Journal of the Neurological Sciences xxx (2015) xxx–xxx

Contents lists available at ScienceDirect

Journal of the Neurological Sciences

journal homepage: www.elsevier.com/locate/jns

Neurorehabilitation

1186
WFN15-0220
Neurorehabilitation
Botulinum toxin a injections under electromyographic guidance in patients with upper limb spasticity

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Introduction: There is a growing evidence of higher efficacy of botulinum toxin A (BTA) injections under electromyographic (EMG) control, which allows the registration of electric potentials of most involved spastic muscle fibers.
Aim: To evaluate the efficacy of EMG-control during BTA injection in patients with upper limb spasticity.
Patients and methods: The study included 61 patients aged 34-68 years with upper limb spasticity as a consequence of stroke, brain trauma or brain tumor. Patients were divided into two groups: patients in the main group received BTA (Dysport) under EMG-control; patients in the control group received conventional BTA injections. Second injection of BTA was performed on the 4th month. Patients in both groups received conventional rehabilitative treatment. Efficacy evaluation was performed using Bartel scale to assess upper limb spasticity. Results of the study demonstrated a significant decrease of spasticity in both groups, but the difference of measured variables on months 1 and 5 was more pronounced in main group compared to control group. Mean baseline score on Bartel scale was 45,26 ± 7,81 in the main group and 47,03 ±6,23 in the control group. After one month of treatment mean score was 58,14 ± 8,71 and 51,63 ± 7,32 ($p < 0,05$), after 5 months - 62,54 ± 8,3 and 56,17 ± 6,27 ($p < 0,05$) in the main and control group, respectively. Even after 8 months after treatment initiation the score on Bartel scale demonstrated significant differences between the groups: 54,21 ± 7,64 in the main and 50,18 ± 6,27 in the control group ($p < 0,05$).
Conclusion: BTA (Dysport) treatment under EMG-control is recommended in patients with upper limb spasticity.

doi:10.1016/j.jns.2015.08.1250

1187
WFN15-0221
Neurorehabilitation
Botulinum toxin dose reduction using electromyographic control in patients with upper limb spasticity

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Introduction: Botulinum toxin A (BTA) studies demonstrated an important role of precise needle positioning in target muscle, which can be achieved using electromyographic (EMG) control.
Aim: To evaluate the role of EMG-control in reducing BTA dose in upper limb spasticity patients.
Patients and methods: The study included 61 patients with upper limb spasticity. The main group (n = 29) received BTA (Dysport) under EMG-control, the control group (n = 32) - with no EMG-control. Spasticity pattern was assessed on Arm Spasticity Pattern scale (ASP). Treatment efficacy was assessed using Ashworth scale.
Results: The most common pattern of spasticity on ASP scale was type III in 13 (44,8%) and in 17 (53,1%) patients in the main and control group, respectively. Type I spasticity was diagnosed in 9 (31,0%) patients in the main and 9(28,1%) patients in control groups. Type IV spasticity was found in 7 (24,2%) and 6 (18,8%) patients in main and control group, respectively. In 8 (27,6%) patients in main group initial dose of BTA was reduced by 50-300 U as a result of the identification of the most involved spastic muscle while achieving more effective spasticity reduction on Ashworth scale. Total BTA dose in the main group was reduced by 1300 U compared to control group: by 550 U in 3 (37,5%) patients with type I, by 500 U in 2 (25,0%) patients with type II and by 250 U in 3 (37,5%) patients with type III spasticity.
Conclusion: BTA (Dysport) injection into the spastic muscle under EMG control allows total dose reduction.

doi:10.1016/j.jns.2015.08.1251

1188
WFN15-0109
Neurorehabilitation
Benefits of physical therapy on the executive functions of people with Parkinson's disease: a controlled clinical trial

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Background: The role of the executive functions in Parkinson's disease (PD) has been increasingly studied due to its influence on the patients' routine and social networks.
Objective: In the light of this situation, we undertook this study to investigate the effects of a physical therapy program applied individually and in group on executive functions in patients with PD.

0022-510X/$ – see front matter.

