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WORLD NEUROLOGY

THE OFFICIAL NEWSLETTER OF THE WORLD FEDERATION OF NEUROLOGY

Pediatric Neurology in Africa

Fellowship program builds skills for health practitioners

BY JO WILMSHURST, MD

Doctors trained in the management of child neurology conditions are lacking in Africa[1,2]. Epilepsy is one of the major disease burdens in the continent and training in this area is even more scarce. EEG interpretation in children is very different to that for adults and grave errors can occur in patient management when misinterpretations occur.

The African Paediatric Fellowship Program (APFP) is a project developed by the Department of Paediatrics and Child Health at the Red Cross War Memorial Children's Hospital, under the University of Cape Town in South Africa, to build skills capacity of health practitioners from Africa. The center is the largest dedicated children's hospital in sub-Saharan Africa. Children are managed across primary to quaternary levels of care with the spectrum of diseases prevalent in Africa.

The APFP formed collaborations with tertiary centers across Africa and has assisted their identification of strategic training requirements based on their countries' key health care needs. Structured training occurs at the pediatric units through the University of Cape Town. More than 65 specialists have completed, or are completing in 2015, the training program in diverse pediatric areas, referred from 33 centers in 12 different African countries. There has been a 98 percent retention rate of trainees returning to work in their home country since 2008. The program is evolving with training arms supporting nursing and ancillary services. The trainee becomes the trainer in his or her home center, and a key opinion leader equipped to lobby for changes to health care policy (Figure 1).

Figure 1. Some of the 2014 APFP fellows attending the end-of-year discussion group. Dr. Kija, child neurology trainee from Tanzania, is fourth from the left. Represented in the group are doctors training in areas from pediatric urology to pediatric rheumatology from areas in Africa inclusive of Uganda, Zambia, Kenya, Ghana, Zimbabwe and Malawi. The group remains as a cohesive support network and stay in contact after completion and following their return home.

The grant provided by the WFN to support neurology training in 2013 has enabled the focused training for six general pediatricians from different centers in Nigeria, and three further trainees from Zimbabwe, who manage large caseloads of children with neurodisabilities and epilepsy. The University of Cape Town rolled out in 2015 a post-graduate diploma in "basic electrophysiology interpretation and the management of children with epilepsy." This requires one-on-one training with a focus on areas relevant to the African context. The aim of the post-graduate diploma is to establish safe practice and

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FEATURES

Neurology and Psychiatry in Babylon

Babylonians described epilepsy, stroke, psychoses, depression, anxiety

BY EDWARD H. REYNOLDS

In the last 25 years I have had the privilege of collaborating with James Kinnier Wilson (JKW) on Babylonian texts of neurological and psychiatric disorders. JKW is a Cambridge-based assyriologist and son of the distinguished neurologist, Samuel Alexander Kinnier Wilson (1878-1937) (see *World Neurology,* October 2014).

It was believed that studies of disorders of the nervous system began with Greco-Roman medicine, for example, epilepsy, "the sacred disease" (Hippocrates) or "melancholia," now called depression. Our studies have now revealed remarkable Babylonian descriptions of common neuropsychiatric disorders a millennium earlier.

There were several Babylonian dynasties with their capital at Babylon on the River Euphrates. Best known is the Neo-Babylonian Dynasty (626-539 BC) associated with King Nebuchadnezzar II (604-562 BC) and the capture of Jerusalem (586 BC). But the neuropsychiatric sources we have studied nearly all derive from the Old Babylonian Dynasty of the first half of the second millennium BC, united under King Hammurabi (1792-1750 BC).

James Kinnier Wilson and Edward H. Reynolds.

The Babylonians made important contributions to mathematics, astronomy, law and medicine conveyed in the cuneiform script, impressed into clay tablets with reeds, the earliest form of writing, which began in Mesopotamia in the late 4th millennium BC (see Figure 1, page 8). When Babylon was absorbed into the Persian Empire cuneiform writing was replaced by Aramaic

see **BABYLON**, *page 10*

WORLD NEUROLOGY

WORLD NEUROLOGY, an official publication of the World Federation of Neurology, provides reports from the leadership of the WFN, its member societies, neurologists around the globe and news from the cutting-edge of clinical neurology. Content for *World Neurology* is provided by the World Federation of Neurology and Ascend Integrated Media.

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7015 College Blvd., Suite 600,
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ASCEND INTEGRATED MEDIA

PUBLISHING PARTNER
Ascend Integrated Media

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Editorial Offices
6710 West 121st St., Suite 100
Overland Park, KS 66209
+1-913-469-1110

FROM THE EDITOR-IN-CHIEF

World Congress of Neurology 2015, Santiago, Offers Access to Collaboration and Cooperation

As we begin to think about attending the forthcoming World Congress of Neurology in Santiago, Chile, it seems timely to consider how we might take advantage of the unique opportunity that this provides to advance our field. As WFN President Raad Shakir points out in his column in this issue of *World Neurology*, we neurologists everywhere attempt to address identical or very similar clinical problems, but in quite different environments. Some do so surrounded by colleagues and all of the support systems that are key to optimal care. Others of us walk alone, sometimes as the sole neurologist in a region with very few physicians. Because of differences in the local health care system, cultural and other environmental differences, the neurologist practicing in optimal circumstances thinks about epilepsy, Parkinson's disease or stroke in quite a different way than her counterpart practicing in difficult circumstances or in a conflict zone.

DONALD H. SILBERBERG

A major function of an international meeting such as the World Congress of Neurology is to facilitate the sharing of knowledge, and to help develop ongoing working relationships that can lead to many advances for all. Although publications and electronic communications provide essential ways to communicate, an international meeting offers unparalleled access to one's peers whose workplace and problems are far from home, but may be extremely informative.

Both information sharing and clinical and research collaboration become very real possibilities. Clinical collaboration today often takes the form of setting up periodic video conferences, supplementing important opportunities to visit one another. Research collaboration can lead the way to developing multilateral programs supported by universities, national agencies such as the National Institutes of Health (U.S.) or Canada's Grand Challenges Program, and foundations such as the Bill and Melinda Gates Foundation. Many of us engaged in global neurology can think back to ways in which WFN congresses and other meetings introduced us to international problems, opportunities and colleagues—let's put WCN Santiago to work for this purpose in November. •

Announcing New Open Access Journal *eNeurologicalSci*

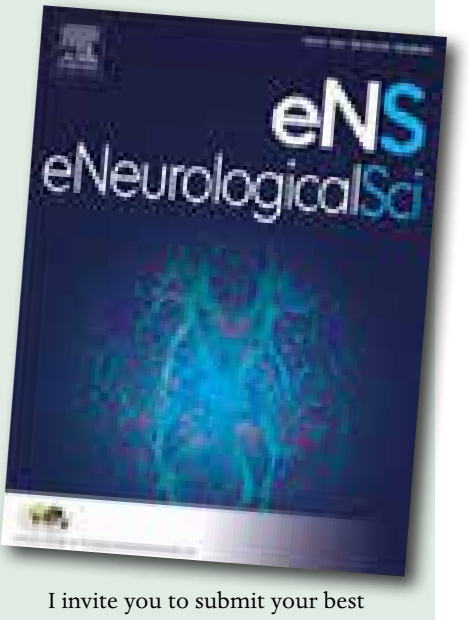
Elsevier is delighted to announce the launch of a new Open Access journal, *eNeurologicalSci (eNS)*, on behalf of the World Federation of Neurology. *eNeurologicalSci* is a companion journal to the *Journal of Neurological Sciences*.

