression, neuropathic pain and of spasticity after stroke. This study was designed to find correlations between clinical outcome and tryptophan and kynurenine metabolites e.g. L-kynurenine, anthranilic acid and kynurenic acid (KYNA) content in the serum. Within investigated tryptophan metabolites a reduction of KYNA in the plasma was measured after rTMS.

Stochastic resonance therapy (SRT) is applied for rehabilitation of patients with various neurological and mental disorders e.g. Parkinson disease, Alzheimer dementia, Multiple Sclerosis, depression and schizophrenia, also for the treatment of low back pain and for the prophylaxis of osteoporosis.

The influence of SRT as an exercise activity on tryptophan metabolites e.g. L-tryptophan, L-kynurenine, kynurenic acid and anthranilic acid was analyzed in the serum of healthy subjects 1 min before SRT and 1, 5, 15, 30 and 60 min after SRT application. We found L-tryptophan, L-kynurenine and kynurenic acid were time dependent significantly lowered up to 60 min after SRT.

The lowering of kynurenic acid due to SRT and rTMS might increase the neurotransmission of dopamine- and cholinergic systems and therefore activates the anti-depressive, anti-dementive and anti-aging processes. The non invasive therapies thus SRT and rTMS are relevant methods for the improvement of symptoms in Parkinson's and Alzheimer's diseases and in patients with mental depression and/or in patients with chronic pain conditions.

INTERICTAL GASTRIC MOTILITY IN PATIENTS WITH MIGRAINE

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Introduction: Nausea and vomiting are predominant accompanying symptoms of migraine attacks. Although underlying mechanism is yet unclear, gastric stasis is assumed to be the main mechanism. However, there have been few studies which have utilized direct methods to establish delayed gastric emptying of migraine patients. We compared interictal gastric motility between migraine patients and normal controls.

Methods: The study population included patients who were diagnosed with episodic migraine, according to ICHD-II. The migraine patients and healthy control group were closely age matched. All study population was completely free of gastrointestinal symptoms during headache free period. Gastric scintigraphy was performed and time to half emptying (T1/2) and the percentage of radioactive material remaining at 30, 60, 90, 120 min (% RMR) in the stomach were evaluated.

Results: Twenty six migraine patients and 12 normal controls were recruited. The mean T1/2 was not different between two groups (101.8 vs 95.2 minutes; *p=0.432*). % RMR in stomach at the 30, 60, 90, 120 minutes showed no significant difference between two groups (30min % RMR: 87.5% vs 88%, p=0.900; 60min % RMR: 70.8% vs 71.2%, p=0.950; 90min % RMR: 54.2% vs 53.3%, p=0.753; 120min % RMR: 39.0% vs 37.3%, p=0.583).

Conclusions: There is no gastric stasis in patients with episodic migraine during headache-free periods. Our results suggest that the main mechanism of nausea and vomiting in migraine patients is not a gastric stasis in interictal periods, but rather a central process as a part of changes occurring in the brainstem during acute migraine attacks.

CLINCAL CHARACTERISTICS OF PRIMARY SUDDEN MAXIMAL ONSET HEADACHE

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Objectives: IHS classified primary sudden maximal onset headache (PSMOH) disorders into four different subtypes:

1) primary thunderclap headache (PTH);

2) primary cough headache (PCH);

3) primary exertional headache (PEH); and

4) primary headache associated with sexual activity (PSH).

Even though each type of PSMOH shares many common characteristics, studies on the similarities and differences among these four disorders are limited.

Methods: We prospectively recruited patients 72 patients with PSMOH. We enrolled patients presenting with sudden severe headache, reaching maximal intensity within 1 minute. We compared clinical characteristics and incidence of vasospasm between the four PSMOH disorders.

Results: PCH (n=30, 41.7%) was most frequent PSMOH followed by PTH (36.1%), PSH (11.1%) and PEH (11.1%). 31.9% of patients suffered recurrent attacks at presentation. 68% of patients had more than one provoking factor. Defecation (n=14, 19.4%) was most frequent provoking factor. Mean age was 45.1 years (range: 15-70). PEH group (33.1 years old) was younger than other groups. Overall male to female ratio was 1:1.7. In the PEH and PSH group there was a male predominance, whereas female predominance was found in PCH and PTH. Mean duration of headache was 39.9 minutes (range 0.17-720 minutes). The headache duration was shorter in PEH (15.1 minutes) than other groups. Vasospasm was documented in only 10 patients (13.9%).

Conclusion: Patients with PSMOH frequently have more than one provoking factors. Contrary to the previous studies, the headache duration of PEH is shorter than PCH and vasospasm is not frequent in PSMOH.

BREASTFEEDING DURATION INFLUENCE ON MIGRAINE SYNDROME ONSET

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Objective of this study was to determine influence of breastfeeding duration on migraine syndrome.

Methods: Influence of duration of breastfeeding on manifestation of migraine syndrome and on age at which symptoms occur, was examined by analyzing of anamnestic data about nutrition of 24011 children age 3 to 17, residing in North Serbia.

Results: The results were induced by comparing data for children without non-migraine (18,83%) and migraine headache recurrent headache (8,63%). Negative Pearson correlation ratio (-0,07, $p< 0.01$) clearly shows the reciprocal influence of duration of breastfeeding on migraine syndrome onset, and earlier onset of migraine syndrome in children who were breastfed for shorter time, respectively ($p< 0,01$).

Conclusions: Defining of duration of breastfeeding as an early predisponing factor of migraine syndrome gives the possibility for very early prevention of migraine syndrome, especially in children with positive heredity for migraine syndrome.

EEG CORRELATION IN CHRONIC EPISODIC HEADACHES

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Objective: To identify EEG features of main clinical types of the chronic episodic headaches(CEH).

Methods: In the study, 40 patients aged of 18-40 years with CEH. EEG was conducted using 20-channel “Digital SOLAR 2000”. Statistical processing was executed by non-randomized method and calculated.

Results: In migraine, EEG background activity as an age-related **α**-rhythm occipital and temporal regions within the 8-11Hz band width of low amplitude in 4 (30.7%), with bilateral, symmetric activity in 3(23.1%), slowing of the background (**θ, δ** rhythms)- in 3(23.1%) and dysrhythmia in 2(15.4%) cases were presented. During photic stimulation(PhS), sharply contoured **α**-rhythm 1(7.7%), slowing of the background (**θ, δ** rhythms) 2(15.4%) slowing of the background in response to HV(**θ, δ** rhythms) - 2(15.4%), change in rhythm 5(38.5%) were seen respectively (p>0.05).

In tension-type headache, background as an age-related **α**-rhythm within the 8-11Hz band width 6(25%), **θ, δ** rhythms increased in the lateral frontal region 6(25%) bilateral, symmetric activity 4(16.7%) and dysrhythmia-5(20.8%) were recorded. During PhS, sharply contoured **α**-rhythm -5(20.8%), slowing of the background (**θ, δ** rhythms) 3(12.5%) slowing of the background in response to hyperventilation (**θ, δ** rhythms) 2(8.3%) were registered respectively.

In cluster headache, **β**-rhythm in the occipital and temporal regions within the 13-15-Hz bandwidth-1(33.3%), bilateral, symmetric activity-2(66.7%), sharply contoured **β**-rhythm in response to PhS-1(33.3%), dysrhythmia in response to HV-1(33.4%) were recorded respectively.

Conclusion: EEG features of the CEH are mild changes brain biopotential activity, sharply contoured α, β rhythms and slowing of the background.

SPONTANEOUS INTRACRANIAL HYPOTENSION UNDER DIAGNOSED COMPLICATED BY SUBDURAL HEMATOMA FOLLOWING LUMBAR PONCTION

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Introduction: Spontaneous intracranial hypotension is an infrequent cause of secondary headache due to a CSF hypovolemia, that occurs in the absence of known dural tear.

Objective: To describe a case of headache revealing spontaneous intracranial hypoten with no past medical history, presented acute postural headaches. Initialized Cerebral CT scan was normal. Lumbar ponction was realized, without measure of cerebral spinal fluid pression, showed hyperproteinorachy at 2 g/l with 6 cells with lymphocitosis. The headaches had become very intense. At admission, clinical examination was normal. Ophtamological examination didn't show any abnormalities. An encephalic MRI realized, showed bilateral subdural hematoma. After surgical drainage and symptomatic treatment, the patient was discharged with no recurrence.

Conclusion: Spontaneous intracranial hypotension associate simple clinical presentation, orthostatic headache, and characteristic MRI findings have resulted these last years in an improved recognition of this syndrome. The serious adverse effects of lumbar puncture are an easy and common medical procedure that must be kept in mind.

HOSPITAL BASED CHARACTERISTICS AND ETIOLOGIES OF HEADACHE DISORDERS IN SUBSAHARAN AFRICA, EXPERIENCE OF DOUALA, CAMEROON

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Background and aims: Headache is the leading cause of consultation in neurology in Douala. The aim of this study was to describe the epidemiological characteristics of headache in the neurological unit at the Douala General Hospital.

Methods: It was a cross-sectional and prospective study conducted at the neurological unit in the service of internal medicine of Douala General Hospital from November 2009 to October 2011. We included consecutively all the patients who presented in the neurological unit with headache. Demographic and clinical data were obtained and complementary tests were performed according to the clinical findings. All the patients were seen by a specialist. International Classification of Headache 2004 was used to classify patients.

Results: 460 patients (60% of women) were included with a mean age of 37 ± 14 years. Primary headache was found in 78% of patients mostly diagnosed as migraine; while infection of the central nervous system (CNS) related to HIV infection represented the main cause of secondary headache.

Conclusion: Primary headache appear to be the mostly frequent cause of headache in Cameroon but infection of the CNS should be considered in the context of high HIV prevalence.

TEN YEAR EXPERIENCE OF INTRATHECAL BACLOFEN ON A PAIN CLINIC- AN OVERVIEW:

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Background and aims: Spasticity is a sequelae of many neurologic diseases, often treated with baclofen, an agonist of $GABA_B$ receptor. Intratecal baclofen (ITB) administration is a relatively specific treatment for spasticity, without the inconvenient effects on arousal and cognition of its oral counterpart. Authors present results of this treatment in a series of neurological patients.

Methods: We reviewed 134 patients' clinical data of spasticity treatment with ITB pump between 1999-2010, in order to present a global overview. Patient selection criteria were: chronic severe disabling spasticity refractory to oral medications and physical rehabilitation, persisting for at least 6 months, associated with important incapacity (mRankin Scale >2), and positive response to a previous ITB test.

Results: Of the 134 patients, 29% were female and 71% male. Mean age was 47 years old. ITB pump was used to treat spasticity due to multiple aetiologies: most frequently spinal cord or cranioencephalic injury (40%), other causes included “cerebral palsy”, stroke and multiple sclerosis. The majority of our patients obtained an important improvement in the physical status and quality of life (QoL), in a subgroup we verified amelioration in the quality of care provided by caregivers. No major complications happened during surgical procedures, nevertheless nine patients' devices had to be removed (six due to infections, one to pump maldaptation, one to device externalization).

Conclusion: From our experience ITB pump treatment is a relatively easy and safe procedure that can be effectively applied in properly selected patients with a satisfactory outcome regarding motor function and QoL.

STUDY OF ANTITUMORAL AND ANTINOCICEPTIVE EFFECTS OF BLACK MOROCCAN PROPOLIS IN THE RAT

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Propolis is a resinous natural hive product derived from plant exudates collected by honey bees. Due to biological and pharmacological activities, it has been extensively used in folk medicine since ancient times. The chemical composition varies qualitatively and quantitatively with the geographical and botanical origins. In the present study, we attempted to verify the possible antitumoral and antinociceptive activities of extracts obtained from black Moroccan propolis. In the antinociceptive effects, three experimental models were used (acetic acid, formalin, and hot-plate tests) in order to characterize the analgesic effect. The extracts significantly, and in a dose-dependent manner, reduced the pain induced by intraperitoneal injection of acetic acid. The water extract of propolis have also a significant effect in the hot plat test . In the formalin test significantly reduced the painful stimulus in the early phase and the late phase of the test. These results suggest that the compounds present in the extract of black propolis activated both central and peripheral mechanisms to elicit the analgesic effect.

HEADACHE IN CONSULTATION: A MEDICAL FILE DESIGNING

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Introduction: Headaches are one of the most common reasons for consultation of Neurology. Their causes are extremely various. The first step is analyzing the characteristics of pain and associated signs to distinguish primary headache from secondary.

Objective: Interest of creation of the file headache in consultation

Results: The types of headache the most experienced in our practice are dominated by primary headache for especially migraine, tension type headache and cluster headaches. Furthermore, we found through the new " headache file" otherwise increasing discovery of high blood pressure revealed by headache.

Conclusion: In this paper, we propose a " headache file" with a questionnaire targeted for a better assessment and management of headache consultation.

THE FREQUENCY AND CLINICAL CHARACTERISTICS OF CHRONIC HEADACHE AMONG NURSING STUDENTS IN A NIGERIAN UNIVERSITY

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Introduction: Headache is one of the commonest somatic complaints in general practice. However, certain types of headaches affecting young people such as migraine and cluster headache constitute significant health problems due to their frequency and accompanying morbidity which include disability and loss of performance.

Aims & objectives: The aims of the study were:

I. To determine the frequency rates of various types of headache among this cohort of predominantly female undergraduates.

II. To define precipitating factors of headache and assess their impact on the quality of life of the affected students.

Design / methods: This was a cross - sectional and descriptive study carried out from September to October 2010 among nursing students of the College of Health Sciences of LAUTECH Osogbo Nigeria in clinical years. Data were collected by a self - administered questionnaire. Demographic Variables, age of onset of headache, past medical, family and social histories were obtained. Diagnosis of migraine, tension and Cluster headache were based on the international headache society criteria. Precipitating factors were also determined .

Results: A total of 213 out of 289 nursing students took part in the study giving a participation rate by 73.7%. Chronic headache was reported among 90 students giving a frequency rate of 42.3% with females representing 87.8% of the affected subjects and migraine headache diagnosed among 55 subjects was the commonest followed by tension headache.

Conclusions / relevance: Chronic headache is prevalent among undergraduates in this Nigerian University. Overall, migraine was the most predominant.

CONTRIBUTION OF DN4 QUESTIONNAIRE IN THE DIAGNOSIS OF NEUROPATHIC PAIN

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Background: Neuropathic pains (NP) refer to all pains initiated or caused by a primary lesion or dysfunction of the nervous system. DN4 questionnaire has very good discriminative properties for the identification of NP characteristics.

Objective: To estimate the sensibility and specificity of DN4 translated in Arabic version and to demonstrate if NP is only caused by neurologic lesions.

Methods: DN4 was used in a prospective study composed by two groups: 434 patients presenting with NP followed for the neurology department and 394 subjects suffered from pain in rheumatology, orthopaedics and oncology department. Diagnoses of nervous or somatic lesion were based on medical history, physical examination, electromyography and/or imaging when indicated.