Patients and methods: 23 subjects were allocated in three groups and undertook individualized exercises (G1, n = 7), group exercises (G2, n = 8), or monitoring (G3, n = 8). The evaluation involved the Wisconsin card sorting test and the Raven colored matrices test, which was used to evaluate the participants at the beginning of the program and after six months. The statistical procedures consisted of the application of repeated measurement tests, with significance of 5%.
Results: The findings showed similar behavior of the groups in the Wisconsin test ($p = 0.246$) in spite of some analyses reflecting improvement of G1 and G2 in comparison with G3. Raven's colored matrices evidenced significant benefits of physical therapy for the subjects' executive functions ($p = 0.032$), with pairwise comparison reflecting similarities of benefits for G1 and G2 ($p = 0.351$).
Conclusion: Patients with PD who received six months of physical therapy presented improvement in the executive functions, when compared with control subjects. The similarity of the results between G1 and G2 should be the focus of further studies so as to clarify the influence of social networks on the patients' cognition.

doi:10.1016/j.jns.2015.08.1252

1189
WFN15-0240
Neurorehabilitation
Prevalence of neurological diseases that have impact in the human movement in adolescents and adults

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Objective: To describe the epidemiological characteristics of presentation of principal neurological diseases that have impact in the move and functionality in adolescents and adults.
Methodology: This investigation is a cross sectional study with persons over 15 years old served in the Physical Therapy Services with practices of the Physical Therapy Program of Manuela Beltran University in the year of 2012. In the statistical analysis was made the calculations of general and specific prevalence with the standard error and for to establish relationship of the gender with neurological diseases was make chi square test with one freedom of liberty $p <$ of 0.05.
Results: 6340 persons was served in physiotherapy, 16.75% (n = 1062, standard error = 0.00) for neurological diseases, 38.41% of the persons with neurological diseases was have stroke (n = 408, standard error = 0.01), 53.92% of this persons was of female gender (n = 220, standard error = 0.02, X2 = 0.002, $p > 0.05$, O.R = 1.00, confidential interval 95%0.82 - 1.20), 19.67% of the persons with neurological diseases was have Alzheimer Disease (n = 209, standard error = 0.01), 77.51% of the persons with this disease was female gender (n = 162, standard error = 0.01, X2 = 49.76, $p < 0.05$, O.R = 3.11, confidential interval 95% 2.27 - 4.22); 17.98% of the persons with neurological diseases was have problems of traumatic origin, 78.01% of this persons was male gender (n = 149, standard error = 0.01, X2 = 81.58, $p < 0.05$, O.R = 4.39, confidential interval 95% 3.18 - 5.92).
Conclusions: The neurological diseases have important level of prevalence in the attention of Physical Therapy and the stroke is the more important neurological disease.

doi:10.1016/j.jns.2015.08.1253

1192
WFN15-1116
Neurorehabilitation
Clinical factors associated with depression six months after traumatic brain injury

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Background: Traumatic brain injury (TBI) is an important cause of morbidity and mortality among adults. Recent studies have shown that depression after TBI interfere negatively in their quality of life. However, the independent factors associated with the depression after TBI is still unclear.
Objective: To investigate the independent factors associated with depression in patients with TBI six months after injury.
Patients and methods: A sample of TBI adult patients admitted to a tertiary academic hospital was prospectively assessed from February to May 2014. Demographic data and Glasgow Coma Scale were evaluated at admission. Six months after TBI, the patients were evaluated using Patient Health Questionnaire-9, Beck Anxiety Inventory, Functional Independence Measure, Pain Visual Analogue Scale, Montreal Cognitive Assessment and Neurological Outcome Scale for TBI.
Results: A total of 99 patients (79.79% male), mean age 45.21 ± 2014 years were included. According to the GCS at admission, the frequencies of mild, moderate and severe TBI,were 77.78%, 9.09% and 13.13%, respectively. Six-months after TBI the frequencies of mild, moderate, moderately severe and severe depression were 21.88%, 18,75%, 8.33% and 2.08%, respectively. Backward multivariate linear regression analysis revealed that the factors independently associated to post TBI depression were pain ($p = 0.03$), anxiety ($p < 0.0001$) and female gender ($p = 0.0007$) ($r2 = 0.66$).
Conclusion: Depression is highly prevalent after TBI and is independently associated with pain, female gender and anxiety. These results indicate that emotional impairments must be systematically evaluated in order to better diagnose and treat this population.