Bruce Ovbiagele, MD, MSc, MAS, FAAN

The journal is under the professional leadership of Bruce Ovbiagele, MD, MSc, MAS, FAAN.

eNeurologicalSci rapidly publishes high-quality articles across a broad research spectrum of neuroscience and neurology, with the potential for understanding mechanisms and informing management of diseases of the human nervous system. The journal especially serves as a venue for papers related to the mission of the World Federation of Neurology, and accepts contributions from basic neuroscience all the way through to community studies submitted by researchers from around the world. *eNeurologicalSci* also welcomes papers of major relevance to neurologic education and accommodates submissions from trainees in neurology (e.g. residents, fellows, post-doctorate scholars and medical students).

Types of manuscripts for consideration include original research papers, short communications, reviews, study protocols, editorials, perspective pieces, clinical pathologic conference summaries, unique neuroimaging photographs, society conference proceedings (full articles or abstracts), expert-consensus clinical practice guidelines, and letters to the editor. Examples of neurology-related fields of interest include neuromuscular diseases, demyelination, atrophies, dementia, neoplasms, infections, epilepsies, disturbances of consciousness, stroke and cerebral circulation, growth and development, plasticity and intermediary metabolism.



Dear Colleagues,

These are exciting times in neurological research. Neurology is now well beyond being just a great specialty with a logical approach to a varied spectrum of interesting disorders. Compelling advances in the neurological sciences are taking place and even greater new discoveries lie ahead. *eNS* aspires to be at the forefront of exciting research initiatives in neurology and is poised to be a leading forum for the prompt and widespread dissemination of new knowledge as it accrues in this field.

On top of publishing ingenious discoveries, *eNS* will take advantage of its primarily online milieu by facilitating enhanced use of audiovisual technology and social media tools, thereby enriching the experience of readers, broadening the exposure of articles, and providing opportunities to better engage with our published scientists.

I invite you to submit your best research to *eNS* so you can share your science in a very speedy and widely visible manner. If accepted for publication, authors are notified of the decision and requested to pay an Article Processing Fee. Following payment of this fee, the article is made universally available to all on www.sciencedirect.com and www.ens-journal.com .

I look forward to learning with and from all of you.

We are now inviting submissions for the journal. For the full Aims & Scope and to submit your papers online, please visit the journal homepage.

Peter Bakker
Executive Publisher, Neurology/Psychiatry
Elsevier •

PRESIDENT'S COLUMN

Neurology Practice: The Fundamentals

RAAD SHAKIR

Over 2014 visiting various countries and looking at Neurology practice convinced me that the fundamentals are by and large the same. The work Neurologists perform in their daily practice is duplicated across the world. I have been privileged as WFN president to be able to attend annual congresses of neurological societies in countries as diverse as China, Macau, India, Sri Lanka, Morocco, Egypt, Sudan, Saudi Arabia, United Arab Emirates, Turkey, Albania (Fig1), Chile and most recently Norway (Fig2).

The diversity is clear; as the health care systems are so different it makes one wonder if the practice is therefore affected. There are noticeable differences, which I will start with. The organization of patient's care is either through state, insurance funding, self-pay or in many occasions a combination. As we know from the Neurology Atlas 2004, the lower income economies have a much higher probability of self-pay provision of care than in richer countries (Fig3). This puts a huge slant on the availability of Neurological care and the difficulty in accessing specialist opinion.

If we start with numbers of patients seen by a Neurologist in a working day. In many instances, there are no outpatients appointment systems and patients appear in clinics having travelled long distances. In many occasions this involves relatives bringing patients and expecting hospital admission. This may well be needed on many occasions, as the neurological status is so advanced, patients need to be inpatient care. Neurologists and Neurology trainees work in crowded clinics make basic decisions, and the more detailed assessments will be carried out when a patient is admitted to a hospital bed. This practice is the only way to cope with large outpatient loads, which would be unthinkable in other settings. The reasons are lack of neurologists and facilities for a more time requiring approach at outpatient clinics. The other perhaps related reason is the centralization of Neurological care in big cities. Neurologists in such settings make quick decisions on the facts as they see them. In nearly all patients there are no written referral letters of background information; it is quite admirable to see real coalface practice with decisions made on few available facts as they present.

Figure 2. Left to right. Anne Hege Aamodt President of Norwegian Neurological Association, Olga Bobrovnikova Renowned Pianist, MS sufferer and European Brain Council Ambassador, Raad Shakir WFN President, Hanne F Harbo Head Norwegian Brain Council. (photographer, Lise Johannessen Norwegian Medical Society).

In other settings there is huge utilization of day care facilities for performing a battery of investigations within a working day. In such settings the care is supplemented by the availability of Infusion suites, EEG/Video telemetry, procedures such as lumbar punctures, muscle and nerve biopsies, detailed imaging, and neurophysiological assessments can be performed within a day care setting. This is only possible in the presence of a well-developed administrative support and the involvement of supporting services such as radiology, laboratory and advanced nursing skills.

The relationship of Neurology to general medicine is strong in many settings as the acute care at emergency departments is provided by general physicians, emergency care specialists and in other settings, Neurologists are available in the emergency departments for onsite consultation and further care. This has been made more available with the introduction of Hyper Acute Stroke Units (HASUs). In some settings patients with suspected stroke are brought to emergency departments where they would be assessed by neurologists for their suitability for thrombolysis. This is a huge advance in Stroke care and has the other advantage of putting neurology services at the forefront of acute medical care. The increase in the workload requires increasing staff numbers and this is possible in some settings but not others. The success of thrombolysis treatment in acute stroke depends on pre-hospital and in-hospital health workers. Fig 4 shows the acute stroke team at Oslo University Hospital in Norway (courtesy of Professor Espen Deitrichs).

Many other neurological services are struggling with the new practice due to several factors apart from finance; logis-

see **FUNDAMENTALS**, *page 7*

Figure 1. Left to right. Antonio Federico (Sienna Italy), Jera Kruja President Albanian Society of Neurology, Raad Shakir (WFN President), Mira Rakacolli Dean Faculty of medicine Tirana University.

World Congress of Neurology will Engage Key, New and Non-traditional Stakeholders Across the Globe

BY RENATO VERDUGO

As the XXII World Congress of Neurology (WCN 2015) is just a few short months away, how can we not be excited about a scientific program that will usher in delegates from around the globe and will be led by some of the world's leading industry experts? Chock-full of plenary sessions, teaching courses and workshops, a Tournament of the Minds, and regional and sponsored symposia, WCN will set the stage for networking opportunities, for learning and for important information sharing.

We are looking forward to receiving research papers from around the world in the coming months. In fact, we've had an overwhelming response with papers already received that focus on some of the latest developments in neurology, matched with uniquely innovative research in the field. As a result of the countless papers received to date, we have extended the abstract submission deadline to accommodate our colleagues from around the world. **The new deadline for abstract submission is now May 7, 2015.**

The major abstract submission topics include: epilepsy, movement disorders, stroke, neuro-critical care, dementia, MS and demyelinating diseases, neuromuscular disorders, headache, pain, neurorehabilitation and CNS infections. Take the opportunity to learn more about abstract submission topics and other congress information on the WCN website, www.wcn-neurology.com.