Results: DN4 was positive to 465 (56,1 %) patients among whom 319 patients were followed for NP. The most frequent etiology of NP: diabetic neuropathy (36.2%), post stroke pain (18.3%), medullar compression (32.9%) and multiple sclerosis (6%). Non-neurological causes including essentially broken bones (13.8%), degenerative osteoarthritis (6%) and cancer (5,7%) could be responsible of NP. The test sensitivity and specificity were 71% and 68.8% respectively.

Conclusion: DN4 could be easily used by pain specialists or non-specialists in daily clinical practice as a screening tool to better detect NP. The present data indicate that a definite neurological lesion is not essential for the diagnosis of NP. Even in somatic lesions spatially in cancers lesions, NP should be screened to ameliorate pain. It will be interesting to confirm the psychometric properties of DN4 in Arabic version on a wider population.

PATHOPHYSIOLOGY OF A PAIN SYNDROME AT PATIENTS WITH SYRINGOMYELIA

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Background and aims: Pain at syringomyelia patients has signs of neuropathic pains and results from structural impairment of central nervous system. The aim of investigation is to research algic, psycho-autonomic status, life quality and serum serotonin level at patients with syringomyelia.

Patients and methods: 38 patients with syringomyelia were investigated (20 female, 18 male). The middle age was 46,3±7,1 years old. The illness duration to the time of investigation was 15,3±3,1 years. At all cases was established cervicothoracic syringomyelia with MRI verification. At 45% syringomyelia was combined with Arnold-Chiari abnormality. The complex of investigation included: Visual Analogical Scale 100 mm, questionnaires DN-4, Pain Detect, Beck Scale for depression, HADS, Spilberger-Hanin test for reactive and personal anxiety, “Life Quality” SF-36. Serotonin level was determined using the method of IFA. The controls - 20 practically healthy persons, with the same gender and age structure.

Results: Pain intensity due to Visual Analogical Scale at syringomyelia group was 61,3+8,5 mm. At 70% of cases the pain had criteria of neuropathic pain, middle Pain Detect test score - 14,1±6,8. Psychometric tests showed affective disorders: subclinical depression (Beck score - 17,4±7, HADS anxiety subscale - 6,4±1,8, depression subscale - 6,7±2,1), mild level of reactive (40,6±7,8, $p< 0,05$) and personal (42,3+9,2, $p< 0,05$) anxiety. At basic group was signed decreasing of life quality on 44,6±9,8% and serotonin level till 104,8±42,2 ng/ml.

Conclusion: Thereby, at patients with syringomyelia neuropathic pains combined with affective disorders and decreased blood serotonin level take place, it shows exhausting of antinociceptive system.

CHANGES IN LIQUID EMPYING IN MIGRAINE PATIENTS: DIAGNOSED WITH LIQUID PHASE GASTRIC EMPYING SCINTIGRAPHY

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Objectives: Gastric stasis is suspected mostly to be encountered during acute migraine attack. The aim of this study is to evaluate the liquid phase gastric emptying and motility in migraine patients in ictal and interictal period in comparison to normal subjects with gastric emptying scintigraphy.

Methods: Seven women with migraine and age,sex matched controls who applied to Neurology Department from May 2009 to May 2010 were compared. Gastric emptying study with a standard liquid was performed one time in the nonmigraineurs group and two times in the migraineurs group.

Results: Nonmigraineurs controls and migraineurs were compared. The mean T1/2 was longer in ictal period in migraineurs**.** The T1/2 of migraineurs interictally and the control groups were similar. Also the T1/2 of migraineurs ictally and migraineurs interictally were also compared. We also considered the percentage of the radioactive material remaining in the stomach. There were no significant differences between nonmigraineurs and migraineurs interictally. However, increased amount of radioactive material remaining in stomach was observed in migraineurs ictally.

Conclusion: We concluded that the liquid emptying was delayed in spontenous migraine attacks in migraine without aura, however in interictal period the emptying of liquids did not differ between migraineurs and nonmigraineurs.

HYPNIC HEADACHE, IMPROVEMENT WITH LAMOTRIGINE: TWO CASE REPORTS

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Introduction: Hypnic headache or sleep paroxysmal headache is a rare primary headache which affects people aged over 50 years and occurs exclusively during sleep. His treatment relies on caffeine, lithium, indomethacin or oxétorone.

Cases report: Two patients ;a man and a woman aged 57 years and 63 years, with a history of duodenal ulcer, suffer during a few months from frequent and moderate headaches (at least 15 days / month) occurring only at night and resist to treatments. The physical exam, imaging and sleep polygraphy were normal. The diagnosis of hypnic headache was made.

Given the history of ulcer, and the unavailability of some treatments in Morocco, we opted for Lamotrigine. The outcome was dramatic.

Discussion: Hypnic headache is often bilateral, moderate to severe occurs many times a night. It must be distinguished from the onset of migraine attack at night. It is a good model to study the relationships between sleep and headache. To our knowledge, the response to Lamotrigine has never been reported.

Conclusion: Because of its safety profile and availability, Lamotrigine could be an effective alternative in the treatment of hypnic headache.

ANALGESIC EFFECT OF AESTHETIC PACKAGING DESIGN IN TREATMENT OF HEADACHES

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Aim of the study: Packaging is an extrinsic part of the product. Many studies examine the influence of packaging design on consumer behavior. Our study tests the influence of pharmaceutical packaging design on preference and satisfaction.

Methods: The effect of aesthetic packaging design of two brands of analgesic used to treat headaches was studied in a sample of women and men when they suffer from headaches. We first conducted a pretest to identify two brand's packaging: the most attractive and the least attractive. The two brands of analgesic contain an active formulation. The sample was randomly into two groups in which subjects received the brand to have an attractive packaging design (Group 1), or that which is have an unattractive packaging design (Group 2). Data were collected by the subjects themselves when they suffered from headaches through a numerical scale of pain assessment. Subjects evaluated their pain before taking an effervescent tablet 500 mg, then 20 min, 2h and 4h after taking it.

Results: The two groups have respectively at the evaluation times t0=5,96; t1= 3,83; t2=2,38; t3=1,85 for the Group 1and t0=5,86; t1=4,3; t2=2,19; t3=1,05 for the Group 2.

We found no significant differences ($p > 0,05$, $p = 0,736$) between the potency of the attractive brand packaging analgesic and the unattractive one.

Conclusion: The findings showed that pharmaceutical packaging has no additional marketing placebo effect. Our results suggest that an attractive brand of analgesic has the same potency than an unattractive brand in relieving headaches.

PSEUDOTUMOR CEREBRI (PTC) OR IDIOPATHIC INTRACRANIAL HYPERTENSION (IIH) - A PERSONAL SERIES EMPHASIZING MANAGEMENT WITH CEREBROSPINAL FLUID (CSF) SHUNTING

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Objectives: Since PTC or IIH pathogenesis is still unknown, management remains largely empiric. Severely symptomatic patients, non-responsive to pharmacotherapy, require surgical treatment, usually CSF shunting for intractable headache (HA) or to prevent vision loss. These complications of PTC/IIH can indeed be life altering if not managed efficiently and timely.

Methods: Our hospital- and private-practice-setting-based PTC/IIH experience (2002-2011) was reviewed retrospectively, focusing on specific difficulties with CSF shunting for PTC/IIH.

Results: Fourteen females (seven morbidly obese) were identified (mean 38-years-old; range 21- to -56-years-old) with follow-up from 6 months to 7 years. One patient developed PTC with normal body weight and one had a remarkable bariatric surgery-related malabsorption syndrome with weight loss preceding PTC/IIH development. All had lumboperitoneal shunting (LPS) except two, who required ventriculoperitoneal shunting (VPS) for LPS-induced intracranial hypotension in one patient and for failed optic nerve sheath fenestration (ONSF) and LPS in another case. Headaches responded well in 11 patients and vision improved in each patient presenting with progressive incomplete vision loss. Surgical revision was necessary in eight patients. Initial placement of a spinal drain was beneficial for management decision in seven patients. A programmable STRATA-LPS valve was placed in four patients, whereas all other cases had a horizontal-vertical valve LPS placed. Shunt dysfunction work-up was routinely performed with lumbar puncture (LP), radiological imaging and dynamic nuclear shuntography by LP.

Conclusions: LPS, especially with a programmable system, is very effective for PTC/IIH management but requires careful attention to detail during the implant process and postoperative dysfunction evaluation.

EVALUATION OF OLFACTION IN PATIENTS WITH MIGRAINE USING AN ODOUR STICK IDENTIFICATION TEST

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Aims: Peculiar characteristics of migraine headaches include the arousal of olfaction during the attacks and osmophobia. We performed an olfactory test to evaluate the association between olfaction and migraines.

Methods: We evaluated olfactory dysfunction in 80 migraine patients (31 experienced migraines with aura [MWA], 49 migraine without aura [MWOA]) and 30 healthy controls. Participants were assessed for concurrent osmophobia. Olfaction was evaluated using an odour stick identification test (OSIT), in which participants were asked to identify various odours during a migraine-free period. The degree of offensiveness of each odor was also evaluated.

Results: Sixty-three percent of migraine patients were found to have concurrent osmophobia (MWA 71%; MWOA 57%). The percentages of migraine patients and controls who correctly identified test odours were 91% (92%, MWA; 89%, MWOA) and 92%, respectively. Perfume, rose and Japanese cypress odours were more offensive to migraine patients than to controls. All test odours were found to be more offensive to MWA than to MWOA patients.

Conclusions: The OSIT showed certain odours to be highly offensive to migraine patients even when they were not experiencing migraine headaches. More attention should be paid to odors that are perceived to be offensive by migraine patients, particularly those with MWA.

CHILDHOOD'S CHRONIC HEADACHE IN CHILDREN'S NATIONAL HOSPITAL OF ALBERT ROYER IN DAKAR

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Introduction: Children´s headaches are frequently primary. As in adults, symptomatic headache must be considered among these.

Purpose: We determined clinical and aetiological features of headache in a sample of children.

Methodology: This was a prospective study conducted at the Children National Hospital Albert Royer in Dakar. We included children aged 5-15 years, received in out-patient department for chronic headache. The personal and family past medical history, headache characteristics, physical examination data were searched and supplemented with tests according to the clinical context.

Results: We collected 43 children. The sex ratio was 1.05 in favour of girls. The mean age was 10.68. Fifty-five point eight percent had familial past medical history of chronic headache in at least one of the two parents. It was localized headache in 76.19% and diffused in 21.42%. Headaches were frontal or fronto-orbital (35.71%), temporal (19.4%), hemicranial (16.66%). Triggering factors were noisy atmosphere (60.40%), light (37.20%), fatigue (35%), heat (28%), and nervousness (25.50%). The brain CT- scan was performed in 25.50% and had returned normal except in one case. The EEG performed in 14 patients did not find any abnormality. Migraine was present in 58.13%, non specific headaches in 41.80%, hypertension induced headache in one case (2.3%). Associated pathologies were psychomotor developmental delay (11%) and seizures (11.62%).

Conclusion: Children chronic headaches are frequently primary ones, above all migraine. Sensory and psychic factors are the most frequent among triggering factors. As in adults, atypical features must lead to cerebral lesion research.

ABNORMAL BRAIN EXCITABILITY AND COGNITIVE DYSFUNCTION IN ADOLESCENTS WITH CHRONIC DAILY HEADACHE

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Objectives: We studied cognitive event related potential P300 elected by specific visual verbal and non-verbal stimuli “Headache” at adolescents with daily chronic headache (CDH).

Methods: We recorded cognitive event related potential (ERP) P300 (significant stimuli - verbal (the word - «headache») and non-verbal (the image «headache»)) in 14 healthy adolescents and in 14 age, gender and socio-economic matched CDH patients. To test the ERP habituation, three consecutive blocks were recorded for P300 potential. Habituation of the ERPs P300 was defined as the % change of the N2/P3 amplitude between the 1st and 3rd block.

Results: There was no difference in either the grant average N2/P3 latency or the grant average N2/P3 amplitudes as for verbal (323,8±70,8 ms; 19,6±5,5 mV and for the grant average latency and the amplitudes P300, respectively) as for non-verbal (342,4±64,2 ms; 21,2±6,1 mV for the grant average latency and the amplitudes P300 potential, respectively) stimuli at CDH group compared with controls.

During repeating stimulation (three blocks of stimuli) there was significant lack of habituation in CDH patients at specific verbal (+ 3,5%) and non-verbal stimuli (+0,8%) compared with controls (-15,6% and -13,4%, respectively).

Conclusions: The lack of habituation in response to significant verbal and non-verbal stimuli points to the increase of brain excitability at CDH group. The results point at the development of memory changes and cognitive dysfunction in adolescents with CDH.

THE PERCENT OF CHRONIC MIGRAINE PATIENTS WHO RESPONDED TO ONABOTULINUMTOXINA TREATMENT PER TREATMENT CYCLE IN THE PREEMPT CLINICAL PROGRAM

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Background: Chronic migraine (CM) is a prevalent, disabling neurological disorder. OnabotulinumtoxinA is the only approved therapy for CM. In patients who do not respond to the first onabotulinumtoxinA injection cycle, it is unclear whether subsequent injection cycles will be effective.

Methods: PREEMPT (two phase 3 studies: 24-week, double-blind, placebo-controlled, parallel-group phase, followed by 32-week, open-label phase) evaluated onabotulinumtoxinA for prophylaxis of headaches in CM (≥15 days/month with headache lasting ≥4 hours/day). Subjects were randomized (1:1) to onabotulinumtoxinA (155-195U) or placebo every 12 weeks. We evaluated ≥50% responder (i.e. improvement) rate for three treatment cycles across multiple efficacy variables. This rate exceeds the previously suggested clinically meaningful response rate of ≥30% in patients with CM.[1]

Results: Pooled analyses demonstrated high responder rates among onabotulinumtoxinA-treated patients (n=688) after Treatment Cycle 1 in frequency of headache days (49.3% of patients), moderate/severe headache days (53.0%), and cumulative hours of headache on headache days (54.2%) and a ≥5-point improvement in HIT-6 (56.3%). After Treatment Cycle 2, an additional 11.3-14.5% of patients who did not respond to Treatment Cycle 1 became responders. With a third treatment, an additional 7.4-10.3% of patients became responders.

Conclusions: These data demonstrate that a high proportion of onabotulinumtoxinA-treated patients are responsive (≥50% improvement) to the first treatment cycle, and patients who were not responders to the first cycle may become responders with a second and/or third treatment cycle.

Reference: 1. Silberstein SD. Cephalalgia 2008;28(5):484-95.

Support: Allergan, Inc.

ONABOTULINUMTOXINA FOR TREATMENT OF CHRONIC MIGRAINE: 56-WEEK ANALYSIS OF THE PREEMPT CHRONIC MIGRAINE SUBGROUP WITH BASELINE ACUTE HEADACHE MEDICATION OVERUSE

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Objective: Evaluate efficacy, safety, and tolerability of onabotulinumtoxinA as headache prophylaxis for the chronic migraine (CM) subgroup overusing acute headache medications (AHM).