doi:10.1016/j.jns.2015.08.1254

1193
WFN15-0674
Neurorehabilitation
The study in the separation, differentiation of muse cells and differentiation into Muse-NPC$_S$

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Background: Multilineage differentiating stress enduring (Muse) cells are a newly discovered subpopulation of cells that distribute in the mesenchyme expressing multiple pluripotency markers. Muse cells may used in the cell therapy to treat with injuries of the central nerve system.
Objective: To isolate Muse cells from human bone marrow stromal cells (hBMSCs) and induce them into neural precursor cells (Muse-NPCs) in vitro.
Material and methods: The density gradient centrifugation methods were used to isolate hBMSCs from adult bone marrow. Muse cells then were separated from hBMSCs by fluorescence activated cell sorting. Immunocytochemistry and qPCR were used to detect the pluripotent properties of Muse cells. Then Muse-NPCs were induced from Muse cells by neural induction medium in vitro. Immunocytochemistry and qPCR were used to detect the expression of neural stem cell markers in Muse-NPCs.
Results: hBMSCs were isolated from bone marrow and showed $CD45^-/CD11b^-/CD90^+$. Muse cells were separated from hBMSCs and expressed $SSEA\text{-}3^+/CD105^+$. Immunocytochemistry and qPCR results showed Muse cells were positive for Nanog, Oct4 and Sox2, and the mRNA levels of these markers in Muse cells were significantly higher than those in hBMSCs ($p < 0.01$). Induced Muse-NPCs formed clusters and positive for Nestin, NCAM and DCX. The mRNA levels of

these markers in Muse-NPCs were significantly higher than those in hBMSCs-NPCs and Muse cells.
Conclusions: Muse cells were successfully separated from adult bone marrow and contain the properties of pluripotent stem cells. Muse cells were induced into Muse-NPCs, which were confirmed to have the properties of neural stem cell.

doi:10.1016/j.jns.2015.08.1255

1194
WFN15-0192
Neurorehabilitation
Effectiveness of modified constraint induced movement therapy on the quality and quantity of upper extremity movement recovery after stroke

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Background: Constraint-Induced Therapy (CIT) is a therapeutic strategy that has been show to improve the function of the upper limb affected by stroke. Although an extensive body of literature supports the positive impact of CIT on neuroplasticity and the recovery of function, most research has evaluated an individual mode of delivery. However, evidence is limited for the application of CIT protocol in a group setting.
Objective: To determine the effectiveness of a modified version of CIT in a group setting as compared to individual, one-on-one basis on the quantity and quality of movement of the paretic upper limb.
Methods: Forty participants, 6-60 months post stroke, were randomized into either a group or individual application of CIT. The hemiparetic upper extremity quantity and quality of movement was evaluated using the self-reported, Motor Activity Log and each participant's clinical record at baseline, pre-treatment and post-treatment.
Results: The data were analyzed through an analysis of variance with a mixed factorial design 2 x 2. Both groups tended to improve their scores between baseline and pre-treatment measurement, however, no significant effect was found between groups for this time period. Conversely, group differences were seen between pre and post treatment evaluations.
Conclusion: This clinical trial provides evidence supporting the application of CIT delivered in a group mode for 3 hours, to improve the performance of the paretic upper limb in daily activities. However the evidence is still limited in relation to this mode CIT version.
Source(s) of funding: Proyecto Fondo Nacional de Investigación en Salud-Chile SA13I20037.

doi:10.1016/j.jns.2015.08.1256

1196
WFN15-1287
Neurorehabilitation
The Impact of motor disability on daily life activities and in Tropical Spastic Paraparesis (HAM/TSP)