The months leading up to this influential event have raised the bar on the WCN's objectives and its activities around the globe. Most important is the bringing together of the world's scientific experts and true leaders in their fields to catalyze and advance neurology in the scientific community. To that end, the congress is an elite meeting platform for community leaders, scientists and policymakers to promote and enhance programmatic collaboration. It is here that they can effectively address regional, national and local responses to neurology around the world and overcome those obstacles that limit access to prevention, care and much-needed services. Lastly and perhaps, most importantly, is that WCN successfully engages key, new and non-traditional stakeholders across the globe, reaching out to future leaders and decision-makers. It is these men and women in our industry who will embrace the congress theme, "Changing Neurology Worldwide," helping to make it a reality.

Santiago, Chile, is a prosperous, prominent and colorful stage for WCN 2015. There are numerous reasons to bring WCN to Santiago, Chile. Today, Chile is one of South America's most stable and affluent nations. It leads other Latin American nations in human resource development, competitiveness, income per capita and globalization, and it reigns supreme as a country on the road to long-term peace and economic freedom. Chile also ranks high on a regional scale in sustainability and in democratic development. In May 2010, Chile became the first South American nation to join the Organization for Economic Co-operation and Development. Chile is a founding member of the United Nations, the Union of South American Nations and the Community of Latin American and Caribbean States. Since July 2013, Chile has been viewed by the World Bank as a "high-income economy," and has been deemed a developed nation.

We are extending an invitation to the upcoming World Congress of Neurology in Santiago, Chile, to share in the region's developments and strengths in research. We are leaving behind the health problems of underdevelopment, and are facing the diseases of aging. We are developing innovative techniques in genetics, neuroradiology, rehabilitation and related disciplines. The result is an explosion in the number of young neurologists and an expansion in their geographical distribution. In this context, it is the right time to host the World Congress of Neurology in Chile. This important industry gathering will have an impact on the country and on in the entire Latin American region. It will not be just another event. You and your colleagues will have a hand in contributing to the ever-changing neurology landscape.

Remember that Santiago is the nation's capital and the largest city in terms of population and employment. It is the country's pride and its center for political, economic, cultural and industrial activities and one of the most modern capital cities on the continent. It is a safe, vibrant and cosmopolitan center with world-class venues, cuisine and renowned tourist attractions and sites.

If you want to reach key thought leaders, academic and industry researchers and clinicians or learn about the latest developments in neurology in Latin America and around the world, then this year's World Congress of Neurology in Santiago, Chile, at the prominent **Casa-Piedra Event and Conference Center,** is the place to be October 31 to November 5, 2015.

We look forward to connecting with old friends, engaging young neurologists and professionals, and, together, taking the next steps in advancing neurology worldwide. •

World Congress of Neurology Oct. 31-Nov. 5

Scenic Santiago, Chile, is host city for the Congress

BY RENATO VERDUGO, MD

We are certain that the World Congress of Neurology will produce an impact. Chile and many countries in South America are at the edge of development. We are leaving behind health problems typical of underdevelopment although now we are facing the diseases related to aging. We are currently developing genetics, neuroradiology, rehabilitation and other techniques with the result being an in increase in the number of young neurologists and an expansion in their geographical distribution. Therefore, this is the right time to host the World Congress of Neurology in Chile, which will produce an impact within the country and in the entire Latin American region. It will not be just another congress, but it will really contribute to changing neurology worldwide, as the slogan of the Congress states.

As usual, the World Congress of Neurology will include the most recent advances in neurological sciences, with the participation of renowned neurologists from around the world. It will also include different social activities to enjoy the traditions of the host country, including its famous wine. It will be an opportunity to get to know an attractive country with a varied geography, which is also easy to reach. Santiago is in the Maipo Valley, with the Andes towards the east and the Pacific Ocean on the west, each just about an hour away. It is a city that embeds the essence of the country's history with several interesting art, historical and cultural museums, full of restaurants and different neighborhoods with different styles according to the historical period in which they developed.

Santiago is one of the safest cities in Latin America and the main cultural and economic center of the country.

Close by is the port of Valparaiso, a UNESCO world heritage city with its narrow streets climbing up the hills of the coast where one of Pablo Neruda's houses, "La Sebastiana," is located. Adjacent to Valparaiso is Viña del Mar, a modern and dynamic touristic city. Flying just an hour north from Santiago you will find the driest desert in the world, and flying one hour south and you will reach a dense rain forest.

The country has developed a safe democratic environment and enjoys one of the most growing economies in the region. Chile is without a doubt one of the most interesting countries in Latin America. Come to the World Congress of Neurology. We will be pleased to show you around. •

Dr. Verdugo is the Congress president.

European Board of Neurology Examination in Berlin in 2015

The European Board Examination in Neurology is a joint development of the UEMS Section of Neurology and the European Academy of Neurology. It is considered to be a tool for the assessment of European neurological education and to boost its European standards.

It is supervised by the examination committee of the UEMS/EBN and also observed by the EAN representing the European neurological scientific societies and the World Federation of Neurology.

The exam was held in 2009 for the first time, and since then 130 candidates have passed the exam. Beginning in 2015, the title "Fellow of the European Board of Neurology" will be conferred to European and non-European candidates.

The next UEMS/EBN examination will be organized one day prior to the 1st Congress of the European Academy of Neurology (EAN) on Friday, June 19, 2015, in Berlin, Germany. (http://www.eaneurology.org/)

The European Board Examination in Neurology is a substantial step forward in the further harmonization and in the raising of the standards in European neurology. The cooperation with the scientific neurological societies is an important scientific input and a guarantee of continuous updates of the current knowledge of a European neurologist.

The European Examination in Neurology is a proof of excellence: Taking the examination shows the candidate's commitment to lifelong learning. Even without legal recognition, this is known and recognized within the profession throughout Europe and the rest of the world, thus encouraging the mobility of specialists in neurology and giving an additional distinguishing mark to the individual candidate.

The deadline for application is the May 1, 2015. (http://www.uemsneuroboard.org/ebn/)

There is a reduced fee for candidates from low- and lower-middle income countries (see http://data.worldbank.org/about/country-and-lending-groups#Low_income) and for those who follow the early-bird registration procedure.

The examination consists of the following parts:

- 80 MCQs (multiple choice questions)
- 50 EMQs (extended matching question)
- A short essay on a neurology-related public health or ethics-related topic to be orally discussed with the examiners.
- A critical appraisal of a neurological topic to be discussed with the examiners.

Results of these four parts of the examination will be combined to one final mark.

We are happy to note that the number of participants taking the European Board Exam in Neurology is increasing year by year, and we aim to develop an exam that will be taken by all neurology trainees, particularly those who wish to extend their experience beyond the borders of their own country.

Have a look at the website: uems-ebn@neuroboard.org. Any questions and comments can be sent to uems-sbn@medacad.org

Professor Dr. Jan Kuks: Chair of the examination committee: j.b.m.kuks@umcg.nl

Professor Dr. Wolfgang Grisold: UEMS/EBN past chair of the examination committee wolfgang.grisold@wienkav.at

Dr Walter Struhal: WFN website and social media, w.struhal@aesculapian.net

CONTACT address:
Mag.Gabrielle Lohner:
uems-sbn@medacad.org
Section of Neurology –
European Board of Neurology
c/o Vienna Medical Academy
Alser Strasse 4, 1090 Vienna
AUSTRIA
T (+43 1) 405 13 83 – 32
F (+43 1) 407 82 74
www.uems-neuroboard.org

News from the 1st Congress of the European Academy of Neurology

BY JACQUES L. DEREUCK, MD, PHD

The 1st European Academy of Neurology (EAN) congress will be held in Berlin, Germany, from June 20 to 23, 2015.