Background: CM is a prevalent, disabling, undertreated disorder. Up to 73% of CM patients overuse AHM.

Methods: PREEMPT included two phase 3, 24-week, double-blind, placebo-controlled studies, followed by a 32-week, open-label phase. Subjects were randomized (1:1) to onabotulinumtoxinA (O) or placebo (P) every 12 weeks. The medication overuse (MO-yes) subgroup included subjects who during the 28-day baseline used AHM ≥2 days/week, simple analgesics ≥15 days/month, and/or other AHM types ≥10 days/month (eg, triptans). 56-week, pooled MO-yes subgroup results are reported.

Results: Of 1384 subjects, 65.3% (n=904) met MO-yes criteria (O/O: n=445, P/O: n=459). Most (69.9%) had multiple analgesic MO; few (2.7%) had opioid MO. Week 24: MO-yes subgroup demonstrated statistically significant between-group decreases from baseline favoring O vs P for primary (headache days, $p< 0.001$) and all secondary efficacy endpoints: migraine days ($p< 0.001$), moderate/severe headache days ($p< 0.001$), cumulative headache hours ($p< 0.001$), headache episodes ($p=0.028$), and percentage with severe Headache Impact Test (HIT)-6 score ($p< 0.001$). Large mean decreases were observed through Week 56 compared to Week 24. Few MO-yes patients (4.1%) discontinued due to adverse events (AEs). Overall AE incidence was 72.6%.

Conclusions: Most PREEMPT patients had baseline MO. This analysis demonstrated that repeated onabotulinumtoxinA treatment is an effective, safe, and well-tolerated headache prophylactic treatment for many CM patients with non-opioid, baseline MO, producing clinically meaningful improvements for multiple headache symptom measures.

Support: Allergan, Inc.

MILLER FISHER'S MIGRAINE ACCOMPANIMENTS IN PATIENT WITH PREVIOUS ALICE IN WONDERLAND SYNDROME

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Background: Migraine is a chronic neurological disorder including a number of transient non-pain symptoms like migraine aura and childhood periodic syndromes. Alice-in-Wonderland syndrome (AWLS) and C.Miller Fisher's (MF) migraine accompaniments are considered to be migraine equivalents of childhood and late-life respectively.

Objectives: To describe a case of MF migraine accompaniments in patient with previous AWLS.

Methods: Case study.

Results: A 63-year-old woman suffered from attacks of migraine with aura from the age of 7 years. Aura was presented with zigzags, scotoma, hemianopsia. In some episodes teleopsia, pallinopsia and micropsia phenomenas preceded headache. Migraine episodes have been vanished completely at the age of twenty. In January 2010 patient had a 40-minutes episode of right-side hemianopsia which was followed by a severe throbbing right-side headache with nausea. Since that time patient have noticed episodes of typical visual aura (scintillating zigzag lines, scotoma, hemianopsia) without following headache. Mean duration of these episodes was 30 minutes. Headaches also re-established: unilateral pressing/throbbing, of moderate intensity, 5-6 times per month, with nausea, aggravated by routine physical activity. No link between time of onset of aura and headache was noticed. MRI showed small retrocerebellar cyst. MRA, EEG, carotid duplex were normal. Patient`s mother and aunt suffered from migraine without aura.

Conclusions: Presence of AWLS and MF syndrome in one patient was not previously reported. It's supposed that both AWLS and MF syndrome are result of the cortical neuronal hyperexcitability. This case could be evidence that AWLS and MF syndrome are two sides of the same coin.

MIGRAINE HEADACHE AND SLEEP DURATION

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Background and objective: Already known that prolonged sleep may provoke Migraine attack. Evidence shows that prolonged sleep is one of the crucial factors causing the Weekend headaches. Objective of this study is to measure sleep duration as a potential factor provoking Migraine attack.

Method: Fifty patients suffering from Migraine (F:M=39:11), with aura (MA) and without aura (M), (MA:M=6:44) middle aged of average 38 (37+/- 1.5) fulfilling the criteria of IHS. Respondents were professionally active, at least 8 hours per five working days of the week, obliged to fill the monthly questionnaire about the sleep length within last 24 hours, and eventual appearance of headache with migraine characteristics.

Results: 47 respondents filled questionnaire. Average sleep during work week was 7.23 hours (+/- 3.8 hours). Average sleep during Weekends was 8.25 hours (+/-1.56hours). Number of migraine attack was 88 (+/- 1.87). Number of Migraine attacks during weekend was 36 (41%), since, within the group of patients sleeping longer than 9 hours number of attacks was 27 (31%). Results shows more frequent attacks if sleep duration was over 9 hours. Number of attacks within the group of patients having prolonged sleep of over 9 hours was over 33 (37.5%) towards total number of headaches. Correlation exists between Migraine frequency and shorter sleep duration.

Conclusion: *P*rolonged sleep > 9 hours increases frequency of migraine headache primarily during weekend, but also during work week. Length of sleep longer than 9 hours is a clear migraine attack trigger.

PLACE OF THE SCANNER IN THE CRANIOBRAIN ASSESSMENT OF CHRONIC HEADACHE

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Introduction: Headaches are a common reason for neurological consultation.They are part of several entities nosocomial both medical and surgical diseases. It is a real public health problem.

Objective: The authors report the results of brain scan cranio DE21 series of patients in the etiological chronic headache, over a period of 3 months. The device used is a 64 slice scanner.

Results: Of the 21 patients, 11 were male. The patients´ ages ranged from 24 years to 41 years. Nearly 40% of patients have a normal brain scan cranio. He was found two lesions consistent with meningioma and a pituitary macroadenoma cases. 2 lesions can be suspected brain abscess. He was found two cases of chronic sinusitis. 2 cases of deficiency-like hypodense ischemic chronic.

Conclusion: In most cases, the scanner cranio brain is normal. The normality of the scanner should certainly not prevent extending the etiological research of chronic headache to other investigations such as MRI or EEG.

SERUM ADİPONECTIN LEVELS IN MIGRAINEURS

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Objectives: The aim of this study is to find a relationship between migraine pathogenesis and an adipocytokine, adiponectin (ADP) metabolism.

Background: Migraine is said to be associated with inflammatory pathways, atherosclerosis, obesity and metabolic syndrome. Adiponectin is an adipocytokine which is released from adipose tissue and related to metabolic syndrome, atherogenesis and obesity. It has both pro-inflammatory and anti-inflammatory effects. We investigated if there is a connection between adiponectin and inflammatory events, atherosclerosis, clinical alterations with hormonal fluctuations and metabolic changes in migraine.

Methods: 70 migraineurs and 64 healthy control subjects. Subjects were between ages 18-50. Serum samples were collected from patient group after 1 week period without headache and from healthy subjects after an overnight fast. Blood samples were also collected during a migraine attack from the migraineurs, Attack-free total adiponectin levels of migraineurs firstly compared with the total adiponectin levels of the healthy controls. Then, the migraineurs' total adiponectin baseline levels compared with the patients' own attack period total adiponectin levels.

Results: Serum baseline total ADP levels of migraineurs were significantly higher than healthy controls ($p=0.011$). No difference was detected between the attack period and attack-free period ADP levels of migraineurs ($p=0.552$). Female migraineurs' baseline and attack-period ADP levels were significantly higher than the males ($p=0.006$ and $p=0.008$, respectively). Besides, female patients had higher baseline ADP levels than female controls ($p< 0.05$).

Conclusion: The headache occurrence mechanisms through the inflammatory pathways may be explained by pro-inflammatory effects of adiponectin, according to our findings.

CORRELATION BETWEEN CHANGES IN MUSCLE RESPONSE USING EMGS AND THE PERCEPTION OF PAIN IN PATIENTS WITH FIBROMYALGIA

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According to the ACR, FM is a chronic musculoskeletal pain syndrome. Regarding to the EMGs in FM, exists very heterogeneous information. Some researchers show that in certain situations, muscle pain directly influence the CNS, altering the neuromuscular control (NM) at both spinal and cortical regions. Meanwhile, the question of whether chronic pain affects the motor control (CM), which would influence the functionality of the patient, and if this alteration in the CM alters the EMGs remains a matter of debate. In order to assess whether a relationship exists between perceived pain and muscular electrical activity, recorded by FM EMGs, it was performed a study using and analytic, observational, cross-sectional group of patients diagnosed with FM and controls. The EMGs showed a good tool to assess the functional characteristics of the muscles of patients with FM.

FM patients have less activation suggesting that people with FM have an alteration in the NM control while performing a voluntary muscle contraction. In the phase of muscle relaxation from voluntary contraction and the other on FM present value through muscle electrical activity similar to the control group.

UNILATETRAL PAINFUL OPHTHALMOPLEGIA AND OPTIC NEUROPATHY SECONDARY TO BEHCET´S DISEASE

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Introduction: Behcet´s disease, mainly characterized by relapsing oral and genital ulceration and uveitis, also involves other tissues. Neuro-ophthalmologic manifestations of Behcet´s disease are internuclear ophthalmoplegia, abducens nerve palsy, homonymous hemianopia and papillitis. Painful unilateral ophthalmoplegia is most often traceable to an aneurysm, a tumor, or an inflammatory or granulomatous process in the anterior portion of the cavernous sinus or at the superior orbital fissure. We report a case of painful unilateral ophthalmoplegia and optic neuropathy associated with Behcet´s disease.

Case report: A 44-year-old woman with Behcet´s disease presented with periorbial pain, ptosis and decreased visual acuity of the left eye. Seven days ago, she had edema, itching sense and ptosis of the left eye followed by left periorbial pain and frontal headache. She had been diagnosed with Behcet´s disease 5 years before. Neurological examination showed dilated pupil, decreased light reflex, Marcus-Gunn pupillary reflex, papilledema, ptosis, and fixed extraocular movement in the left eye. ESR and C-reactive protein were elevated. Visual evoked potential study revealed prolonged latency in the left eye. Orbital CT demonstrated isolated thickening of the left optic nerve and diffuse enhancement of the left optic nerve and orbital apex. After high-dose steroid therapy, visual acuity, orbital pain, and extraocular movement were improved.

Conclusion: Behcet´s disease presenting with painful unilateral ophthalmoplegia and optic neuropathy has not been previously reported. Behcet´s disease should be considered in cases of ophthalmoplegia and optic neuropathy, and close attention should be placed on image of the orbital apex.

IDIOPATHIC HYPERTROPHIC PACHYMENINGITIS

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Introduction: Hypertrophic cranial pachymeningitis (HCP) is an uncommun chronic inflammation of the cerebral or spinal dura mater. The pathogenic mechanism underlying HCP is unknown. It can be associated with systemic inflammation, infection, neoplasia; in other cases, it is idiopathic. There is a paucity of literature on idiopathic HCP. The aim of this study is to emphasize the rarity of idiopathic HCP, and to focus on its diagnostic difficulties.

Case report: A 34-year-old woman, with no significant past medical history, presented with one month history of retro-orbital and temporal headache, associated to left esotropia. Physical examination revealed only left sixth cranial nerve palsy. Laboratory findings did not show inflammatory syndrome. Cerebrospinal fluid (CSF) analysis revealed elevated protein with normal pressure. Brain magnetic resonance imaging showed diffuse dural thickening along both sides of the tentorium. Etiological investigation was inconclusive. CSF was negative for Mycobacterium tuberculosis; Syphilis and Lyme serologies in CSF were also negatives. Angiotensin converting enzyme level in CSF, labial biopsy and chest CT scan were normal, excluding sarcoidosis. Antinuclear antibodies were negatives. Therefore, the diagnosis of idiopathic HCP was considered. The patient recovered, progressively and with no any treatment, from headache and left sixth cranial palsy. She remained asymptomatic after 2 years of follow-up.

Conclusion: Idiopathic HCP is characteristically a diagnosis of exclusion. The diagnosis is based on neuroimaging. Spontaneous resolution of both clinical symptoms and dural thickening has been frequently reported.

TOURETTE'S SYNDROME; FROM DEMONIC POSSESION AND PSYCHOANALYSIS TO THE DISCOVERY OF GENES

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Introduction: Tourette Syndrome (TS) is a disease characterized byt the occurrence of multiple motor tics and one or more vocal tics, often accompanied by additional symptoms, such as ADHD and OCD.

Background and aims: Georges Gilles de la Tourette made in 1885 the first scientific detailed description of nine patients and Charcot coined the disease as Gilles de la Tourette's syndrome.There is enough evidence to support a hyperdopaminergic state with a complex pattern of heritance.Our goal is to make a brief historical account of TS, from the medieval association with witchcraft and demonic possession, onwards to the scientific hypotheses, until the most recent genetic discoveries.

Results: We make a brief historical review of the hypothesis concerning the etiology of TS, focusing on varying trends over time: at first, its presumed relation to witchcraft and demonic possessions, followed by the psychoanalytical theory, which attributed TS to a masturbatory equivalent; then, progressing to modern time, to the immunological theory and finally the advent of genetics and their role in the etiology of TS.

Conclusions: We made a historical account of the social facts related to TS over a period ranging from 486 A.D. until nowadays.Over time a disease that had been attributed to demonic possession and witchcraft, to be later associated with masturbatory equivalents through means of psychoanalysis of tics and coprolalia, has come a long way to the current understanding of its complex pathogenesis. The immunological hypothesis has all but been discarded. There are high hopes for further neurogenetic research.

SLEEP AND INSOMNIA: A DESCRIPTION FROM AVICENNA'S CANON OF MEDICINE

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Sleep disorders and insomnia are among the common medical problems of today's medical practice. Avicenna's Canon of Medicine mentions in detail various aspects of sleep and insomnia in its first and third volume. In the first volume he considers sleep as an essential part of healthy life style. He recommended not sleeping with empty or filled stomach and believed that both states can be harmful for the body. He also mentioned that day sleeping can have adverse effects instead of refreshment of body and thus recommended giving it up. He thought that sleep loss can cause damage to the brain, increased appetite and decreased body energy and leads to interference with digestion process. In the third volume, Avicenna defines sleep as a state in which sensory and movement systems of body are turned off and believed that this state helps to refresh body. He says that brain is the center of sleep and has normal and abnormal types: sleep is normal if body recovers and is able to carry out its activities again. Abnormal sleep can be due to biological, nutritional, psychological and behavioural causes. In all these, sleep is a defence mechanism of body for its recovery and healing. Other causes of abnormal sleep are some foods, fever, infections, head trauma, worm infestations, fatigue and weakness. He recommended specific treatments for each cause. Avicenna also mentions insomnia and its aetiology such as some foods, stress and anxiety, bright room and powerful light, filled stomach, fever and recommended specific treatments.