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Abstract: HTLV-1-associated myelopathy/tropical spastic paraparesis (HAM/TSP) is a progressive disabling disease associated with gait disturbance and limitation of functional capacity. The better knowledge of affected muscles represents important target of gait rehabilitation and improvement of quality of life.
Objective: Identify and quantify the main muscles affected by weakness and spasticity, their impact in the functional status and in the quality of life of HAM/TSP patients.
Methods: We evaluated lower limbs muscular strength by Medical Research Council system, spasticity by modified Ashworth scale, functional capacity by Barthel Index and quality of life by Short-Form Health Survey 36 of 26 HAM/TSP patients. The relationship between the scores was determined by Pearson or Spearman rank coefficients.
Results: 92.3% of patients need support for locomotion, being 42.3% restricted to wheelchairs. All patients had weakness of hip flexors, hip abductors, plantar flexors and fingers extensors. Spasticity occurred predominantly in the hip adductors muscles (76.9% bilaterally) and in plantar flexors (88.5 and 84.6%, leftand right, respectively). Minimal dependency in the daily activities was observed in 69% of the patients. The most important limitation in the quality of life was related to functional capacity (100%) and limitation by physical aspects(61.5%).
Conclusion: The involvement of muscular weakness represented the main limiting factor of walk, functional independence and quality of life of HAM/TSP patients.

doi:10.1016/j.jns.2015.08.1257

1197
WFN15-1050
Neurorehabilitation
Quality of life as perceived by the patients with TBI and their caregivers

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Background: The QOLIBRI (Quality of Life after Brain Injury) is a new international health-related quality of life (HRQoL) instrument developed for assessing the consequences of traumatic brain injury (TBI), recently validated also for the Italian version.
Objective: The aim of the study is the comparison of the quality of life as perceived by the patients with TBI and their caregivers and the correlations with self-awareness of the patients and possible empathy deficits.
Patients and methods: A total of 147 participants with TBI who had previously been discharged from the Santa Lucia Foundation rehabilitation hospital were evaluated by means of QOLIBRI administered to patients and their caregivers (proxy version) to evaluate their quality of life and the Patient Competency Rating Scale (PCRS) to assess the levels of self-awareness and Empathy Quotient (EQ) for empathy disorders
Results: The results suggest that QOLIBRI is very sensitive in relation to outcome as measured by the Extended Glasgow Outcome Scale (GOS-E) and other instruments for functional assessment of disability, emotions and subjective health status, including the Hospital Anxiety and Depression Scale and the Short-Form 36.
Conclusions: The comparison between the self-perception of quality of life of the patients and their quality of life as perceived by the caregivers (Proxy QOLIBRI) may offer interesting opportunities to evaluate the self-awareness and empathy of patients with TBI.

doi:10.1016/j.jns.2015.08.1258

1198
WFN15-1237
Neurorehabilitation
Brain plasticity and recovery of auditory comprehension in chronic post-stroke aphasia

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Background: Neural plasticity is believed to be the basis for relearning in the damaged brain that occurs through cognitive rehabilitation. Intensive language training has been found to be efficient in the rehabilitation of chronic aphasia. This study reports on a patient with a cerebral ischemia in the left hemisphere, who showed language recovery 28 years after onset.
Objective: The objective of this study was to confirm the efficacy of intensive language treatment in the recovery of the auditory comprehension in a patient with chronic aphasia.
Patient and method: A 73 year-old, right-handed man, native Spanish speaking with severe aphasia and right hemiparesis resulting from a cerebral ischemia in the left frontal, parietal and temporal lobes. The patient showed severe non-fluent aphasia 28 years after onset with an auditory comprehension percentile of 38 on the Boston Diagnostic Aphasia Examination. The patient received language treatment 1 hour a day, 3 days a week for 36 weeks which included word-level auditory comprehension tasks. During the treatment, a follow-up of the skills was made through some of the tasks described in the Western Aphasia Battery.
Results: After 36 weeks of language therapy, his auditory comprehension improved to 56 percentile on the Boston Diagnostic Aphasia Examination.
Conclusion: This study reports on the auditory comprehension recovery in a chronic post-stroke aphasic patient by intense language treatment. This significant improvement suggests brain plasticity and functional reorganization.