Berlin was chosen as a symbolic place, where the walls separating the city in two parts were broken down more than 20 years ago. Now the walls between the European Federation of Neurological Societies (EFNS) and the European Neurological Society (ENS) also have disappeared and a united European Academy of Neurology has been created. The congress is one of the most important achievements in Europe, showing that although there are important differences in practicing neurology in the different European countries some common goals can be achieved. The EAN congress has been enthusiastically endorsed by most European neurologists and structured as most academies of neurology, with teaching courses, hands-on-courses, plenary symposia, interactive sessions, focused workshops, special sessions, free oral communication and poster sessions. In addition, tournaments in basic and clinical neurology for young neurologists are scheduled.

Almost 2,000 abstracts have been submitted, from which 168 will be presented as oral communications and 1,556 as poster presentations.

The creation of the EAN will reinforce the impact of world neurology on health care, showing that progression in diagnosis and treatment of neurological diseases is one of the most important issues to be reached. •

Dr. De Reuck is the chairperson of the WFN Membership Committee.

Mark Your Calendars 2015

17th International Neuroscience Winter Conference
April 7 – 11, 2015
Sölden, Austria

67th AAN Annual Meeting
April 18 – 25, 2015
Washington, DC, USA

1st International Taiwanese Congress of Neurology (1st ITCN)
May 7 – 10, 2015
Taipei, Taiwan

17th Congress of the International Headache Society (IHC 2015)
May 14 – 17, 2015
Valencia, Spain

International Neurology and Rehabilitation Meeting (INEREM)
June 4 – 6, 2015
Valencia, Spain

1st Congress of the European Academy of Neurology (EAN)
June 20 – 23, 2015
Berlin, Germany

Congress of the European Committee for Treatment and Research in Multiple Sclerosis 2015
October 7 – 10, 2015
Barcelona, Spain

XXII World Congress of Neurology
October 31 – November 5, 2015
Santiago, Chile

Mohammad Wasay Appointed to National Research Post

Mohammad Wasay MD, FRCP, FAAN.

Mohammad Wasay, MD, FRCP, FAAN, has been appointed as convener, panel of experts and member of the Advisory Committee of the Pakistan Medical Research Council. The PMRC is the premier national institute for promotion of research in Pakistan. This is the first time a person from the field of neurology has been appointed to this position. It is a symbol of recognition of the Pakistan Society of Neurology and neurological research conducted by neuroscience faculty throughout Pakistan. •

Dr. Wasay is a professor in the department of neurology and chair, FHS research committee, at Agu Khan University; interim director, Clinical Trials Unit, chair, public awareness and advocacy committee, World Federation of Neurology; president, Pakistan Society of Neurology and editor, *Pakistan Journal of Neurological Sciences.*

HIV Infection Is a New Target for Stroke Prevention

Infection is an independent risk factor for both ischemic and hemorrhagic stroke

BY JEROME H. CHIN, MD, PHD, MPH

Stroke is the third-leading cause of premature death globally as measured in years of life lost[1]. Demographic and epidemiologic changes, including population growth and aging, urbanization and unhealthy diets are driving a rise in the incidence of stroke in low- and middle-income countries (LMIC)[2]. Due to inadequate primary health care services to screen for and treat the most common stroke risk factors, particularly hypertension and diabetes, the age-standardized incidence rates of stroke in LMIC exceed those in high-income countries[2]. In addition, strokes due to atrial fibrillation and rheumatic heart disease contribute a significant share of the stroke burden in LMIC as a result of both diagnostic and therapeutic resource limitations for these conditions.

Jerome H. Chin, MD, PhD, MPH

HIV infection has recently emerged as an independent risk factor for both ischemic and hemorrhagic stroke[3-8]. Two cohort studies conducted in the United States reported an elevated risk of ischemic stroke in HIV-infected individuals compared to non-HIV-infected individuals[4,5]. Lower CD4+ cell counts or higher HIV RNA levels were associated with an increased risk of stroke. Cohort studies from Canada and the United States have reported an association of HIV infection with an increased risk of intracerebral hemorrhage[6,7]. A community-based case-control study performed in Tanzania found HIV infection to be an independent risk factor for stroke (ischemic and hemorrhagic combined) with an adjusted odds ratio of 5·61[8]. Only 40 percent of the 200 stroke cases had a CT scan. The pathogenic mechanisms responsible for the increased risk of stroke associated with HIV infection are multiple and may include chronic inflammation and immune activation leading to endothelial dysfunction and subsequent vasculopathy[3,9]. Both small-vessel (e.g. lacunar) and large-vessel strokes are observed in HIV-infected individuals (figure) in addition to intracerebral hemorrhages.

Thirty-five million people are living with HIV worldwide[10]. The population-attributable risk of stroke due to HIV infection will depend on the prevalence of HIV infection in a particular region

see **STROKE**, *page 9*

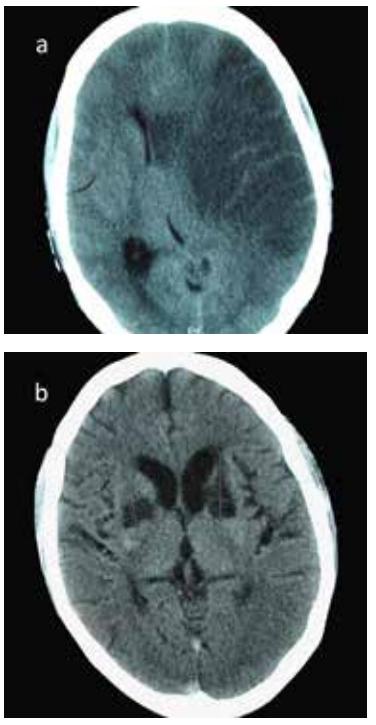


Figure. HIV-associated stroke: (a) middle cerebral artery infarct; 25-year-old HIV-infected male, CD4+ cell count = 42 cells/mm3; (b) bilateral basal ganglia infarcts; 25-year-old HIV-infected female, unknown CD4+ cell count.

Editor's Update and Selected Articles from the *Journal of the Neurological Sciences (JNS)*

BY JOHN D. ENGLAND, MD

The *Journal of the Neurological Sciences* (JNS) is a broad-based journal that publishes articles from a wide spectrum of disciplines, ranging from basic neuroscience to clinical cases. Because *JNS* is the official journal of the World Federation of Neurology (WFN), the Editorial Board welcomes submissions from around the world. We also strive to publish papers with unique and original observations. In order to satisfy this latter goal, only the best manuscripts are accepted for publication in *JNS*.

John D. England, MD

I frequently receive correspondence asking why manuscripts are rejected. The most frequent reason for rejection is that the manuscript does not receive a high enough priority score when the scientific methodology and conclusions are assessed. In view of these criteria for acceptance, my first advice to authors is to design and perform their scientific studies in as rigorous and as thorough a manner as possible. Additionally, original and novel observations are more likely to attain higher scores by reviewers.