THE ACHIEVEMENTS OF ALBUCASIS IN NEUROSURGERY

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Introduction: Albucasis has lived in Andalus (Spain), and died there in 1013. He is considered one of the most celebrated surgeons during the Middle Ages. The influence of his book (Kitab al-Tasrif) in the field of surgery development in general and neurosurgery in particular was tremendous. Guy de Chauliac, the “restorer of Surgery” quotes Albucasis more than 200 times. The arrangement of the work, the clear diction, and lucid explanations, all contributed to its great success. It soon became an authority quoted by medieval European physicians and surgeons more frequently than Galen himself.

Methods: Albucasis describes some neurosurgical operative procedures and instruments which do not appear in extant classical writings and which may be regarded as his own. In the chapter related to Hydrocephalus treatment, Albucasis says: “If the humidity is beneath the bone, and the sign of that is that you will see the sutures of the skull gaping on all sides, you should make three incisions in the middle of the head, in this pattern. After incising, drew out all the humidity, then bind up the incision with pads and bandages, and over the bandages foment with wine and oil till the fifth day”.

Conclusion: The aim of this work is to shed light on Albucasis neurosurgery, to reveal his accomplishment and contribution in this field of surgery.

HISTORY OF STROKES IN TOGO (1975-2010)

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Strokes represent the first cause of permanent physical handicap in the world. It is a Public Health problem in developed and developing countries.

Objectives: Make the history of strokes at Lomé's Teaching Hospital.

Method: Review of the Literature covering strokes from theses (1975-2010), memoirs and publications available at the bookshelf of the University of Lomé.

Results: Twenty eight (28) theses, one (1) memoir and three (03) publications were included. Strokes frequency at Lomé's Teaching Hospital is incessantly increasing; going from 2.07% in 1977 to 35,07% in 1999, 39,45% in 2003, 40,78% in 2007, and 37,54% in 2009. Ischemic strokes constantly predominate and represent nowadays 65,29% against 34,71% for the hemorrhagic's. The average age actually was 55,24 years old. There is always a masculine predominance with a ratio of 1,28. Hypertension, Diabetes and heart pathologies were the essential risk factors according to the first studies. Over time other factors as Obesity, dyslipidemia, tobaccos, Alcoholism and hyperhomocysteinemia are evoked. Hypertension stills the main risk factor with 67,43%. The rate of referred patients is still decreasing and represent 44,68%. 87,5% of studies are based on CT-scan imagery. All the transport was non-medicalized. The hospitalization duration stills over 30 days but actually was 21,99 days. The mortality decreased during these last years and nowadays 26,71%. The treatment actually costs average 691,61 $US.

Conclusion: Strokes represent a frequent cerebro-vascular affection whose treatment is expensive. The reportage of the main cardio-vascular risk factors and the creation of cerebro-vascular unit could lead to improve stroke treatment.

WHY ANTI-AMYLOID THERAPY WON´T CURE ALZHEIMER´S DISEASE AND IS A WASTE OF TIME AND PUBLIC FUNDS?

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In 1984 Glenner and Wong identified and characterized a novel cerebrovascular amyloid beta protein (1). Since then this highly conserved among different species (implying its´ evolutionary importance) natural peptide became the major focus of AD research: it takes both the major funds by governmental/public and private funding bodies and the majority of published scholar articles. Many scientists devoted their careers into Abeta research and hold stock in Big AD Pharma. This is a clear competing financial interest that both peers and the public must be aware of. Our analysis of the literature and major scientific journals behavior showed the non-disclosure of the financial interest in AD research is a true problem (2), especially because these scientists serve as referees for tenure/promotion committees and as reviewers for specialty publications. These facts preset AD research in favor of amyloid hypothesis. This hypothesis, however, was called a dogma blocking research into other causes, based on a view of a large panel of concerned biomedical scientists (3). Another sad fact is a manipulation of published knowledge by amyloid proponents, tending to hide their own previous data showing Amyloid beta is in fact a good molecule. As all amyloid theory based clinical trials of a passed decade failed, other theories and new true pathogenetic therapy approaches of Alzheimer´s disease deserve open minded biomedical scientists´ attention (4).

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BORIS SMIRNOV, NEUROLOGIST, NEUROSURGEON AND TRANSLATOR OF MAHABHARATA

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Boris Leonidovich Smirnov was born in Chernigov Guberniya in 1891. Being a son of 'zemsky', or local, self-government physician, he studied in a classical school (old Russian gymnasium) together with Mikhail Bulgakov, who also became a doctor and famous writer. In 1907 he moved with his parents to St. Petersburg where he graduated from Military Medical Academy in 1914. He lived in Ashgabat from 1935 working in Turkmen Institute of Neurology and Physical Therapy untill 1937. In 1938 he defended his Ph.D. thesis on extreme types of the superficial spinal veins changeability and their condition in some infections, and in 1939 defended his science doctor's thesis on ageing features spinal veins and their condition in some general pathologies. On the same year he became a professor of Neurology in the Turkmen State Medical Institute. During great Ashgabat earthquake he saved lives of hundreds of injured operating for many hours and days outdoors. But main accomplishments and world recognition earned by Smirnov was a scientific translation from Sanskrit into Russian a main source of Indian ancient religion, Mahabharata. His translation from Sanskrit performed by 'free verses'. During last 25 years of his life Smirnov made 17 versions of Bhagavad-Gita. After 1956, being retired and seriously ill, fully devoted himself to Mahabharata translation. Scientific commentaries of his translations compared with data of contemporary psychological and dialect philosophy. The life and creative work of prominent Russian and Soviet neurologist and neurosurgeon Boris Smirnov benefited Humankind also by deep sincere infiltration into foreign culture.

THE "MINOR" ALOIS ALZHEIMER BEFORE THE DISCOVERY OF THE EPONYMOUS DISORDER

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Alois Alzheimer first publication describes a patient with progressive general and muscle weakness due to degeneration of the grey matter of the spinal cord and diffuse damage to the neurons of the cortex. Alzheimer's diagnosis of progressive spinal muscular atrophy was confirmed by an autopsy. Alzheimer made over 200 histological preparations from patients with syphilis emphasizing that the clinical signs of arteriosclerotic atrophy differ from those of other diseases. A characteristic feature of this disease is a hearth's image of the arteriosclerotic degeneration respect to diffuse paralytic changes. Alzheimer anticipated dementia that is caused by multiple infarcts a century before its discovery. In “A born fellow”, Alzheimer describes Oskar M., measures his cranium and documents a marked asymmetry of the face and cranial bones, which was diagnosed as an inherited mental degenerative disease, acquainting with the theory of Cesare Lombroso regarding the “delinquent man”. In 1897, Alzheimer published “Contribution to the pathological anatomy of the cerebral cortex and of the anatomical bases of some psychoses”, describing the pathological changes of neurons in the cortex, its supporting tissue, and in the connective tissue. In 1898, in “A contribution to the pathological anatomy of epilepsy” he referred to the patients with “genuine” or “inbred” epilepsy underlying its pathological-anatomical changes, and in “New contribution on senile dementia” aroused his interest in senile dementia, which led to his concern with Auguste D. in 1901.

"SCHWANN CELLS", A HISTORICAL LANDMARK IN NEUROLOGY

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“Theodor Schwann (1810-1882) is considered the “father of the cell's theory”, and according with this last, each animal organism is constituted by cells. This assumption was sustained by Schwann researching both the sensorial and motor nerves branching off the spinal cord. Moreover, for first time Schwann applied the optic microscopy analyzing the muscular fibres determining its lifts, and its changes according with the contraction's extent. Actually, “Schwann cells” are described as a kind of cells attending to the peripheral nervous system, and they are the constituents of the “glia”. Their principal function is to recover the axon by the myelin. Schwann considered them as a “cellular chain” transmitting the nerve impulse along the axon; that is, these were considered as small cells shorter than axon which were flanked each other along the axon increasing its conduction capacity. In Schwann time, his eponymous cells were defines as “cells of the peripheral glia”, and also during first half of 1900 we can show the name “Schwann cells” indicating them precisely, and its above actual description.

HISTORY OF NEURONAL AND VASCULAR THEORIES OF MIGRAINE FROM 1873 AND ONWARD

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Despite convincing clinical evidence for a slow, gradual progression of aura symptoms, specific to the migraine aura [Airy 1870, Liveing 1873, Jolly 1902, Gowers 1907, Lashley 1941,], and Leão's description of CSD [Leão 1944] it was from 1940 to 1980 the prevailing theory that migraine aura was caused by a vasospasm [Wolff 1963., Marcussen & Wolff 1949].

This was contested on clinical grounds by Miller Fisher in 1971.

First with the advent of a technique for measurements of rCBF was it possible to detect spreading oligemia during migraine aura in 1981 [Olesen et al 1981]. This was literally the end of the vasospastic theory of migraine.

There is now consencus that both migraine with aura and without aura start in the brain. The current discussion is about whether peripheral nociception is present ("the neurovascular theory") or the migraine process is a central pain dysmodulation with normal peripheral sensory input (" pure neuronal theory").

MRI FINDING IN NEURO-BEHÇET'S DISEASE: SERIES OF 60 CASES

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Mains: To evaluate the MRI pattern and site of involvement in neuro-Behçet´s disease (NBD).

Methods: Retrospective review of 60 patients with neurobehcet disease evaluated at the department of neurology and neuroradiology at Rabat University Hospital between the period of 2002 and 2010. All the patients had a magnetic resonance imaging (MRI), with T1, T2, FLAIR, Diffusion, and post gadolinium T1-weighted in the three plans of space. Spinal cord MRI has been performed in 5 patients.

Result: There were 43 patients (71,7%) who had single or multiple lesions. Superficial cerebral venous thrombosis was diagnosed in 11 patients (18,32%). The thrombosis of Rosenthal´s basilar vein was observed in 10 patients (16,6%), giving high signal on T2-weighted images in the diencephalon in 9 patients and in midbrain in 7 cases and in the posterior limb of the internal capsule in 2 cases. The pons involvement was seen in 8 patients.

Two patients had an ischemic stroke in the territory of the right superficial middle cerebral artery.

Seventeen patients (28,33%) had parenchymal NBD with cerebral white matter involvement, eight had subcortical involvement (13,3%) and four had periventricular involvement (6,6%) in addition to five patients with brainstem lesions. Four patients had a spinal cord involvement. After gadolinium enhancement, three patients showed contrast enhancement on T1-weighted in the brainstem.

Conclusion: This study shows the diversity of lesions on MRI and its value in the exploration of Neurobehçet disease specially thrombosis of Rosethal vein and vasculitis signs.

DIFFUSION TENSOR MRI TRACTOGRAPHY (DTT) IDENTIFIES ALTERED BRAINSTEM FIBER CONNECTIONS ACCOMPANYING AGENESIS OF THE CORPUS CALLOSUM (ACC)

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Purpose: Agenesis of the corpus callosum (ACC) is a developmental anomaly wherein interhemispheric cerebral fibers fail to cross into the contralateral hemisphere. The aim of this study is to report two ACC cases with altered brainstem fiber connections involving middle cerebellum peduncles and transverse pontine fibers revealed by Diffusion Tensor MRI Tractography (DTT).

Methods: Cases: Case 1: A 22 year-old woman with seizures, mental retardation and behavioral abnormalities. Case 2: A 50 year-old man with syncope, cognitive impairments and bilateral palmomental responses.

Imaging Procedures: Conventional MRI and diffusion tensor images were acquired using Siemens MR System with diffusion gradients applied in 12 non-collinear diffusion directions with 2 b values (0 and 1000 sec/mm^2).Whole brain DTT was performed using streamtube tracing and culling techniques. First, streamtubes of white matter were traced based on the major eigenvector of the diffusion tensor field from dense seeding points with optimal input parameters. Second, a distance-based culling is applied to the dense streamtubes to remove redundant tubes for quantitative analysis. DTT of a 35- year old normal subject was obtained as a control.

Results: Conventional brain MRI displayed complete absence of the corpus callosum in both cases. Whole brain DTT showed no corpus callosum fibers crossing the midline in either ACC case. Instead, robust fiber bundles passing through middle cerebellum peduncles via transverse pontine fibers were seen in both ACC cases.

Conclusion: DTT was useful in visualizing expected and unexpected alterations of white matter fiber connections in ACC.

POSTERIOR REVERSIBLE ENCEPHALOPATHY SYNDROME (PRES): CLINICAL AND THERAPEUTIC CHALLENGES IN THE PRESENCE OF WEGENER'S GRANULOMATOSIS

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Objective: Posterior Reversible Encephalopathy Syndrome (PRES) is a reversible, benign condition confined to white matter and posterior region of brain, presumably mediated by auto-regulation of blood vessels and endothelial cell dysfunction (ECD). PRES is a clinico-radiologic entity, comprising insidious onset of headache, confusion or decreased level of consciousness, visual changes, and seizures. Wegener's Granulomatosis (WG) may stimulate Anti-Endothelial Cell Antibodies (AECA) and p-ANCA may provoke ECD. Furthermore, WG associated with PRES may enhance the lesion severity and thus complicate the clinical manifestations leading to therapeutic challenges.

Methods: We report a clinical case study of PRES associated with WG. Twenty three year-old female, normotensive was presented with features of WG and renal failure, was under treatment with steroids and cyclophospamide, developed headache, blurring of vision, confusion and two episodes of seizures.

Results: Renal and CNS MRI (see figure) investigations confirmed Wegener's Granulomatosis associated with clinically evaluated PRES.

Conclusions: Our study indicates, WG treated by therapeutic cytotoxic drugs and in the presence of p-ANCA and AECA may contribute to pathogenesis by endothelial cell activation, ECD, vasculitidis and impaired auto regulation leading to PRES. Hence under such circumstances major organ involvement impose therapeutic challenge associated with PRES.

ANXIETY: CORTICAL MECHANISMS

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Anxiety is a comorbid condition in patients with Parkinson´s disease, Alzheimer´s disease and others. There is evidence of the relationship between the regional cerebral metabolism and cognitive functions in patients with Parkinson's disease and Alzheimer's disease. The role of metabolism of cortical areas in anxiety is discussed.

Methods: The present study was performed to investigate constancy of involving of cortical areas in anxiety.

^{18}F- fluorodeoxyglucose PET was used in 10 anxiety patients and in 8 non-anxiety disorder subjects during resting state. In patient group PET was used both before an anxiolytic treatment and after it.

Results: The increase of the regional cerebral metabolism (p< 0, 05) in right Brodmann areas (BA): 8, 9, 10, 24, 32, 33, 45, 47; in left BA: 10, 24, 32, 33 in all anxiety disorder patients was found as before as after the treatment. The increase only in left BA 36 and 46 was found after the treatment.

Conclusions: According to the results minimal changes in the cortical metabolism can be interpreted as constancy of anxiety cortical mechanisms or as lack of anxiolytic therapy efficiency. Aforesaid areas are involved in maintaining various aspects of memory, attention, pain, anticipation of pain and others.