doi:10.1016/j.jns.2015.08.1259

1199
WFN15-1480
Neurorehabilitation
Preliminary data of swallowing training using sEMG as biofeedback

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Background: Dysphagia is a marker of negative prognosis, increasing malnutrition and aspiration pneumonia in stroke population[1]. Despite the high prevalence and the severity of dysphagia, few study documented the effects of swallowing training using sEMG as biofeedback.
Objective: This study aims to examine the effect of swallowing training using sEMG biofeedback in stroke patients.
Method: 8 patients (4 female and 4 males) were included in this study, approximately matched for age, sex and severity of dysphagia. Inclusion criteria were: 1) presence of significant dysphagia (FOIS ≥ 5) secondary to stroke; 2) chronic patients (≥3 months post-onset). The participants were randomly assigned to swallowing training using sEMG as biofeedback or to the standard treatment. Surface electrodes were placed on the submental muscles and participants were instructed to monitor and to increase muscles activation during swallowing activities. The duration of both of treatment sections was 1 h for 5 consecutive days for 1 month.
Results: Both of the treatments have shown improvements in the swallowing ability at the FOIS. However, sEMG biofeedback swallowing treatment have shown significant results ($p < 0.5$) at the penetration aspiration scale during videofibroscopic evaluation.
Conclusion: These preliminary data show that use of sEMG biofeedback increases awareness of swallowing patterns and to help the patient modify, monitor, and challenge performance while executing swallowing manoeuvres.

doi:10.1016/j.jns.2015.08.1260

1200
WFN15-0951
Neurorehabilitation
Effect of muscle strength and balance on fatigue in patients with Multiple Sclerosis

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Background: Among patients with Multiple Sclerosis (MS), fatigue is the most commonly reported symptom and one of the most debilitating. Despite its high prevalence and significant impact, fatigue is still poorly understood.
Objectives: The aim of the our study was to investigate the effects of lower extremity muscle strength and balance on fatigue in patients with MS.
Methods: Sixty eight ambulatory patients with MS (Age: 37.82 ± 9.95 years, EDSS: 1.78 ± 1.26) participated in the study. Fatique severity was assessed using the self-report Fatigue Severity Scale (FSS). Strength of six lower extremity muscles (hip flexor-extensor-abductor, adductor, knee flexor-extensor) was assessed using hand-held dynamometer. Balance was evaluated with single-leg stance test. Pearson correlation analysis were used to determine relationships between fatigue, balance and strength. To determine the most powerfull predictors of fatigue multiple regression analysis was used.
Results: Fatigue was associated with all lower extremity muscle strength (r = between -0,21 to -0,30, $p < 0,05$) and duration of single-leg stance (r = -0,28, $p < 0,05$) in patients with MS. Regression analysis revealed that the most powerfull predictor of fatigue is hip extensor muscles strength and duration of single-leg stance ($R^2 = 0,104$ $p < 0,05$).
Conclusions: This study indicates that the lower extremity muscle weakness and imbalance affected fatigue severity in patients with MS. Especially we showed that hip extensor muscle weakness and imbalance were important predictor of fatigue severity. So we think that lower extremity muscle strengthening and balance training are sufficient at decreasing fatigue in patients with MS.

doi:10.1016/j.jns.2015.08.1261

1201
WFN15-0963
Neurorehabilitation
The effects of fatigue on functioning and quality of life in patients with Multiple Sclerosis

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Background: Fatigue has been described as an "overwhelming sense of tiredness." Up to 80 percent of people with Multiple Sclerosis (MS) experience the disabling effects of fatigue.