As a last but very important point, authors should write the manuscript as clearly and concisely as possible. The English syntax and grammar should be polished and well-edited. When we receive manuscripts that are poorly written, we always send them directly back to the authors for revision prior to more formal review. We cannot publish manuscripts that are poorly written even if the underlying scientific methodology and observations are sound.

We recognize that English is not the native language of many of our authors, and we will allow re-submission of manuscripts that require editing. My suggestion for authors is to have their manuscripts edited by someone who has excellent command of the English language. If you do not have ready access to such a person, please utilize one of the many excellent "English editing" services. In fact, Elsevier will provide this online service to authors for a modest fee.

In our ongoing attempt to enhance accessibility of *JNS* articles to members of the WFN, we have selected two more "free-access" articles, which are profiled in this issue of *World Neurology*.

1) Aaron Berkowitz, et al., provide a well-written and richly referenced review on the neurologic manifestations of neglected tropical diseases (NTDs). They focus the review on 17 diseases that the World Health Organization has designated neglected tropical diseases. These diseases disproportionately affect the world's poorest populations and cause significant morbidity and mortality. In fact, at least 1 billion people around the world are affected by these diseases. Most of these diseases have significant neurologic manifestations. Importantly, these diseases can be controlled using relatively low-cost but strategic plans.
Berkowitz AL, Raibagkar P, Pritt BS, Mateer FJ. Neurologic manifestations of the neglected tropical diseases. J Neurol Sci. 2015;349:20-32.

2.) Edward Mader, et al., provide an interesting and unique case description of a young woman with biopsy-proven tumefactive multiple sclerosis and acute hepatitis C virus 2a/2c who was successfully treated with interferon beta-1a. Although this report is based upon only one case, the observations are potentially very important. The report raises the possibility that a link exists between hepatitis C infection and multiple sclerosis, and it also suggests that interferon beta-1a may be effective treatment for some patients with hepatitis C infection. One particularly reasonable suggestion is that patients with acute CNS demyelination be screened for hepatitis.
Mader EC, Richeh W, Ochoa JM, Sullivan LL, Gutierrez AN, Lovera JF. Tumefactive multiple sclerosis and hepatitis C virus 2a/2c infection: Dual benefit of long-term interferon beta-1a therapy? J Neurol Sci. 2015;349:239-242. •

Dr. England is the editor-in-chief of the *Journal of the Neurological Sciences*.

FUNDAMENTALS

continued from page 3

tics and the availability of a high-powered ambulance and paramedic services lead many to be behind in their ability to provide modern care. The decision making process of a paramedic in perhaps the two most important non traumatic emergencies i.e. heart attack and brain attack lead to a major lack of highly trained individuals for this type of work. In many countries this shortage of staff is leading to inferior care.

The multidisciplinary approach to care with integrated multispecialty teams in acute care delivery with availability of interventional neuro-radiologists is limiting the ability for Neurology to deliver. In many instance the availability of endovascular treatment of acute stroke is severely limited by lack of facilities. Using telemedicine in some locations has made a great difference in acute provision of neurological care. Acute thrombolysis is being achieved utilizing telemedicine in some locations.

The care for neurological patients with long-term needs is crucial and this is not really available unless there is some sort of health care system, which allows regular follow-up services. In many countries this is possible but in others it is not. The recent WHO executive board resolution on Epilepsy on the 2nd February 2015 (http://apps.who.int/gb/ebwha/pdf_files/EB136/B136_R8-en.pdfs) is a good example on the lack of neurological long-term care and the continued existence of a massive treatment gap. This declaration should be translated to actual on the ground care provision. Continued support for conditions such as Epilepsy, Parkinsonism, Dementia, Multiple Sclerosis, Migraine, and genetically determined conditions and many others remain woeful. The WHO can inform governments of the availability of 'cheap' anti-epilepsy drugs as an example, but Neurologists should aim to provide optimal up to date care for their patients. The premise that some treatment is better than nothing, although understandable and reflects current status is not an ultimate goal to aim for. Neurologists should endeavor to put Brain Health at the top of the political agenda. However, we are delighted that the WHO executive has put Brain health at the top of the Agenda as it aims to reduce the treatment gap when, as an example, we know that seven out of tens patients with epilepsy do not receive regular medication at all. I am sure that I speak of behalf of all Neurologists who would not accept second or even third tear level of management for their patients. But would approve of the WHO executive declaration as a first step in the right direction

Returning to the fundamentals of Neurology, it is my conviction that Neurologists from all over the world offer their service in basically the same manner if given equivalent circumstances. This is clear from observing training programs and the eagerness of young trainees to learn. The knowledge base is nearly universal. The WFN is in a position to see this when we administer the American Academy of Neurology Continuum CME program to 45 countries. This is happening today in war-ravaged countries and in those with low income to the degree of the existence of real malnutrition. The evaluations sent by the WFN tutors are a shining testament to the eagerness and the excellent performance of trainees from various backgrounds across continents (Fig 5).

> The care for neurological patients with long-term needs is crucial and this is not really available unless there is some sort of health care system, which allows regular follow-up services.

To end on a positive note, Neurology is prospering and need continuous momentum to keep Brain health at the top of the health agenda of decision makers.

Raad Shakir
London UK

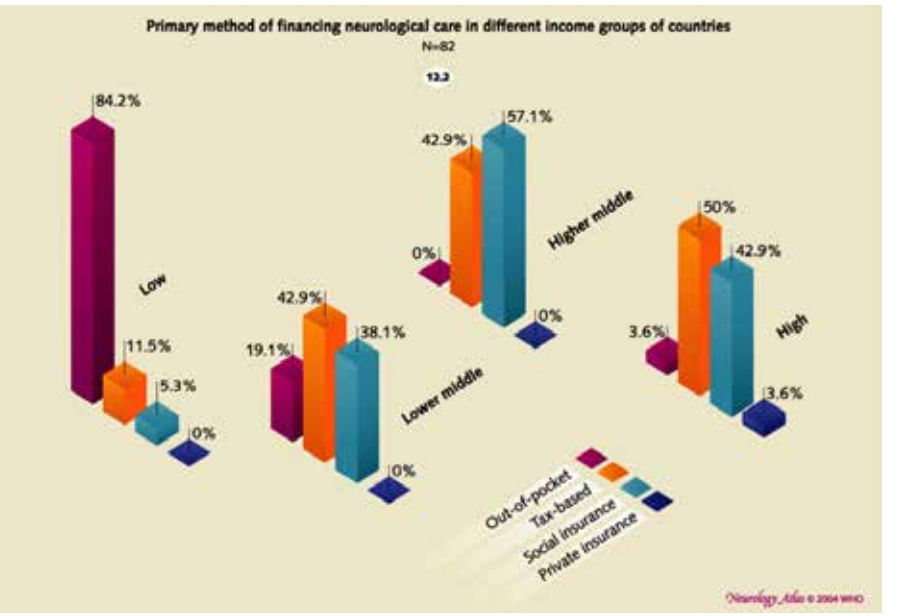


Figure 3. Bars to the left show that 84.2% of funding of Neurological care in Low income countries is out-of-pocket. Neurology Atlas WHO/WFN 2004.

Fig 4. The Pre and In hospital acute stroke team at Oslo University Hospital in Norway (courtesy of Professor Espen Deitrichs).