THE USEFULNESS OF FRACTIONAL ANISOTROPY IN ALS DIAGNOSIS

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ALS recognition is based on clinical and electrophysiological criteria (El Escorial criteria in Awaji modification). Only advanced neuroimaging could be useful in ALS recognition and it's progression assessment. Advanced neuroimaging technics are focused mostly on assessing the brain, while spinal cord measurements was relatively neglected.

The aim of the study was the assessment of the usefulness of diffusion tensor imaging (DTI) of the cervical spinal cord and fractional anisotropy (FA) measurements in the diagnosis of ALS.

Material and methods: We assessed 15 patients with ALS (probable or definite), 5 male and 10 female, mean age - 53.7 years old. The control group consisted of 10 healthy individuals sex- and aged-matched. We measured the value of FA in lateral, anterior and posterior spinal cord columns and in the central gray matter at C1 to C5 levels. Obtained data were averaged for each column and central gray matter.

Results: We revealed the statistically significant reduction of FA value in ALS patients in all columns and central spinal cord region in the comparison to the controls. The smallest differences were seen in posterior columns.

Conclusions: Spinal cord assessment by use of FA measurements allows to confirm the damage of the motor pathways in ALS patients. DTI study, together with clinical criteria, may be helpful in ALS diagnosis. The observed decrease of FA value in all spinal cord columns and in the central gray matter might suggest that the disturbances of axonal integrity in patients with ALS involves not only motor pathways.

METABOLIC ACTIVITY IN EXTERNAL AND INTERNAL AWARENESS NETWORKS IN SEVERELY BRAIN DAMAGED PATIENTS

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Introduction: Awareness can be subdivided into "*external awareness*" and "*internal awareness*". Functional neuroimaging studies have identified an *extrinsic/lateral* network related to external awareness (lateral parietal and prefrontal cortices) and an *intrinsic/midline* network related to internal awareness (midline precuneus/posterior cingulate and midline frontal/anterior cingulate cortices). We here employed the positron emission tomography in severe brain damage patients aiming to measure differences in extrinsic and intrinsic network activity.

Method: We prospectively studied brain metabolism in 70 patients: 24 vegetative state/unresponsive wakefulness syndrome (VS/UWS), 28 minimally conscious state (MCS), 10 emerged from MCS (EMCS), 8 locked in syndrome (LIS) and 39 healthy controls. Patients were assessed with the Coma Recovery Scale-Revised (CRS-R). Data were preprocessed and analyzed using SPM8.

Results: VS/UWS patients showed metabolic dysfunction in extrinsic/lateral, intrinsic/medial networks and thalami, as compared to controls. MCS patients showed metabolic dysfunction in the intrinsic/medial network and thalami. EMCS patients showed metabolic dysfunction in part of the intrinsic/medial network. LIS patients brain dysfunction only in infratentorial regions. CRS-R total scores correlated with metabolic activity in both extrinsic/lateral and part of the intrinsic/medial networks.

Discussion: We observed a progressive recovery of intrinsic network metabolic activity in severely brain damaged patients ranging from VS/UWS, MCS, EMCS to LIS. LIS was characterized by the absence of metabolic dysfunction in supratentorial areas. EMCS patients showed dysfunction of posterior cingulate and retrosplenial areas, known to be involved in autobiographical memory. The predominance of intrinsic/midline network impairment in MCS could reflect altered internal/self awareness, difficult to quantify at the bedside.

MORPHOLOGICAL AND METABOLIC EVALUATION OF BRAIN TUMORS

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Introduction : MRI constitutes actually the gold standard in the study of brain tumors, because of the high sensibility and specificity it offers, thanks to its morphological sequences and spectroscopy.

Material and methods: Double blind study was performed for 90 patients presenting a tumoral process shown on MRI (morphological MRI in the 3 planes on T1WI, T2WI, FLAIR and DWI, with spectroscopy).

First, one diagnosis is proposed based on morphological and metabolic features.

Secondly, a biopsy guided by spectroscopy is performed and the specimen is send to histological study.

Thirdly, we proceed to a confrontation between the imagery diagnosis and the final histological diagnosis of the specimen.

Results and discussion: MRI, thanks to its performances in the lesional tissular characterisation, allows a precise diagnosis of brain tumors : in our study, we could reach an excellent correlation of 98% between the MRI diagnosis and histological diagnosis.

The analysis of imaging data was based, as in literature, on morphological and metabolic criteria. Morphological criteria are : signal abnormalies, type of enhancement, features on DWI (b500,b1000). Metabolic analysis was based on the ratio value of choline/NAA and choline/creatine, the presence of lactates and/or lipids, and the research of inositol and taurine. Actually, morphological MRI conjugated to spectroscopy mustn't be considered as a luxury method in the study of brain tumors, but rather a reliable routine examination for brain tumors diagnosis and follow-up.

MRI IMAGING IN L-2-HYDROXYGLUTARIC AIDURIA DISEASE

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Objective: To review the imaging features in MRI of L-2-Hydroxyglutaric aciduria (L-2-OHG aciduria) and compare our findings with previous neuroradiological reports.

Materials and methods: We report the observations of 13 patients with documented L-2-OHG aciduria by urinary test. 3 of our patients had serial cranial MRI. The others were once examined on MRI.

Results: Signal abnormalities involved peripheral subcortical white matter in 100%, periventricular white matter in 31%, basal ganglia in 84% and dentate nuclei in 100%. The thalami were involved by signal abnormality in 2 patients, the peri aqueductal area in one case. We have noted in the controlled patients the extension of hyper intensity in T2 weighted images with appearance of marked hypo intensity in T1 due to the spongiform character of the disease.

Conclusions: Similar appearances may be seen in other metabolic disorders; the distribution of signal abnormalities in L-2-OHG aciduria is highly characteristic and may suggest the diagnosis.

EFFECT OF LEVODOPA ON NEURONAL ACTIVITY IN SUBSTANTIA NIGRA: LEVODOPA SPOIL MIDBRAIN NEURONAL ACTIVITY? FROM THE FINDING OF 1H-MRS

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Aims: To evaluate the effect of levodopa on neuronal activity of substantia nigra(SN) in patients with Parkinson Disease(PD).

Background: Previous our ^{1}H-MRS studies showed the significant decrease of SN NAA/Cr in PD and the decrease seemed to correlate with age, severity and duration. Concerning the effect of medication there was a tendency of NAA/Cr decrease with disease duration in *de novo* PD compared to medicated cases.

Methods: From August 2007 to January 2011, 204 patients with PD were investigated. 54 de novo PD ; 35 female(F) and 19 male(M), 69.6±8.8 y/o, Hoehn-Yahr stage(H-Y) 1.9±0.4, duration of illness 1.6±1.3 years and 150 PD patients treated with levodopa and/or dopaminergic agents ; 90 F and 60 M, 70.7±7.4 y/o, H-Y 2.3±0.9, duration 6.7±4.7 years. Medicated PD were classified into 2 groups, levodopa alone; 10 cases, levodopa plus ; 92 cases. Multi-voxel ^{1}H-MRS was performed at orbit-meatal plane(1.5T,TR/TE=1000/144 msec, ROI was 0.75×0.75mm of area and 20mm of slice thickness). The difference of NAA/Cr was analyzed using Student's t-test.

Results: The NAA/Cr ratio of SN between de novo and treated PD with levodopa alone showed statistically significant difference. In levodopa plus patients SN NAA/Cr was high compared to levodopa alone , however, no statistical difference was detected. Correlation between SN NAA/Cr and duration of illness showed the decrease of NAA/Cr with duration in levodopa alone medication.

Conclusions: Levodopa seemed to restrain SN neuronal activity. Feedback mechanism from putamen to SN should be elucidated.

CONTRIBUTION OF MRI IN THE CORPUS CALLOSUM MALFORMATIONS ABOUT 78 CASES

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Object: Corpus callosum malformations are recognized as important causes of epilepsy, psychomotor retardation and other neurological disorders. Our purpose is to present the value of MRI in these pathologies involving their different clinical aspects.

Materials and methods: We report a series of 78 observations of corpus callosum malformations, explored by MRI and transfontanellar sonography in the radiology department of Hedi Chaker and Habib Bourguiba hospitals in Sfax. Clinical data were studied retrospectively from patient records, they included: the circumstances of discovery, a study of psychomotor development, abnormal neurological examination, in particular epilepsy, dysmorphic syndrome, abnormal karyotype and associated visceral malformations.

Results: All patients underwent an MRI. 16 between them were investigated initially by transfontanellar ultrasound. Malformations found in our series were: agenesis of the corpus callosum in 28 cases, hypoplasia of the corpus callosum in 46 cases, an arteriovenous malformation in one case and a lipoma in 3 cases.

Conclusion: Although malformations of the corpus callosum are often found on transfontanellar sonography, MRI allows a better illustration and study of an other associated malformations.

COMBINED FDG AND RACLOPRIDE PET STUDY IN A CASE OF ALS WITH THE R521C *FUS* GENE MUTATION

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FUS gene mutations were recently identified in familial amyotrophic lateral sclerosis (ALS). Neuropathological studies in the ALS patients with *FUS* mutation revealed neuronal degeneration in the nigrostriatal system and cerebral cortex in addition to motor neuron involvement, while there have so far been few reports on functional brain imaging in ALS patients with *FUS* mutations. We herein report a young onset ALS patient with an R521C mutation in the *FUS* gene who presented with weakness of the proximal upper limbs and neck flexor muscles without either any cognitive impairment or parkinsonism. Functional brain imaging was performed using [^{18}F]-fluorodeoxyglucose (FDG)- positron emission tomography (PET) to measure the cerebral metabolic rate of glucose (CMRGlc) and [^{11}C] raclopride-PET for investigation of post synaptic dopaminergic neuronal activity. The analyses of the PET images showed that CMRGlc did not decrease in the cerebral cortices, while [^{11}C] raclopride binding did decrease in the putamen. This finding demonstrates that neuronal degeneration in the striatum may start subclinically in the early stages of *FUS* mutation-related ALS.

DYNAMICS OF DIFFUSION TENSOR IMAGING AND MR SPECTROSCOPY FINDINGS IN CREUTZFELDT-JACOB DISEASE PATIENT

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The definite recognition Creutzfeldt-Jacob Disease (CJD) is based on the neuropathological examination. Standard neuroimaging is usually unspecific. Nowadays, diffusion tensor imaging (DWI) and MR spectroscopy (MRS) are thought to be useful in by living CJD recognition.

Case report: The authors present the 61-years old woman with CJD, lasting 10 months. Cognitive impairment was the first symptom, next extrapyramidal and frontal signs with generalized myoclonus occured, finally the akinetic mutism developed directly before the death.

In EEG we observed Radeamacker's pattern with progressive deterioration in consecutive studies. Protein 14-3-3 was found in CSF. The diagnosis was confirmed neuropathologically.

Brain MRI was performed four times, including DWI and MRS. DWI revealed pathological, hyperintense lesions, with moderate restriction of diffusion, localized bilaterally in the caudate nucleus, putamens, frontal, parietal and occipital cortex with a slightly asymmetric distribution. In the initial MRS study the significant lowering of NAA peak and NAA/Cr ratio and moderate increase of Cho peak and Cho/Cr ratio were found in parietal cortex, while mI peak height and mI/Cr ratio were not changed. Follow up neuroimaging studies showed the deepening of the metabolic composition disturbances. There was a further reduction in NAA peak and NAA/Cr ratio, Cho peak normalized, and significant increase of mI peak and mI/Cr ratio was observed.

Conclusions: The authors indicated to the wide capabilities of the advanced neuroimaging technics, mostly DWI and MRS, in by living CJD recognition with high correlation with the clinical progression of the disease.

RADIOLOGICAL DIFFERENTIAL DIAGNOSIS OF THE THORACIC DISC HERNIATION

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Introduction: Thoracic Disc Herniation (TDH) has been difficult to diagnose, utilizing both clinical and radiological methods. MRI has emerged as the study of choice for evaluation of TDH. However TDHs are often confused with a neoplasm, particularly if there is a history of primary malignancy.

Purpose: Describe the peculiarities in the MRI differential diagnosis of the TDH with a neoplasm.

Material and methods: The study evaluates the results of MRI examination in 34 patients with TDH. In 24 cases sagittal views provided information on alignment and herniation. Axial views defined the extent of compression of the spinal cord and nerve roots. On MRI, TDHs appeared as focal, asymmetric protrusions of disk material beyond the confines of the anulus.

However in 10 cases TDH had intermediate signal intensity on T1-WI and low intensity on T2-WI, mimicking a tumor. In such cases intravenous injection of Gd-DTPA in a dosage of 0.1 mmol/kg body weight, enhanced the posterior longitudinal ligament and visualized the areas of contrast uptake in the epidural space above and below the TDH corresponding to dilated and congested epidural veins.

Results: Contrast-enhanced MRI was most helpful in considering other lesions in the differential diagnosis including abscess, hematoma, and primary or metastatic neoplasms. Degenerative changes in TDH, including clustering of chondrocytes and neovascularization, may be severe resulting in a pseudoneoplastic appearance.

Conclusion: Awareness of the radiological and pathological features of TDH along with contrast-enhanced MRI scans is useful to differentiate it from a disc space infection or tumor.

MRI VOLUMETRY OF THE TEMPORAL LOBE IN PEOPLE OF CENTRAL SUDAN: PRELIMINARY NORMATIVE DATA

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Introduction: Variations in temporal lobe volume are reported in correlation with age, gender, handedness and conditions like schizophrenia and temporal lobe epilepsy, in a form of alterations in volume or pattern of asymmetry between left and right lobes. the study aims to design and validate a protocol for measurement of temporal lobe volume in people of central Sudan, and use it to set a preliminary base in the normative data to be used as reference for patients with temporal lobe epilepsy.

Methodology: This is a descriptive case study. 69 individuals (35 males and 34 females), apparently healthy Sudanese. All are right handed with normal body mass index. MRI Scanning performed in National Ribat University. Scanner is 1.5 tesla, Siemens, magnetom, avanto. slice thickness of 1 mm, in coronal view. Protocol for measurement of the volume of temporal lobe is designed. Cronbach´s alpha is computed in SPSS 16 and Microsoft 2007 excel sheet to obtain ANOVA.

Results: Reliability test of the temporal lobe protocol is 0.984. temporal lobe volume showed larger readings in male than in females (p value is 0.002 right lobe and 0.07 left lobe). Left lateralization is significant in males (p value is 0.007). Asymmetry in female is not significant (p value 0.7)

Conclusion: This study showed a strong correlation between gender and temporal lobe volume. It is evident by the significantly larger temporal lobe volume in males than in females. Moreover in males, significant left lateralization is reported unlike in females.

CREATIVITY IN MUSIC: BRAIN ACTIVATION DURING RHYTHM PRODUCTION

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Introduction: Creativity is a mental process that involves generation of new, original and attractive ideas. In the field of music, only two studies have examined the neural mechanisms that underlie generation of new musical ideas. However, none of them have differentiated the creative level of the subjects neither the possible existence of differences among the neural networks involved nor their correlation to their creativity level.