Objective: The purpose of the study was to investigate the effects of fatigue on cognitive, physical, and psychosocial functioning and quality of life in patients with MS.
Material and methods: Thirty eight patients with MS with mild to moderate disability (EDSS:1.76 ± 1.24, Age: 38.37 ± 10.81 years) were included the study. Their fatique severity was assessed using the self-report Fatigue Severity Scale (FSS), the perceived impact of fatigue on cognitive, physical, and psychosocial functioning were evaluated by Fatigue Impact Scale (FIS) and health related quality of life was assessed using the Multiple Sclerosis Quality of Life-54 (MSQOL-54) Instrument.
Results: Correlation analysis showed a significant relationship between FSS and cognitive, physical, psychosocial functioning ($r = 0,55/0,72/0,66$ respectively; $p < 0,001$) and physical and mental dimensions of MSQOL-54 ($r = -0.73, -0.70$ respectively, $p < 0,001$).
Conclusion: These results showed that fatigue severity significantly affect functioning and health related quality of life, especially physical dimension of functioning and health related quality of life. Although our patients didn't have significant disability, fatigue was important factor at their functions and quality of life. So this results showed us that it is even more important to teach how to save energy and handle fatigue as well as possible in patients with MS.

doi:10.1016/j.jns.2015.08.1262

1205
WFN15-0298
Neurorehabilitation
Effects of transcranial direct current stimulation on naming tasks in aphasic subjects after stroke

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Introduction: Aphasia is a language disorder, characterized by impairment of both the comprehension and expression of oral and written language, in different linguistic levels. The transcranial direct current (tDCS) stimulation shows to be a safe neurophysiological, easily applicable and non-invasive technique for aphasia treatment,.
Objective: To compare the Boston and Snodgrass naming tasks results in aphasic subjects divided in active and sham groups in which tDCS was applied.
Methods: A double-blind randomized-controlled study with 14 non-fluent aphasic subjects. Patients had 5 sessions of 20 minutes and 2 mA in consecutive days. The area stimulated with the cathode was homologous to Broca's area in the right hemisphere (area F8 of system 10-20). The anode was placed in the supraorbital region of the left hemisphere. For sham group the stimulator was turned on for only 20 seconds to mimic the stimulation effect. The Boston and the Snodgrass naming task were assessed (before, immediately after and 30 days after the tDCS) and the results compared between the groups before and after stimulation.
Results: Data confirmed a positive tendency related to correct answer mean time for the Snodgrass Test and that the Boston test indicated significance from the post moment to reassessment for the active group in this test.

doi:10.1016/j.jns.2015.08.1263

1206
WFN15-0927
Neurorehabilitation
The impact of botulinum toxin type A treatment on a patient with lingual dystonia: case report

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Background: Lingual dystonia is characterized by involuntary contractions of the tongue, activated by speech and eating, causing the tongue to push the food out of the mouth. Botulinum Toxin Tipe A (BoNT-A) injections are considered an effective treatment, as it induces the reduction of the spasms.
Objective: To describe the safety and efficacy of BoNT-A in a patient with lingual dystonia in relation to the aspects of speech and swallowing.
Method: The patient was submitted to swallowing and speech evaluation before and after the treatment. The choice of the superior longitudinal muscle and transverse muscle of the tongue occurred due to the kind of movement presented and to avoid side effects that could worsen the symptoms.
Results: Before the treatment, there was moderate dysphagia with laryngeal penetration and oral phase disturbances, and prejudice of speech. One week after the BoNT-A injections, there was local swelling and speech and swallowing worsening. After two weeks, there was improvement of the symptoms and the videofluoroscopy showed moderate dysphagia with laryngeal penetration without aspiration and better oral control. In speech, there was increased voluntary control of the tongue movement with improvement in resonance and articulation. The stabilization of the blocked muscles lasted a higher period than expected with significant impact on patient's quality of life.
Conclusion: Treatment with BoNT-A injections in the intrinsic muscles of the tongue can be an option for lingual dystonia, bringing benefits as for the movement control as for the aspects of speech and swallowing.

doi:10.1016/j.jns.2015.08.1264

1207
WFN15-0394
Neurorehabilitation
Efficacy of a computer-assisted neuropsychological training programme in cognitive performance of patients with relapsing remitting Multiple Sclerosis