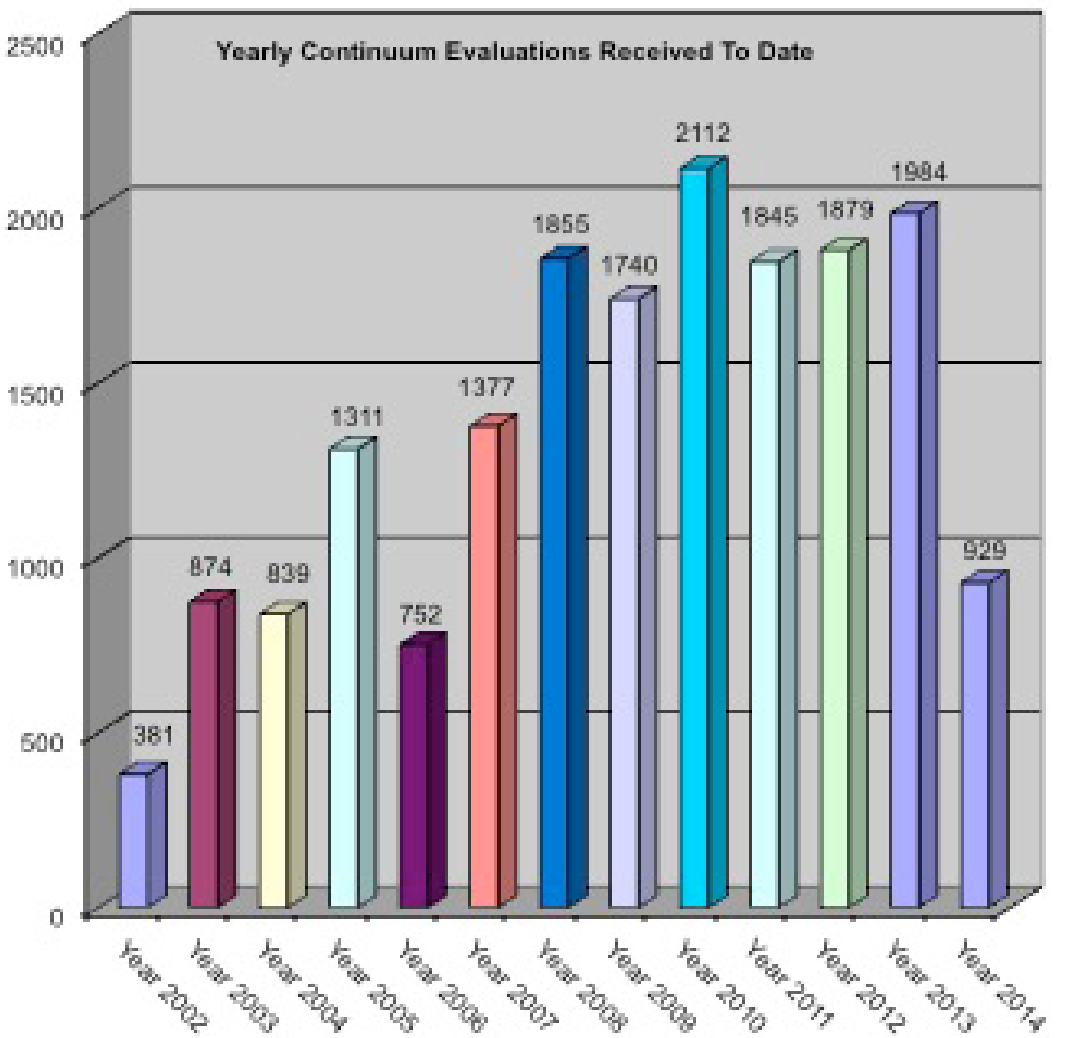
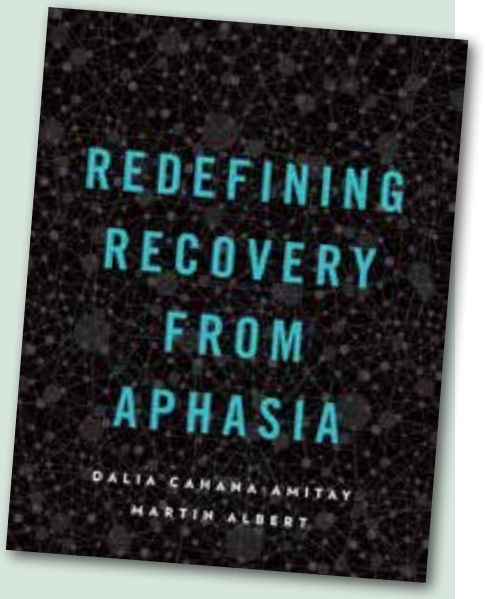


Figure 5. CME Continuum utilization in 45 countries up-to August 2014. WFN six monthly report August 2014. Helen Gallagher WFN CME coordinator.

BOOK REVIEW

Redefining Recovery from Aphasia by Dalia Cahana-Amitay and Martin Albert



BY MURRAY GROSSMAN, MD

Cahana-Amitay D and Albert M (2015)
Redefining Recovery from Aphasia
New York: Oxford University Press 281 pages, with preface and index

Language is an incredibly complex process. Yet we speak and understand effortlessly in order to live our lives daily. The disruption of language following a stroke is a devastating blow to an individual's day-to-day functioning because of our extreme dependence on this modality of communication. Aphasia is extraordinarily costly to individuals and to society. Nevertheless, aphasia following a stroke is common.

Despite the high cost and common occurrence of aphasia, progress in developing successful treatments for aphasia has been slow. It has proved difficult to demonstrate that traditional speech and language therapies are better at improving communication skills than friendly social interactions. Thus, novel approaches to treatment and recovery from aphasia are desperately needed.

In this timely book, Cahana-Amitay and Albert outline an alternate approach to recovery from aphasia. Their perspective is based on the view that language is not a modular entity, but instead interacts with multiple facets of non-linguistic cognition. This includes domains such as executive functioning, visual processing, attention, memory, emotion and praxis. In turn, the authors observe that brain regions involved in language are highly interconnected with brain regions subserving these other aspects of cognition. The authors coin the phrase "neural multifunctionality" to characterize this multifaceted clinical and functional neuroanatomic approach to language.

In nine chapters, Cahana-Amitay and Albert lay out their approach to language and recovery from aphasia. The first chapter situates their volume in the context of the extensive literature describing recovery from aphasia. The second chapter outlines the authors' multifunctionality approach to the functional neuroanatomy of language following stroke. In subsequent chapters, Cahana-Amitay and Albert discuss the relationships between language and each of the other domains of cognitive functioning that interact with language. Each chapter defines a domain of cognition, reviews cognitive aspects of the domain and its interaction with linguistic functioning, and then defines the functional neuroanatomy of the cognitive domain. Treatments for aphasia that focus on each domain of cognition are then reviewed.

In the chapter concerned with executive functioning, for example, the authors consider the ways in which language and executive functioning interact, and review disorders of executive functioning observed in aphasic patients such as perseverations, disorders of discourse, and semantic control impairments. Neural correlates of discourse and executive functions in aphasia are then reviewed. The chapter concerned with attention addresses "basic attention" concerned with vigilance and arousal, and "complex attention" selective and alternating attention. After discussing the relationship between attention and language, Cahana-Amitay and Albert examine the neural underpinnings of attention-language interactions and treatments of attention in language.

see **APHASIA**, *page 10*

NEUROLOGY

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not to train accredited epileptologists. In Africa, most child health practitioners who manage children with neurologic disorders must address the comprehensive needs of the child inclusive of the other health issues, such as co-infections, nutritional deficits, and social challenges (Figures 2 a, b).