Objective: To study brain areas involved during production of simple rhythms in normal subjects, and analyze possible correlations to their creative behavior.

Methods: Two out of four creative performance assessments (Torrance's model) were used: fluidity and flexibility. We used a tool called SCAMPER: 24 subjects (23+/- 4 years old) were screened and submitted to functional MRI.

The paradigm consisted on the auditory presentation of various percussion patterns, followed by two tasks: “Create” (subjects generated new rhythmic sequences inspired on the original ones), and “Replay”

(repetition of the original rhythm).

Instructions were presented in a screen and tasks were performed using a button pad. Results were statistically compared.

Results: SCAMPER differentiated two groups of subjects: high-creative (13) and low-creative (11). Brain activations showed correlation to the SCAMPER grouping criteria.

The high-creative group showed activations in the frontal cortex in both hemispheres, insula and anterior cingulated cortex.

The low-creative group presented activations involving mostly parietal and premotor areas.

Conclusions: According to our results, there could be a distinction between the neural networks involved in rhythm production correlated to the subject's high or low flexibility and fluidity levels.

FLUCTUATING SCALP SWELLING- A CASE OF MASSIVE SUBGALEAL BLEED FOLLOWING MINOR HEAD INJURY

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Subgaleal haematoma is rare in paediatric age group except in the new-born observed after instrumental delivery. Literature review suggests its association with underlying coagulation disorders, vascular malformations or head trauma.

We present case report of an 8 year old girl who presented with extensive fluctuating scalp swelling and vacant episodes with pallor. She had a preceding history of minor head trauma 2 weeks back. Investigations indicated anaemia, falling haemoglobin, no skull fracture, normal coagulation screen including factor XIII. Cranial CT scan showed large diffuse subcutaneous swelling of scalp with multiple hyper dense areas of focal haemorrhage confirming subgaleal bleed.

We aim to raise awareness of this rare and sometimes fatal condition and its unusual presentation after minor head injury.

NEUROPSYCHOLOGICAL CORRELATES OF REGIONAL CEREBRAL BLOOD FLOW IN PATIENTS WITH ALZHEIMER´S DISEASE

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Objectives: Alzheimer´s disease (AD) patients present not only memory disturbance but also other cognitive dysfunction including visuospatial disorder. Mini-Mental State Examination (MMSE) and Benton Visual Retention Test (BVRT) are widely used for the assessment of verbal and visual memory. However there have been only a few reports concerning the localization of neuropsychological performance. By using a newly developed 3-D statistical imaging software, Correlation Imaging Plots (CIPs), which can visualize the spatial correlation of regional cerebral blood flow (rCBF) with any continuous parameters, we tried to elucidate the relationship between rCBF and the performance in MMSE and BVRT in AD patients.

Methods: The present study was based on 41 right-handed patients with probable AD. They underwent 99mTc-ECD SPECT , MMSE and BVRT. We analyzed those data by using CIPs program.

Results: The MMSE total score correlated strongly with the left temporoparietal cortex, while the correct and error scores of BVRT correlated with the right temporoparietal cortex. Among MMSE subscales, the auditory comprehension correlated with the left temporal cortex. In contrast, among errors of BVRT, only omission correlated with the right temporoparietal cortex.

Conclusions: Our results may indicate that MMSE which mainly carries verbal information reflects the left temporoparietal function, whereas BVRT which reflects visual memory reflected the right temporoparietal function. Those results endorse the previous knowledge based on the lesion studies.

IMPACT OF THE SCIENCE OF COGNITION AND THE INFORMATION TECHNOLOGY ON PEDAGOGY

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Introduction: Information and communication technologies (ICT) and neuroscience have produced, over the past two decades, a cognitive revolution, both in medical and non medical education.

Objectives: Our goal is to determine the consequences of the introduced new paradigms, following advances in the areas of cognition and information sciences, on pedagogy and teaching methods.

Methods: We conducted a review of English and French medical literature, published during the past five years, regarding educational, psychological, neurophysiologic and brain imaging aspects of learning. We searched Pubmed, Google Scholar and international publishers' databases. We reviewed the role of a computerized environment, using text, images, animations and multimedia, in the development of techniques and strategies of learning, both in the student as in the teacher.

Results: Data from neuroscience are in favor of a non-structural but functional conception of learning, involving perception, discrimination and decision. The technology improves teaching conditions by allowing flexible scheduling and simplified logistics and providing easy transported materials.

Technique and learning strategy adapt, in the student, during his studies, to the computerized environment. They vary little among the teacher.

Discussion: The impact of ICT and neuroscience on medical education is real, although it is difficult at present, to determine its consequences. ICT seem more appropriate to perceptual learning rather than conceptual. Tools of continuous training, development, self-learning and self-assessment, for teachers use are, however, still rare and poorly suited.

Conclusion: Advances in cognitive science and information promise a revolution in pedagogy and education but face the persistent inertia of education systems.

TUMOR - A GRAPHIC NOVEL REPRESENTATION OF *GLIOBLASTOMA MULTIFORME* AND MULTIPLE SEIZURES TYPES

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Objective: To review the representations of multiple seizures types presented as sequential art in the graphic novel *Tumor* (Fialkov, J. H. and Tazon, N., Archaia Entertainment, 2010).

Methods: *Tumor* was a graphic novel published in 2010 in which a private investigator is diagnosed with a *glioblastoma multiforme*, while solving a crime, and presents with varied types of seizures and other associated symptoms, such as confusional state and space-time disorientation. All of these symptoms are presented in graphic form from the standpoint of the main character/patient, thus providing a layman's interpretation of seizure semiology.

Results: By analysing the different seizures types graphically represented during the course of the story, reproduced with permission of the main author, one can have a portrait of semiologic features from the main character/patient´s viewpoint. Seizure types include simple partial seizures, complex partial seizures, jamais vu, uncinated seizures, secondarily generalized seizures, as well as other symptoms, such as time-space disorientation and confusion, among others.

Conclusion: In *Tumor*, a detective graphic novel, the main character is diagnosed with *glioblastoma multiforme* and throughout the story manifests with different types of seizures, which are graphically represented from a layman's perspective.

CULTURAL IMPACT ON MANAGEMENT OF NEUROLOGICAL DISORDERS IN AFRICA

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Africa is at the peak of cultural transition, making its people live at the edge of traditions to modernity. In Africa, any disease which is sudden and “bizarre” (i.e. seizure, body and facial palsy, aphasia, coma, stiffness) or which is becoming chronic (i.e. paralysis, tremor, dementia), is considered as “supernatural” matter. How are they interpreted in the African cultures? What are the impacts on the quality and delay of treatment? For example, in case of epilepsy, the induced stigmatization discourages patients from seeking modern care. Fear of ´´contamination" by the breath, blood or saliva of people with epilepsy, leads to non-assistance, and possible death by drowning, burns and other injuries. Facial palsy is a evil's slap. For many neurological diseases, traditional healing is the choice or will be associated at a certain moment with the modern treatment. This practice is encouraged by the poor economic, low MD/Population ratio and scarcity of diagnostic resources. The management of a chronic patient, particularly the one suffering from physical and/or mental illness or epilepsy, is not limited to himself because in Africa, the individual is a part of the community. The patient is always accompanied by members of the family. This is a very positive aspect and a lesson to the modern world, especially in case of chronic destabilizing symptoms or dementia. A non-competitive cooperation between allopathic and traditional healing should be encouraged and given a better opportunity to modify certain harmful practices and share the positive aspects of the traditional concepts.

THE NEUROBIOLOGY OF SEXUAL ORIENTATION - TOTAL MEDICAL EVIDENCE PRESENTATION

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Objective: Homosexuality is a constantly debated issue as to whether it is determined at birth or a choice (nature vs. nurture). The works of the Kinsey Reports and Dr. Evelyn Hooker published in the 1950s resulted in the removal of homosexuality from the DSM4 in 1973. Since then, it has been mentioned as an illness only in the context of being a putative exacerbating factor in anxiety states. Recent studies reveal a clear cut neurobiology to sexual orientation.

Materials and methods: Neurobiologist Simon LeVay conducted a study of brain tissue samples from 41 human autopsies performed at several hospitals in New York and California. He found a significant size difference of the interstitial nuclei of the anterior hypothalamus between homosexual and heterosexual men.

Results: In addition, Dr. Ivanka Savic-Berglund and Dr. Per Lindström of the Karolinska Institute, Stockholm, performed fMRI and PET measurements of cerebral blood flow. Using volumetric studies, they found significant cerebral size differences between homosexual and heterosexual subjects; the brains of homosexual men resembled heterosexual women and homosexual women resembled heterosexual men. Pheromonal studies also have added to the scientific knowledge of sexuality. Sex-atypical connections were found among homosexual participants. Amygdala connectivity differences were found to be statistically significant and provided evidence towards sexual dimorphism between heterosexual and homosexual subjects. Extensive controls were performed during testing to exclude analytical variability.

Conclusion: A totally evidence-based medicine presentation will provide current data regarding homosexuality showing differences, or similarities, between the brains of homosexuals and heterosexuals.

FIRST TUNISIA - CANADA BEHAVIOURAL NEUROLOGY ROUNDS: AN INTERNATIONAL COLLABORATION USING VIDEOCONFERENCING

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Background: Telemedicine is a major change that has emerged during the last decade. Videoconferencing has the advantage of bringing together physicians from different regions and countries who may lack a convenient opportunity to meet in person. We report the first Tunisian-Canadian collaborative videoconference, and an evaluation of the effectiveness of this medium for enhancing continuing education and health care via telemedicine.

Methods: Through a videoconferencing link, presentations were made from Baycrest in Toronto and Razi Hospital in Tunis with connection to 16 other sites in Ontario, Canada. The program was sponsored by Division of Neurology, University of Toronto; Tunisia Telecom; and Canada International Scientific Exchange Program (CISEPO). Data were collected at Baycrest and Razi Hospital using questionnaires for evaluation and future monitoring.

Results: A brief overview of frontotemporal dementia was presented from Baycrest. This was followed by two cases presentations from Tunis. Each case was discussed during an interactive session with a focus on diagnosis and management. Twenty-seven physicians participated in the round from Baycrest (n=13) and Razi Hospital (n=14). Overall evaluation showed evidence of knowledge gain. The main concerns related to slight technical problems.

Conclusion: Videoconferencing can facilitate important knowledge transfer among many physicians and health care staff, regardless of geographical location. This practice-based learning provides a valuable opportunity for young and senior neurologists to exchange knowledge about their practices which may vary across different cultures It may also facilitate building health care capacity and scientific collaboration, and enhance public health.

RESIDENT TO MEDICAL STUDENT TEACHING: A FORMULA FOR SUCCESS ON A BUSY INPATIENT NEUROLOGY SERVICE

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Resident-to-medical student teaching is a core facet of neurology residency; however, in many cases teaching may be diminished under the demands and time constraints of a busy hospital inpatient service. In an effort to maximize resident involvement in medical student education and to optimize the variety of clinical presentations and learning opportunities on the wards, residents at the University of Utah have developed a resident-based curriculum utilizing mobile technologies which will dovetail with the established medical student clerkship curriculum and core competency requirements. This curriculum will be centered on a library of resident-constructed “teaching modules” which will be implemented in the flow of rounds at the door or at the bedside of the patient. Teaching modules will be concise and structured 5-10 minutes presentations on a topic or disease process, and are meant to quickly cover key elements of a condition and connect them directly to the clinical presentation, diagnostic studies and treatment plan of the patient being discussed in rounds and interviewed and examined at the bedside. Success of the program will be assessed via standard program evaluation forms, monitoring student clerkship exam scores, and a student questionnaire directly targeting the resident teaching curriculum. It is expected that by “hardwiring” basic science concepts and clinical correlations with a patient on rounds, that students and residents will have a deeper understanding and appreciation for neurology; the neurobiology, diagnosis, and management of neurological conditions; and most importantly the patients being cared for on the inpatient service.

CELL PHONE USE AS THE CAUSE OF NEUROLOGICAL DEFICIT, & PRESENTATION 4 CASES

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Introduction: There are increasing number of neurological complication in the world which are induced after cellphone use,Here we introduced 4 cases which obviously affected by distressing neurologic problem after cellphone use. Complications include pain, and dysesthasia of scalp and face, ptosis and sciatagic pain. In all of them other probable causes have been ruled out clinically and paraclinically. The implications regarding effects of radiofrequency radiation and elctromagnetic field (GSM mobile phones). There are confirmed reports of organic [2] and inorganic [3] CNS involvement, after Prolonged use of cellphone.Headache is the most frequent reported complication (3)other complicatins are(sleep disturbance, tension headache,fatigue, dizziness (3)scalp dysestasia, 2 and acoustic neuroma2,5.There are two direct ways by which health could be affected as a result of exposure to, Radiofrequency(RF)radiation,These are thermal (heating) effects caused mainly by Holding mobile phones and also as result of possible non_thermal effects(3,4).

In this article we report four cases which are affected definitively by mobile uses.

PROTEOMICS ANALYSIS OF CEREBROSPINAL FLUID IN PATIENTS WITH IDIOPATHIC NORMAL PRESSURE HYDROCEPHALUS (INPH)

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Introduction: INPH is now recognized as a treatable cause of dementia. Recent estimates show that it accounts for 1-10% of patients with the diagnosis of dementia.

Objectives: The aim of the project was to use surface enhanced laser desorption ionisation time of flight mass spectrometry (SELDI-TOF MS) to look at expression of protein in INPH and control groups. If there are any changes in the expression of proteins between the two groups, the SELDI-TOF MS and sophisticated biomarker wizard software will detect these and identify the statistical relevance of the biomarker. Once a biomarker has been 'flagged', further studies will be used to obtain the identity of the protein.

Methods and materials: Sixteen CSF samples were analysed in this study. Five patients with trigeminal neuralgia and four patients with benign intracranial hypertension were used as controls; seven patients with INPH comprised the study group. SELDI-TOF MS analysis of all 16 samples was performed using four different ProteinChip arrays. Nine potential biomarkers of NPH have been detected by using high mass CM10 proteinChip with significant statistic results. No biomarkers were detected using the other arrays used in this study.

Conclusions: In this study, the SELDI-TOF MS technique has been used to study the proteins in the CSF of patients with INPH, and compare them with the proteome maps of the control groups. This has resulted in the detection of several significant changes in the CSF proteins of the patients with INPH when compared to the other two groups used as controls.