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Background: To date, no effective pharmacological treatment for cognitive decline in MS has been established. Alternatively, initial evidence suggests that computer-assisted cognitive rehabilitation (*CACR)* may improve cognitive performance. Moreover, evidence from fMRI studies suggest that restorative training leads to compensatory changes in the brains of MS patients and increased functional connectivity.
Objective: To evaluate an intensive short-term (10 consecutive weeks) CACR program (www.Schuhfried.at) for retraining cognitive dysfunction in MS patients in Greece.
Patients and methods: Thirty five Relapsing-remitting patients with a mean EDSS = 3.90, SD = 1.10, who failed ≥ 2 cognitive tests on a flexible

neuropsychological battery specifically designed for Greek MS patients (cut-off 1.5 SD below mean performance, Greek normative data) were randomized into an intervention-IG (n = 23) and waiting list control group-CG (n = 12). Neuropsychological assessment was performed at baseline (T0), and immediately after completion of the intervention (T1). Patients in the IG received *CACR* of memory, attention, processing speed and executive functions. The CG did not receive any intervention.
Results: Following rehabilitation we found significant improvements in the IG, in tests of episodic memory (SRT - long term storage and delay recall), spatial processing speed (SDMT), attention / executive functions (TMT A and B). However, verbal fluency (expressive language) did not show improvement. Performance of CG participants did not show significant changes.
Conclusions: Short term, intensive CACR improved trained cognitive domains in RRMS patients. Future studies will assess whether beneficial effects are maintained 6 and 12 months post treatment and relationships between neuropsychological functions and (rCBF) SPECT.

doi:10.1016/j.jns.2015.08.1265

1209
WFN15-0832
Neurorehabilitation
Dysphagia in patients with acute ischemic stroke in Clínica Alemana Temuco, during the period from October 2013 to October 2014

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Background: Dysphagia affects up to 50% of all stroke patients in the first hours. It is associated with a threefold increase in the risk of pneumonia. Dysphagia has been identified as in independent predictor of mortality in stroke and is associated with increased institutionalization and poor outcome. Our national guidelines recommend swallow evaluation be performed in at-risk patients before any oral intake.
Aim: To determine the proportion of patients with acute ischemic stroke (AIS) who presented dysphagia in Clínica Alemana Temuco (CAT) from October 2013 to October 2014.
Methods: All patients with AIS hospitalized in (CAT) were evaluated. The variables of age, sex, realization and form of swallowing evaluation. Dysphagia was considered with a positive swallowing evaluation according our national guideline (MINSAL, 2013), made by physicians and speech therapist and a positive nasofibrolaryngoscopy (FEES). All patients signed informed consent.
Results: Of 73 patients, 11 were excluded for having a TIA. Of the total 62, 22 presented dysphagia (35.5%). Of the patients with dysphagia, 16 were male (72.8 %), 6 women (27.2 %). The median age: 66.4 years (±14.2). Only a 48.4% was formally written by the physician in the medical record the form of swallowing evaluation in the first 24 hours. 4 (6.5%) had an aspiration pneumonia and none had a nosocomial pneumonia. 1 patient died (1.6%).
Conclusion: The proportion of dysphagia in AIS in CAT is a similar proportion to other studies. We must improve our assessment especially writing in the medical record.

doi:10.1016/j.jns.2015.08.1266

1210
WFN15-1268
Neurorehabilitation
Application of constraint induced movement therapy protocol: effectiveness on the quality and quantity of upper extremity movement recovery after stroke

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Introduction: In stroke patients, upper limb paresis affects many activities of daily life. Reducing disability is therefore a major aim of rehabilitation programmes. Constraint-induced movement therapy (CIMT) is a current approach to stroke rehabilitation. Although an extensive body of literature supports the positive impact of CIMT, most research has evaluated an individual mode of delivery. However, evidence is limited for the application of CIMT protocol in a group setting.
Aim: To determine the effectiveness of a modified version of CIMT in a group setting as compared to individual, one-on-one basis on the quantity and quality of movement of the paretic upper limb.
Methods: Forty participants, 6-60 months post stroke, were randomized into either a group or individual application of CIMT. The hemiparetic upper extremity quantity and quality of movement was evaluated using the self-reported, Motor Activity Log and each participant's clinical record at baseline, pre-treatment and post-treatment. The data were analyzed through an analysis of variance with a mixed factorial design 2 x 2. All patients signed informed consent.
Results: Both groups tended to improve their scores between baseline and post-treatment measurement, however, no significant effect was found between groups for this time period ($p > 0.05$). However, in the pre and post treatment evaluation a significant effect on the group mode versus individual was observed ($p < 0.05$).
Conclusion: This trial provides evidence supporting the application of CIMT delivered in a group mode for 3 hours, to improve the performance of the paretic upper limb in daily activities.
Keywords: Rehabilitation- Stroke-Upper Extremity