At the current time in most African settings, it is not viable to work as an epileptologist without addressing these other health care issues (Figures 3 a, b). However as a result of more cost-effective neurophysiology equipment, and through equipment donations, there are an increasing number of EEG machines that are potentially being operated and interpreted by health practitioners with no pediatric training. This training program was devised out of the needs that this situation created. The audit of the preliminary findings of a pilot study on the impact of the training course while it was being established is in press. The audit confirmed that access to a basic handbook improved EEG interpretation skills, but that the optimal outcomes were seen in those doctors who had additional one-on-one training.

a. **b.**

Figure 2. a.) Children attending the neurology clinic at Red Cross War Memorial Children's Hospital, enjoying a donation of new reading books. b.) One of the neurology patients occupied in puzzle play in the waiting area.

a. **b.**

Figure 3. a.) Mothers attending the Queen Elizabeth Hospital, Blantyre, in Malawi, taken during an APFP site visit in 2013. This is the main teaching hospital in the country, which has one pediatric neurologist for the total population. b.) Child-care workshop for children with motor disabilities at the Child Rehabilitation Unit, Harare Hospital, Zimbabwe, taken during the APFP site visit to the referring units in the country in 2014.

Between 2013 and 2014, three doctors from Nigeria, Tanzania and Ghana entered the APFP for formal training to become accredited child neurologists. Tanzania has no accredited child neurologists and Ghana has two. These trainees, in addition to completing the full post-graduate clinical master's degree in child neurology, also are completing research in areas relevant to the context they work in. The doctor from Tanzania is heading a prospective study to review the effects on bone mineral density in children on antiepileptic drugs in the African setting. Vitamin D supplementation is not part of standard care of these patients and it is hoped that the findings from this study will lead to data to support lobbying for this intervention to be part of standard practice. The doctor from Ghana will complete a study assessing the neurobehavioral influences on children from antiretroviral therapy. The doctor from Nigeria has completed a large prospective study assessing the efficacy of attaining sleep EEGs in children using melatonin.

In the next training cycle it is hoped that there will be funding to support applicants from Sierra Leone, Zimbabwe, Uganda, Kenya, Sudan and Zambia.

The training curriculum, while in line with international templates, also accommodates approaches novel to Africa, such as the neurological care for children with tuberculous meningitis, HIV, malaria and neurocysticercosis. The perinatal complication rates remain high in Africa with significant numbers of neonates suffering hypoxic ischaemic encephalopathy. Other neuroinsults are seen from the effects of central nervous system infections and motor vehicle accidents. The training must accommodate these areas in depth as well. The returning trainee must often function in all areas from social welfare to rehabilitation, the training is adjusted for this.

Prevention and early intervention is one of the major aims for this project and all trainees in the program are facilitated in the knowledge gained during their training and assess its relevance to their home setting, how to introduce these skills to the optimal benefit to child health care and how these interventions can extend across all levels of health care—from primary to tertiary.

On the trainee's return to their home center they maintain contact with their supervisor, and site visits are scheduled as needed to provide local input into service development and local training (Figure 3 a, b). Research collaborations also continue. These trainees are having a real impact in their home centers and are becoming voices in Africa lobbying to promote child health. One of the child neurology trainees who completed training in 2009 and returned to Kenya now sits on the national Kenyan pediatric body, assists selection of ongoing APFP trainees referred from the country, and is also on the Pediatric Commission for the International League Against Epilepsy. This trainee is part of a team developing its own subspecialty training program for East African doctors. This is viewed as a major future aim of the APFP. In order to grow and to fulfill the health care needs for the continent, more training sites are needed. It is important these remain within Africa with training relevant to the diseases of the region. There is much to learn from the approaches many innovative African centers undertake to cope with the challenges of scare resources.

While training experience in overseas centers offers obvious gains in skills development, the local relevance of the training may be questionable and the risk of the "brain drain" is high. A number of overseas specialists have opted to spend time working, training and lecturing in African centers. This is a superb way to assist skills development in African centers. Building on these relationships with regular visits develops sustained skills where often none existed before. •

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Dr. Wilmshurst is the head of paediatric neurology, Red Cross War Memorial Children's Hospital, University of Cape Town, South Africa, and the director of the APFP.

STROKE

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or country. Given the higher prevalence of HIV infection in sub-Saharan Africa compared to other regions, a substantial number of incident strokes in sub-Saharan Africa may be the result of HIV infection. However, reliable figures for stroke incidence, mortality and comorbidities are difficult to obtain in most countries of sub-Saharan Africa due to inadequate stroke surveillance and vital registration data. The above-mentioned epidemiologic studies provide support for the inclusion of HIV antibody testing in the diagnostic evaluation of patients with acute stroke in all regions of the world. Furthermore, stroke prevention should now be considered another potential benefit of the early initiation of antiretroviral therapy in HIV-infected individuals through both a reduction in HIV-associated vasculopathy as well as through the prevention of HIV transmission to their uninfected partners.

Dr. Chin is president of the Alliance for Stroke Awareness and Prevention Project (ASAPP). •

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BABYLON

continued from page 1

and simpler alphabetic scripts and was only revived (translated) by European scholars in the 19th century AD.

The Babylonians were remarkably acute and objective observers of medical disorders and human behavior. In texts located in museums in London, Paris, Berlin and Istanbul, we have studied surprisingly detailed accounts of what we recognize today as epilepsy (Figure 1), stroke, psychoses, obsessive-compulsive disorder (OCD), psychopathic behavior, depression and anxiety. For example, they described most of the common seizure types we know today, e.g., tonic clonic, absence, focal motor, etc., as well as auras, post-ictal phenomena, provocative factors (such as sleep or emotion) and even a comprehensive account of schizophrenia-like psychoses of epilepsy. Early attempts at prognosis included a recognition that numerous seizures in one day (i.e., status epilepticus) could lead to death.

Figure 1. A Babylonian cuneiform text on epilepsy. Obverse of BM47753 in the British Museum.

The Babylonians recognized the unilateral nature of stroke involving limbs, face, speech and consciousness, and distinguished the facial weakness of stroke from the isolated facial paralysis we call Bell's palsy. They did not, and perhaps could not, describe what we call transient ischemic attacks as they had no method of expressing small units of time such as seconds or minutes. The distinction between a transient ischemic event and some epileptic seizures would have been difficult, as it can be today.

The modern psychiatrist will recognize an accurate description of an agitated depression, with biological features including insomnia, anorexia, weakness, impaired concentration and memory. The obsessive behavior described by the Babylonians included such modern categories as contamination, orderliness of objects, aggression, sex and religion. Accounts of psychopathic behavior include the liar, the thief, the troublemaker, the sexual offender, the immature delinquent and social misfit, the violent and the murderer.