FRAGILE X-ASSOCIATED TREMOR/ATAXIA SYNDROME: ALTERATION OF THE MIRNA PROCESSING MACHINERY AND ROLE OF THE *ANTISENSE FMR1* GENE

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Fragile X-associated tremor/ataxia syndrome (FXTAS) is an adult-onset neurodegenerative disorder clinically characterized by intention tremor and gait ataxia, in addition to co-morbid conditions including autonomic dysfunction, peripheral neuropathy and cognitive decline. FXTAS is due to RNA toxicity caused by elevated levels expanded (55-200 CGG) *FMR1* mRNA, which accumulates in intranuclear inclusions, which sequester various proteins including ubiquitin, αB-crystallin, lamin A/C, hnRNP A2, myelin basic protein and Sam68. The sequestration of Sam68 leads to the dysregulation of the protein products of mRNAs whose splicing is modulated by Sam68. Recent findings indicate that the expression of DGCR8, a double strand *RNA binding protein (*dsRBP) which is essential for the first processing step of primary miRNAs (pri-miRNAs), is downregulated in FXTAS subjects. In addition, the binding to the expanded CGG repeats, results in the partial sequestration of DROSHA and DGCR8 in premutation carriers. Consequently, in FXTAS, pri-miRNAs processing is reduced and the expression of mature miRNAs is downregulated .

The *FMR1* transcript overlaps with a recently identified gene, the *ASFMR1*, which is transcribed in the antisense orientation. The *ASFMR1* transcript is spliced, polyadenylated and exported to the cytoplasm and similarly to the FMR1 gene, is overexpressed in premutation carriers and silenced in full mutations. Recent findings, indicates that specific alternative splicing may play a role in FXTAS.

The contribution of these mechanisms to neuronal cell dysfunctions and to the variable phenotypes associated with this neurodegenerative disorder will be discussed.

A CASE REPORT OF VOGT-KOYANAGI-HARADA DISEASE

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Introduction: Vogt-Koyanagi-Harada disease (VKHD) is a rare systemic affection characterized by the association of ocular inflammatory manifestations and extra ocular lesions. We report a case of VKHD in a 48 year-old Tunisian man.

Case report: a 48 years-old patient, operated 6 months ago for retinal detachment in the right eye, which was referred for sudden decline in visual acuity installed since 15 days, associated with eye redness, headache and tinnitus. On neurological examination he had static cerebellar syndrome. Ophthalmological examination objective a bilateral panuveitis associated with a subretinal fluid. Lumbar puncture revealed lymphocytic meningitis with normal glucorrachie, culture was negative. Audiometry objectified bilateral mixed hearing loss. Dermatologic examination was normal. Brain MRI showed bitemporal meningeal contrast enhancement. The patient received intravenous corticosteroids relayed by oral treatment.

Discussion and conclusion: VKHD is a cause of much uveonevraxitis described in adults. It reaches particularly subjects from 20 to 50 years, especially female, with certain Ethnic and genetic characteristics (HLA-DRB1). This syndrome classically evolves in 3 phases: a prodromal phase, acute uveitic phase and a convalescent one.

For the diagnosis, it is necessary to fulfill the criteria of American Uveitis Society.

The treatment relies on systemic steroids at the acute phase, then relay by prednisone orally.

The diagnosis of VKHD is more difficult when signs of the disease are incompletely represented. However, we should think about it in front of any uveitis, in order to up treatment with corticosteroids as early as possible and so improve the visual prognosis.

ISOLATED OPTIC NEUROPATHY REVEALING SYPHILIS

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Introduction: Optic neuropathy is a rare manifestation of neurosyphilis.

It is typically associated to other neurological affections especially to tabes (amaurotic tabes).

We report two cases in which the optic neuropathy was the only manifestation of neurosyphilis.

Comments: We report the case of two patients aged 37 and 40 years old, who presented a rapid and severe decrease in visual acuity; unilateral in one case and bilateral in the other. The ophthalmologic examination carried out a few months later found a papillary pallor in both patients. The clinical neurological examination as well as brain imaging was normal.

The diagnosis of neurosyphilis was established in both patients owing to strong positivity of syphilic serology in blood and CSF, with intrathecal synthesis of immunoglobulins. The treatment with penicillin G in high doses did not improve symptoms.

Discussion/conclusion: Syphilitic optic neuropathy usually occurs during the secondary or tertiary phase of the disease. It is rarely inaugural and exceptionally isolated. It is of a poor prognosis if the treatment is not started as early as possible.

VISUAL HABITUATION IN MULTIPLE SCLEROSIS (A PRELIMINARY REPORT)

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Object: Habituation is defined as a behavioral response decrement that results from repeated stimulation. In this study we aimed to investigate the effect of habituation in pattern-reversal VEP (PR-VEP) in relapsing remitting (RR) MS patients.

Method: We analyzed 10 blocks of PR-VEP responses in terms of latencies and peak-to-peak amplitudes of the N75-P100 and P100-N145 components. Habituation was analyzed as amplitude change between the 1st and 2nd to 10th blocks.

Results: The study group was divided into three groups (96 eyes). The first group was consisting of the eyes with clinical optic neuritis (ON) history and/or paraclinical electrophysiological findings suggesting of optic nerve involvement (P100 latency equal and above 110ms) (PWON; patients with ON; n=38). The second group was consisting of the eyes without any clinical optic ON history and/or paraclinical electrophysiological findings suggesting of ON involvement (P100 latency below 110ms) (PWOON; patients without ON; n=22) and the third group was consisting of healthy eyes (CG: control group, n=36). VEP amplitudes showed a significant clear-cut habituation after the 3rd block in the CG. But this continuous amplitude decrease did not seen in patient groups (PWOON and PWON) and a significant decrease relative to the 1st block of was found only in one block (5th block in the PWOON group and 7th block in PWON group).

Conclusion: These preliminary results suggest a possible visual habituation deficit in RRMS patients and our study will go-on with larger number of patients.

CAN WE TOUCH BY VISION?

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Introduction: It is possible to determine precisely the location of a point in space through vision thanks to convergence and accommodation. May recognition of an object by the vision be done only through its spatial configuration regardless of its image?

Objective: The objective of this work is to dissociate the relief perception from the vision regardless of image.

Material and methods: 30 people participated in the following experiment: observation of a three-dimensional object: sphere, pyramid, cube or cylinder placed in a dark room, and dotted with phosphorescent points placed randomly on the surface of the object and on a screen behind it.

A photograph of this composition (two-dimensional appearance) shows only a black surface dotted with light points and does not allow in any way the recognition of the object.

Result: Object recognition is possible but becomes increasingly difficult by reducing the number of phosphorescent dots.

Conclusion: As for touch, it is possible to recognize through vision the spatial configuration of an object by knowing the location of points arranged on its surface.

The interest of this experiment is to demonstrate how some patients with visual agnosia can recognize real objects, and not objects shown on videos or photographs.

BILATERAL OPTIC NEUROPATHY AND SYSTEMIC SARCOIDOSIS ABOUT A CASE

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Introduction: Sarcoidosis is a multisystemic granulomatous disease of unknown

origin that can affect any organ. The optic neuropathy is a rare event.

Case report: A 34 years old women presented a decrease of visual acuity in the left eye secondary to papilledema. brain MRI and lumbar puncture were normal.Thoracic CT-scan showed mediastinal and parenchymal involvement. Histological study of lung, bronchial and salivary glands biopsies displayed giant-cells granuloma without necrosis. Diagnosis of sarcoidosis complicated with optic neuropathy was made. Despite urgent treatment by a high dose corticosteroids visual loss became rapidly bilateral After a few days. Therapy combining prednisone and methotrexate a was instituted without improvement.

Conclusion: Through this report, we find that the optic neuropathy is severe in sarcoidosis and the treatment should be aggressive and early.

BLINDNESS IN NEUROLOGY (REPORT OF 16 CASES)

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Blindness is a condition characterized by loss of vision. We distinguish bilateral blindness and unilateral blindness. The aetiologies and mechanisms vary widely. The management of this disorder should be initiated as soon as possible to avoid the risk of permanent blindness.

We report 16 cases of blindness admitted in neurology department of Hassan II university hospital of Fez. There were 10 women and 6 men. The visual disturbances were associated with other neurological manifestations in 86% of patients; all our cases underwent an extensive etiological research. The main etiology was infectious cause with 2 cases of tuberculosis meningoencephalitis and 2 cases of neurosyphilis. Cortical blindness was found in two patients, one case of ischemic stroke and one case of eclampsia. Four of our patients had intracranial hypertension, two were idiopathic, one case was secondary to cerebral venous thrombosis that´s caused by essential thrombocythemia and the last case was secondary to the spinal cord ependymoma.

For inflammatory disease we report two cases of Neurobehçet and two cases of Devic's disease. Finally two cases had a psychiatric blindness.

PROGNOSIS OF PAPILLEDEMA AFTER OPTIC NERVE SHEATH FENESTRATION

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Objective: Pseudotumor cerebri is a condition of elevated intracranial pressure without a mass lesion, which may cause headache and visual problems. The most common morbidity is permanent visual loss. We aimed to determine the benefit of optic nerve sheath fenestration (ONSF) and timing for the resolution of papilledema in patients with pseudotumor cerebri.

Methods: Medical records of patients who had ONSF in our institution were reviewed. The success rates and need of contralateral ONSF or another surgical procedure for increased intracranial pressure and persistence of symptoms were documented.

Results: Twenty eight patients (22 female, 6 male) underwent ONSF. Mean age was 36.4. All patients had elevated opening pressure in lumbar puncture. Cranial magnetic resonance imaging revealed dural sinus thrombosis in 2 patients. Six patients had flattening of the posterior sclera, distension of the perioptic subarachnoid space and empty sella. The resolution of papilledema varied between 1-6 months. Persisting visual acuity/field loss and papilledema entailed contralateral ONSF in 6 patients and lumboperitoneal shunting in 1 patient. None of them had surgical complications. Vision improved or stabilized in all patients except 3 patients who had permanent loss of vision.

Conclusions: Optic nerve sheath fenestration is a safe option for decompression in patients who are not responsive to medical therapy. The resolution of papilledema can be prolonged. Although the efficacy of the procedure can be monitorised by visual fields and the degree of papilledema, timing for contralateral ONSF or shunting procedure should be based on ongoing visual loss.

VESTIBULAR EVOKED MYOGENIC POTENTIALS IN EARLY STAGE OF MULTIPLE SCLEROSIS AND CLINICALLY ISOLATED SYNDROME

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The aim of the study was to investigate the sensitivity of vestibular evoked myogenic potentials (VEMP) in early stages of multiple sclerosis (MS) and in clinically isolated syndrome (CIS).A group of 20 MS outpatients was compared to 20 age-matched healthy volunteers. 25% of the patients had oto-neuro-ophthalmological complaints, 75% did not have any infratentorial lesion on MRI and clinical examination.VEMPs were evoked by forehead taps with a triggered reflex hammer (tap-VEMP). Responses were registered over the middle part of the muscle belly of the sternocleidomastoid muscles (collic VEMP) and over the middle part of the lower eyelid, on top of the inferior orbital edge (ocular VEMP). During the collic VEMP, subjects were asked to push their chin downward against an inflated blood pressure cuff. During ocular VEMP subjects had to deviate the eyes 25 degrees upward. Peak latencies and standardized amplitudes were measuredCollic and ocular VEMP latencies of the patients were significantly prolonged compared to healthy volunteers. The ocular n2p2 amplitude was significantly reduced, while the standardized p13n23 amplitude was significantly enhanced. There was no statistically significant correlation between the EDSS scores or the EDSS brainstem plus cerebellar subscores and the VEMP results.When ocular and colic VEMPs were combined, a sensitivity of 60% and a specificity of 90% could be obtained.These findings suggest that VEMP is a rather sensitive test, able to detect subclinical dysfunction or lesions beneath detection threshold of MRI in patients with early MS and clinically isolated syndrome.

OPHTHALMOPLEGIA AS THE PRIMARY NEUROLOGICAL SIGN OF PONTINE HEMORRHAGE: A CASE WITH CLINICAL AND RADIOLOGIC CORRELATION

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Background and aims: Brainstem hemorrhages are located in the pons in up to 80% of cases. Patients with pontine hemorrhage frequently present with coma and severe focal neurological signs, and the outcome is generally poor. We report a case of pontine hemorrhage presenting with ophtalmoplegia as the main clinical sign, followed by a clinical and radiologic correlation.

Case report: A 47-year-old female with history of untreated hypertension presented with sudden onset of headache, vomiting, and diplopia. The neurological examination found a conscious patient with complete lateral gaze palsy and a bilaterally impaired vertical vestibulo-ocular reflex and vertical pursuit with an upbeat nystagmus in upgaze. The pupils and the convergence movement were normal. Other than a mild right facial palsy, the rest of the neurological exam was normal. A brain CT scan showed a bilateral tegmental hemorrhage of the pons.

This ophtalmoplegia can be explained by a bilateral lesion of the pontine abducens nucleus and/or the parapontine reticular formation (PPRF), and the medial longitudinal fasciculus (MLF) which also carries ascending projections from the vestibular nuclei in the medulla to the third and fourth nerve nuclei.

Conclusion: Pontine hemorrhage could also be evoked in patients with lateral gaze palsy of sudden onset as main neurological signs, especially if symptoms of intracranial hypertension are associated, in a context of uncontrolled hypertension. Such cases of pontine hemorrhage with mild symptoms may have a better outcome.

TRAUMATIC CERVICAL HYPEREXTENSION: A RARE CAUSE OF BRAINSTEM INJURY

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Case report: We present an unusual case of a 24 year old gentleman who sustained a traumatic superficial penetrating injury to the left infraorbital region leading to reflex rapid cervical hyperextension followed by a fall backwards. There was immediate onset of dysarthria and ataxia with a clinical left third nerve palsy. MRI brain showed contusions in the left midbrain, superior aspect of the right cerebellar hemisphere and medial occipital lobe along with subdural blood along the tentorium cerebelli. Subsequent MR cerebral angiogram was negative for arterial dissection. He underwent intensive multidisciplinary rehabilitation, making a complete functional recovery with regard to mobility and speech. A residual left-sided internuclear ophthalmoplegia still persists, however, requiring ongoing optometric input for moderate diplopia. Interval MRI brain reveals significant improvement but a focal tract remains through the upper left pons extending back into the right cerebellum.

Discussion: We hypothesise that brainstem deceleration resulting from acute cervical hyperextension led to shearing and stretching of axons locally, resulting in disruption of the medial longitudinal fasciculus. This has been reported infrequently in previous literature in the context of closed head injury. Internuclear ophthalmoplegia is conventionally associated with cerebrovascular or demyelinating disease but has rarely been described in conjunction with head injury. This is an interesting case of an under-described but significant cause of neurological disability for which appropriate diagnosis and early targeted therapy can promote a superior outcome.

VESTIBULAR EVOKED MYOGENIC POTENTIAL IN VESTIBULAR NEURITIS

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Objective: To verify the screening value of cervical vestibular evoked myogenic potential (c-VEMP) test compaered with computerized dynamic posturography(CDP) test in the patients with vestibular neuritis (VN).

Methods: c-VEMP was tested to the fifteen VN patients. Tested date was during the acute attack and 14 days after the beginning of the acute attack. All the patients underwent the neuro-otologic examinations including computerized dynamic posturography(CDP) test.