doi:10.1016/j.jns.2015.08.1267

1212
WFN15-1169
Neurorehabilitation
Skin temperature assessment in individuals with spinal cord injury

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Abstract
Background: In spinal cord injury individuals the autonomic regulation of body temperature becomes almost non-existent because the hypothalamus is unable to control the cutaneous blood flow or degree the sweating in any area of the body.
Objects: To assess the skin temperature of the individuals with spinal cord injuries.
Material and methods: Twelve patients with tetraplegia and seven able-bodied subjects were recruited. All individuals were evaluated with a MT-230 non-contact infrared thermometer to measure the skin temperature on dermatomes C2 to S2. Also the internal temperature was collected by the armpit with a conventional clinical digital

thermometer (Geratherm ^{R}). Subjects with tetraplegia were evaluated by American Spinal Injury Association Impairment Scale (AIS).
Results: The internal temperature in both groups collected by the armpit had no difference. The Mann-Whitney test to compare the data between the two groups was used, and the Tukey test to identify this difference. The skin temperature difference of 0.09° to 3.65 °C was observed in the spinal cord injury patients when compared to the control group, and the skin temperature of dermatomes C5 ($p = 0.0067$), C6 ($p = 0.0208$), T9 ($p = 0.0440$), L1 ($p = 0.0130$), L2 ($p = 0.0007$), L3 ($p = 0.0007$), L4 ($p = 0.0007$), L5 ($p = 0.0094$) e S2 ($p = 0.0003$) were statistically different.
Conclusion: Individuals with tetraplegia showed low skin temperature when compared to the able-bodied individuals. Therefore, the data showed higher difference skin temperature in dermatomes L2 to S2.

doi:10.1016/j.jns.2015.08.1268

1213
WFN15-0110
Neurorehabilitation
Neurocognition predictors of everyday functioning in HIV-positive adults

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Background: Half of HIV-positive adults experience HIV-Associated Neurocognitive Disorder (HAND), a diagnosis based on the Frascati-criteria, which negatively affects performance on everyday activities. Fronto-striato-thalamo circuitry, hippocampal, and temporal lobe atrophy are observed in HIV-positive adults; this often results in procedural memory, working memory, executive/reasoning, and language deficits.
Objective: This study examined what potential neurocognitive and psychosocial factors are related to laboratory measures of everyday functioning and medication adherence in HIV-positive adults.
Method: In this cross-sectional study, a comprehensive neurocognitive, medical, psychosocial, and laboratory-based everyday functioning battery was administered to 88 HIV-positive adults. The everyday functioning measures were the Timed Instrumental Activities of Daily Living Test (TIADL), the Observed Tasks of Daily Living (OTDL), and the Simplified Medication Adherence Scale. Hierarchical multiple regression models were used to determine predictors of everyday functioning; steps examined demographics, HIV factors (i.e., clinic-derived viral load and CD4+ lymphocyte count), substance use, mood (Profile of Mood States), and neurocognitive measures (Finger Tapping Test, Useful Field of View (UFOV), Hopkins Verbal Learning Test (HVLT), and Wisconsin Card Sorting Test). This study received IRB approval.
Results: The model for TIADL explained 57% of the variance; the speed of processing measure (UFOV) significantly ($p < .05$) predicted TIADL performance. The model for OTDL explained 52% of the variance; the memory/language measure (HVLT) and income/education significantly ($p < .05$) predicted OTDL performance. No significant predictors were observed for medication adherence.
Conclusions: Since speed of processing and memory training programs are available, such neurorehabilitative approaches represent a strategy to improve everyday functioning in HIV-positive adults.

doi:10.1016/j.jns.2015.08.1269