The Babylonians had only a superficial knowledge of anatomy and no knowledge of brain or psychological function. Although they had no knowledge of the spinal cord, the Babylonians and the Assyrians clearly understood that an arrow in the center of the back led to paralyzed hind legs, another important clinical observation (figure 2). They had no systematic classifications of their own and would not have understood our modern diagnostic categories. Some neuropsychiatric disorders, e.g., stroke or facial palsy, had a physical basis requiring the attention of the physician or asû, using a plant and mineral-based pharmacology. Most disorders, such as epilepsy, psychoses and depression, were regarded as supernatural due to evil demons and spirits, or the anger of personal gods, and thus required the intervention of the priest or ašipu. Other disorders, such as OCD, phobias and psychopathic behavior, were viewed as a mystery, yet to be resolved, revealing a surprisingly open-minded approach.

From the perspective of a modern neurologist or psychiatrist, these ancient descriptions of neuropsychiatric phenomenology suggest that the Babylonians were observing many of the common neurological and psychiatric disorders that we recognize today. There is nothing comparable in the ancient Egyptian medical writings and the Babylonians therefore were the first to describe the clinical foundations of modern neurology and psychiatry.

A major and intriguing omission from these entirely objective Babylonian descriptions of neuropsychiatric disorders is the absence of any account of subjective thoughts or feelings, such as obsessional thoughts or ruminations in OCD, or suicidal thoughts or sadness in depression. The latter subjective phenomena only became a relatively modern field of description and enquiry in the 17th and 18th centuries AD. This raises interesting questions about the possibly slow evolution of human self awareness, that is central to the concept of "mental illness," which only became the province of a professional medical discipline, i.e., psychiatry, in the last 200 years. •

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Edward H. Reynolds is former consultant neurologist to the Maudsley and King's College Hospitals; former director of the Institute of Epileptology, King's College, London and former president of the International League against Epilepsy.

Peter J. Koehler is the editor of this history column. He is neurologist at Atrium Medical Centre, Heerlen, The Netherlands. Visit his website at www.neurohistory.nl

Figure 2. A bas-relief of a wounded lioness from the Palace of Ashurbanipal at Nineveh, in the British Museum.

APHASIA

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The chapter devoted to memory examines the role of working memory and other forms of memory in language processing, and the effects of working memory deficits on language functioning. The authors then consider the contribution of memory systems to aphasia treatments and recovery from aphasia as well as learning and anatomic structures implicated in aphasia therapies. In the chapter examining the role of emotion in recovery from aphasia, Cahana-Amitay and Albert examine altered emotions in aphasia, such as depression and anxiety, and interventions focusing on depression and anxiety. The chapter concerned with praxis assesses the breakdown of gesture in aphasia and the intimate connection between gestural and linguistic forms of communication in theories of apraxia. Finally, the authors consider the role of visual processing in recovery from aphasia, including the effects of visual scenes and audiovisual stimulation in language processing, and the role of visually mediated cueing in recovery from aphasia.

In the final chapter, Cahana-Amitay and Albert marshal evidence from the previous chapters to support their neural multifunctionality hypothesis. They conclude that findings from lesion, neuroimaging and electrophysiological studies support their contention that non-linguistic functions need to be incorporated into language models of the intact brain, and that recovery from aphasia must take into account the role of non-linguistic functioning.

Cahana-Amitay and Albert are experienced aphasiologists at the Harold Goodglass Aphasia Research Center of Boston University and the Boston Veterans Administration Medical Center. The authors provide a comprehensive landscape of language and the brain based on functional neuroanatomic theories that have been evolving over the past two decades. The authoritative voice of these authors compels us to reconsider classic approaches to aphasia, and develop novel forms of speech therapy that are organized around the principle of multifunctionality. •

Dr. Grossman is professor of neurology, Penn Frontotemporal Degeneration Center, University of Pennsylvania

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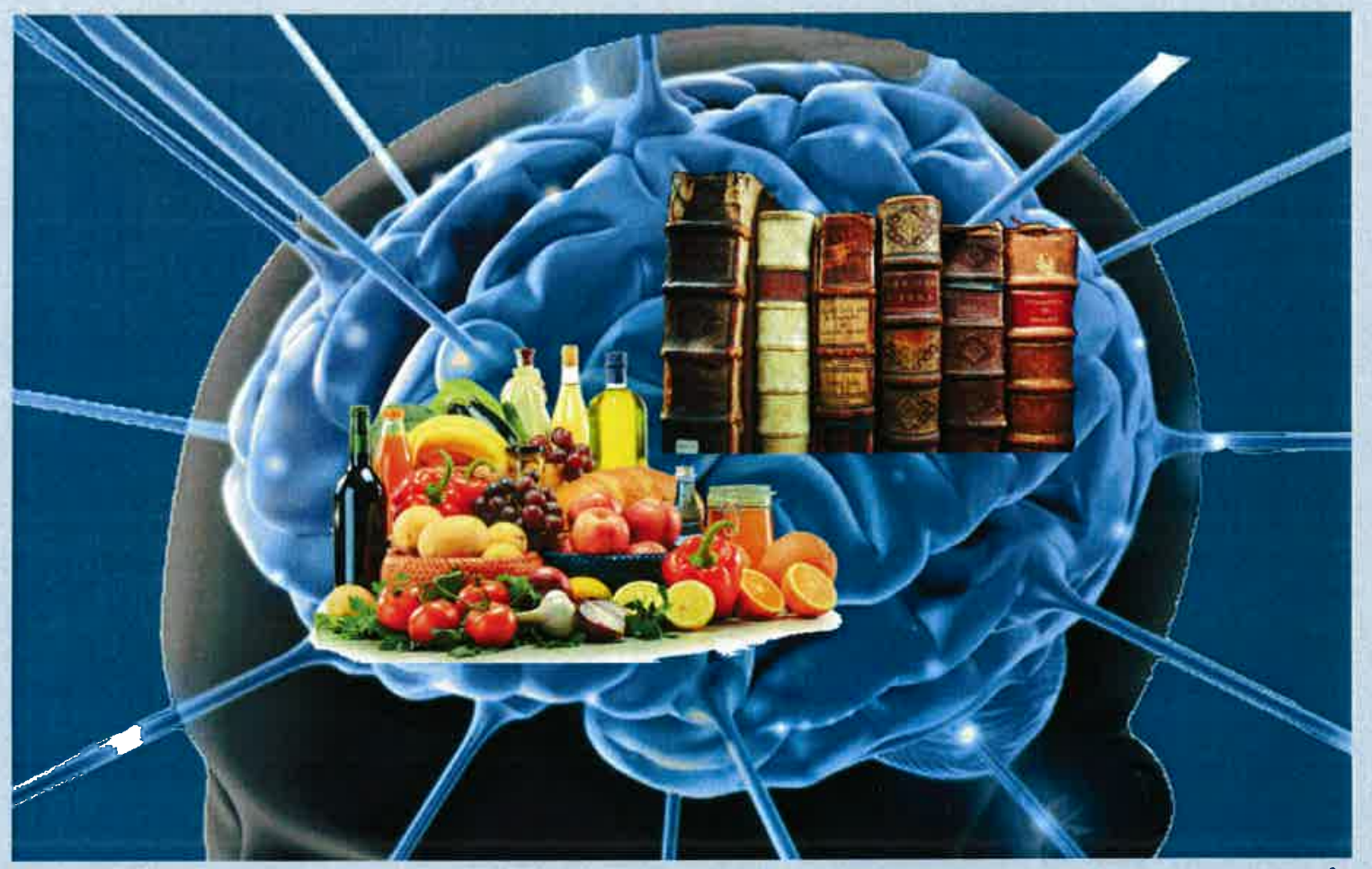

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