Results: At the second visit, the 10 cases patients did not show improvement of c-VEMP tests compared with improvement of CDP tests.

Conclusion: c-VEMP recording is more applicable for patients with VN as a screening test for detection of the remnant pathophysiological disease process than CDP.

IMPAIRED SACCULOCOLLIC REFLEX IN VASCULAR INNER EAR DISEASE

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Objective/hypothesis: To determine saccular dysfunction by measuring cervical vestibular-evoked myogenic potentials (cVEMP) and to assess the vestibulocochlear function in vascular vertigo from infarction involving the territory of anterior inferior cerebellar artery (AICA).

Methods: We recorded cVEMP in 12 patients with AICA infarction documented on MRI. cVEMP was induced by a short tone burst and recorded in the contracting sternocleidomastoids muscle.

Results: Eight patients (67%) showed abnormal cVEMP, unilateral in six and bilateral in two. The cVEMP abnormalities included absent responses in three, decreased p13-n23 amplitude in five, and delayed p13/n23 responses in three. cVEMP was abnormal mostly in the side of MRI lesions. However, one showed decreased amplitude in the contralesional side and two with unilateral lesion exhibited bilateral cVEMP abnormalities. In contrast, one with bilateral lesions involving the middle cerebellar peduncles had unilateral cVEMP abnormality. The side of abnormal cVEMP was correlated with the side of canal paresis and hearing loss. However, the proportion of canal paresis, hearing loss, and distribution of the MRI lesions did not differ between the abnormal and normal cVEMP groups.

Conclusions: The associations and dissociations of the vestibulocochlear dysfunction suggest differential involvements of the audiovestibular structures in vascular vertigo. Vascular vertigo may manifest with various combinations of audiovestibular loss.

PTOSIS: FROM SYMPTOM TO DIAGNOSIS

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Background and aim: Ptosis often presents a diagnostically challenging and therapeutically rewarding problem for neurologist. The several causes of ptosis range in severity from life-threatening neurological emergencies to involutional processes. The aim of this study is to illustrate clinical cases of different causes of ptosis.

Patients and methods: We reviewed the charts of 15 patients with ptosis. All patients had a neurological exam, MRI when central ptosis is suspected and an electromyogram if a peripheral neurological signs are found.

Results: Mean age was 37.8 years old. Several causes are involved in the occurrence of ptosis. Two patients had ischemic diabetic ptosis. One patient had thrombosis of the internal carotid aneurysm. Two patients had myasthenia with bilateral ptosis. Three patients had mitochondriopathy. Three patients had *Steinert´s disease*. One patient had Pancoast´s syndrome. One patient had ptosis resulting from *a*n eyelid injury. Finally, 2 patients had congenital ptosis and one of them had Moebius syndrome.

Conclusion: Several causes are involved in the occurrence of ptosis due to myogenic, neurogenic, aponeurotic, mechanical or traumatic cause. Central ptosis are probably underestimated but may be very serious specially in neurovascular emergency (internal carotid aneurysm*).* Peripheral ptosis depends from III nerve lesions mostly related to ischemic diabetic pathology. Myopathic ptosis is rare, due to ocular mitochondriopathy, Steinert's disease, laryngopharyngeal paralysis or myasthenia. Horner´s syndrome characterizes sympathetic ptosis. Congenital causes are either isolated or associated with multiple malformative syndromes. Ptosis may be the presenting symptom of serious neurologic disease. The appropriate treatment requires recognition of the underlying cause.

TOLOSA-HUNT SYNDROME

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Tolosa Hunt is a relatively rare relapsing remitting granulomatous inflammatory disorder of unknown aetiogy.

It usually involves the cavernous sinus and the orbit. It presents with marked pain and varying degrees of ophthalmoplegia . Hear we report 2 cases of Sudanese patients with one showing a previously unreported MRI features suggestive of associated focal cerebritis which resolved completely on treatment with steroids.

ROTATIONAL VERTEBRAL ARTERY SYNDROME DUE TO COMPRESSION OF DOMINANT VERTEBRAL ARTERY DURING IPSILATERAL HEAD TILT

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Paroxysmal vertigo induced by head rotation occurs in patients with rotational vertebral artery syndrome (RVAS), which is characterized by recurrent attacks of vertigo, nystagmus, and ataxia that are mainly induced by head rotation. Typical RVAS is known to occur due to compression of the dominant vertebral artery during contralateral head rotation, usually at the atlantoaxial joint. A 29-years-old man presented with 8 months history of paroxysmal vertigo induced by head tilt to the left. The patient reported that tinnitus in both ears and visual blurring were accompanied by rotatory vertigo. On neuro-otological examinations, there was no spontaneous or gaze-evoked nystagmus. Head-shaking, vibratory stimulation, and positioning tests did not elicit nystagmus. Leftward head tilt induced mainly downbeat nystagmus with a small left beating horizontal component. MRI of the brain was unremarkable and MR angiography showed a hypoplastic right vertebral artery. Dynamic angiography documented complete occlusion of the left vertebral artery at the atlantoaxial junction during leftward head tilt. Computed tomography of the neck did not show bony abnormalities in cervical spines.

While patients with typical RVAS shows compression of dominant vertebral artery during contralateral head rotation at the atlantoaxial joint, a few reports have described atypical patterns of RVAS, such as compression of bilateral vertebral artery during unilateral head rotation and various compression level. The present case shows that dominant vertebral artery can be also compressed by ipsilateral head tilt in RVAS.

CERVICAL AND OCULAR VESTIBULAR-EVOKED MYOGENIC POTENTIALS IN ACUTE VESTIBULAR NEURITIS

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Objectives: To clarify the origin and afferent pathways of short-latency ocular VEMP (oVEMP) in response to air-conducted sound (ACS), we evaluated cervical (cVEMP) and ocular VEMPs in patients with vestibular neuritis (VN).

Methods: In response to air-conducted tone burst, the oVEMP and cVEMP were measured in 60 healthy controls and in 41 patients with acute VN. The VN selectively involved the superior vestibular nerve (superior VN) in 30, affected the inferior vestibular nerve only (inferior VN) in 3, and damaged both superior and inferior vestibular nerve branches in 8.

Results: All 30 patients with superior VN presented normal cVEMPs indicating preservation of the saccular receptors and their afferents in the inferior vestibular nerve. However, the oVEMP was abnormal in all patients with superior VN. In contrast, the patients with inferior VN showed normal oVEMP and abnormal cVEMP.

Conclusion: These dissociations in the abnormalities of cVEMP and oVEMP in patients with VN selectively involving the superior or inferior vestibular nerve suggest that the origin of the vestibular nerve afferents of oVEMP differ from those of cVEMP.

Significance: The oVEMP in response to ACS may be mediated by the superior vestibular nerve, probably due to an activation of the utricular receptors.

TREATMENT OF APOGEOTROPIC HORIZONTAL CANAL BENIGN PAROXYSMAL POSITIONAL VERTIGO: A RANDOMIZED CLINICAL TRIAL

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Objectives: To determine the immediate and long-term therapeutic efficacies of Gufoni and head-shaking maneuvers in apogeotropic type of benign paroxysmal positional vertigo involving the horizontal semicircular canal (HC-BPPV), a randomized, prospective, sham-controlled study was conducted.

Methods: In nationwide 10 Dizziness Clinics of Korea, 157 consecutive patients (95 women, age range: 18-89 years, mean age±SD=59.9±13.6) with apogeotropic HC-BPPV were randomized to Gufoni (n=52), head-shaking (n=54) or sham maneuver (n=51). For Gufoni maneuver, patients underwent ipsilesional side-lying and upward head-turn for migration of the debris toward the vestibule. Immediate responses were determined within one hour after a maximum of two trials of each maneuver and in the following day. The patients also had weekly follow-ups for one month after the initial maneuver.

Results: After a maximum of two maneuvers on the initial visit day, Gufoni (38/52, 73.1%) and head-shaking (33/53, 62.3%) maneuvers showed better responses than the sham maneuver (17/49, 34.7%). The cumulative therapeutic effects were also better with Gufoni ($p< 0.001$) and head-shaking ($p=0.026$) maneuvers compared with the sham maneuver. However, therapeutic efficacies did not differ between the Gufoni and head-shaking groups in terms of both immediate ($p=0.129$) and long-term ($p=0.239$) outcomes.

Conclusion: Using a prospective randomized trial, we demonstrated that the Gufoni and head-shaking maneuvers are effective in treating apogeotropic HC-BPPV.Classification of Evidence: This study provides Class II evidence that Gufoni and head-shaking maneuvers are effective in treating apogeotropic horizontal BPPV up to one month after initial treatment.

UNILATERAL BLINDNESS AND TOTAL OPHTHALMOPLEGIA AFTER COSMETIC NASAL INJECTION

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Background: Microspheres of hyaluronic acid are popular fillers for facial rejuvenation. There are some reports of side effects of this procedure. We report unilateral blindness and total ophthalmoplegia after hyaluronic acid injection into nasal cartilage in a healthy young woman.

Case: A 25-year-old female patient visited the emergency department due to ptosis and visual loss in her right eye. Six hours ago, she took the filler injection on nose with hyaluronic acid performed by a surgeon at his hospital. She immediately complained of severe right ocular pain and visual loss after the injection. On neurologic examination, ptosis and total opthalmoplegia was observed in her right eye. Lighr was not perceived and direct and indirect pupil light reflex were not observed in her right eye. The left eye was normal. Brain MRI showed that high signal intensity multifocal punctuate lesion in both frontal area on diffusion-weighted image. She was treated with high doses of intravenous corticosteroids with partial improvement in gaze palsy. However, visual acuity did not improve after 30 days of symptom onset.

Conclusion: Ocular side effects have been reported in procedures like turbinate injections, rhinoplasty, and infraorbital nerve block. However, ocular side effect after piller injection in the nasal cartilage is extremely rare. We believe microspheres of hyaluronic acid were injected into one of the peripheral branches of the nasal artery or some anastomosing artery. The microspheres traveled to ophthalmic artery and were propelled by the blood flow to periocular arteries leading to blindness, ptosis and total ophthalmoplegia.

EXCITATORY AMINOACID(EA) LEVELS IN CEREBROSPINAL FLUID(CSF) OF FIRST EVENT OPTIC NEURITIS(ON) AS RISK FACTOR FOR CHRONIC RELAPSING INFLAMMATORY OPTIC NEUROPATHY(CRION)

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Background: ON is an acute inflammation of the optic nerve. 20-40% of patients will develop multiple sclerosis and 30% may have recurrence within 10 years. On the other hand, glutamate is synthesized by deamination of glutamine and is the major excitatory neurotransmitter in the brain. The high concentration of glutamate causes toxicity and neuronal death in several neurodegenerative diseases.

Objective: To determine the prognostic role of EA in cerebrospinal fluid (CSF) of patients with a first ON with conversion to CRION.

Methods: Prospective and longitudinal study, in patients older than 18 years of age with initial diagnosis of ON who underwent lumbar puncture for their diagnosis in the first four weeks of the event for measurement of glutamine, glutamate and taurine from January to December 2008.

Results: 23 patients (12 women), with an average age of 35 years (range 19-60 years), were followed average of 12 months. The appearance of CRION was observed after an average of 9.8 months after the first event. Visual acuity (VA) was between 3-5 in eleven patients and higher than 5 in seven in the Wingerchuck scale of VA. Five patients progressed to CRION and nine continued as monophasic ON. The glutamine levels were significantly higher (p=0.007) in the group that VA was worst and the higher glutamate levels were observed in the group that progressed to CRION (p=0.07)

Conclusions: The glutamate levels in CSF measured in the acute stage of a first ON event may have a relationship with the long-term development of CRION.

PYRIDOSTIGMINE TEST WITH VIDEO OCULOGRAPHY TO EARLY DETECTION OF THE OCULAR MYASTHENIA GRAVIS PATIENTS: A PILOT STUDY

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Background: Myasthenia gravis(MG) is a disease of post-synaptic neuromuscular junction that is characterized fatigable muscle weakness. It commonly affects the extraocular muscles(EOM). To date, the confirmatory diagnosis of the early ocular MG remains difficult. This pilot study is focused on discovering the differences in the results of oculomotor test using intramuscular pyridostigmine between the MG patients with ocular manifestation and patients with diplopia or ptosis from the other causes(Non-MG).

Methods: 22 patients with ptosis and/or diplopia took the oculomotor test with video oculography before and after intramuscular injection of 5mg pyridostigmine and 0.5mg atropine. By neurologic examination, acetylcholine receptor antibody titer, repetitive nerve stimulation test, chest CT, and the response to empirical medication to MG, the patients were divided into eleven MG patients and Non-MG respectively. The differences of oculomotor test results after pyridostigmine injection between the two patient groups were analyzed.

Results: Horizontal or vertical saccadic hypermetria(8/11), improvement of limitation of EOM movement range(7/11), horizontal squarewave jerk(5/11), Vertical squarewave jerk(1/11), Decrease of gaze paretic nystagmus(1/11), and improvement of saccadic slowing(1/11) are present in the MG patients. One MG patient did not show any change in the oculomotor test but she showed reversed ptosis. In the Non-MG patients, Six patients showed only saccadic hypermetria and only one patient had both saccadic hypermetria and horizontal squarewave jerk.

Conclusion: In addition to the other tests for diagnosis of MG, pyridostgmine test with video oculography may be beneficial to early detection of ocular MG. Further large studies will be required.

BUMPS AND NUMBS

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Introduction: Reduced tactile sensation is a symptom seen in patients with peripheral neuropathy. It is essential to diagnose tactile deficiency early when treatment has potential of success. Studies show lower meissner´s corpuscles (MC) in elderly and in neuropathy and also distorted MC structure, focal thickening or loss of myelin and short myelin internodes with decreased sensitivity to touch. The bumps test determines the tactile detection threshold by having the subject rub the finger pad over a smooth surface to locate bumps of different heights

Materials and methods: Modified bumps method is used. Smooth surface with 5 circles with each circle containing bumps with heights in the order of 250 micrometer, 500 micrometer, 1 millimeter, 1.5millimeter, 2millimeter were used. 70 subjects between the age of 35 to 70 years who were either diagnosed (30 subjects) or at risk for neuropathy-40 subjects (risk evaluated by a questionnaire that included diabetes and drugs) were studied. Bump detection threshold was defined as the lowest bump that is detected. Each trial was timed by a stop watch.

Results: 93% (37 subjects with risk factor for neuropathy were able to detect the 250 micrometer bumps. In neuropathy patients 8 patients detected 1.5 millimeter and 22 patients detected 2 millimeter bumps. The time taken to complete the test increased with age in both neuropathic and at risk subjects.

Conclusion: Modified bumps test is a elegantly simple method to evaluate numb fingers, and tactile sensation. Bump detection time evolves over age and severity of peripheral neuropathy.

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