VOL. 26 • NO. 1 • FEBRUARY 2011

WORLD NEUROLOGY

THE OFFICIAL NEWSLETTER OF THE WORLD FEDERATION OF NEUROLOGY

Nigeria-Florida Alliance Focuses on Training

BY DIANA M. SCHNEIDER, PH.D.

A new alliance between the Florida Society of Neurology and the Nigerian Society of Neurological Sciences and Nigerian Stroke Society – the Nigeria-Florida Neuroscience Partnership – aims to develop neurology training and services in the West African country and eventually to expand to include research collaborations, exchange programs, mentoring, patient management, teleconferencing, and other collaborative efforts.

The Nigerian Stroke Society (NSS) is an affiliate of the Nigerian Society of Neurological Sciences (NSNS) and the World Stroke Organisation. All NSNS members interested in stroke are NSS members. It was inaugurated in 2009. Prof. Yomi Ogun is president, Dr. Njide Okubadejo is vice president, and Dr. Bamidele Osalusi is secretary-general.

The partnership was forged in response to recent study findings demonstrating that Nigeria's high stroke and associated mortality rates, coupled with a shortage of trained neurologists and a lack of understanding of stroke in patients and health care providers alike, put the country at risk for further straining its already diminished resources.

The organizers also plan to focus on the development of clinical programs such as stroke units, independent subspecialty clinics, neurosurgical subspecialties, as well as the creation of guidelines for how neurological emergencies can be approached by neurologists and neurosurgeons, and by practitioners in pediatrics, internal medicine, emergency medicine, and general surgery when neurologists and neurosurgeons are not available.

COURTESY KOLAWOLE WAHAB

Dr. Susan Naselli of the Florida Neurological Society presents a neurological Tool Kit to a participant at the partnership meeting.

The first Nigeria-Florida Neuroscience Partnership (NFNP) conference was held Nov. 2-5 in Lagos, Nigeria. The Joint Steering Committee was co-chaired by Dr. Michael Finkel, representing the Florida Society of Neurology (FSN) and the World Neurology Foundation (WFN); Prof. Yomi Ogun of the NSNS, with the help of Dr. Njide Okubadejo, Dr. Rufus Akinyemi, and Dr. Bunmi Ogunrin, all members of both the NSNS and NSS; and Dr. Hubert Fernandez, Dr. Ali Malek, and Dr. Susan Naselli, all of the FNS.

See **Nigeria-Florida** • *page 5*

Nigeria – Florida Neuroscience Partnership

INSIDE

New Vaccine Targets Africa's Meningitis Belt

BY JEFF EVANS
Elsevier Global Medical News

Seasonal meningococcal A epidemics in Africa's "meningitis belt" could become remnants of the past if the introduction of a new and affordable conjugate polysaccharide vaccine meets the high expectations of the many people and organizations that collaborated to produce it.

In early December of last year, the West African nation of Burkina Faso became the first country to implement a nationwide program to immunize individuals aged 1-29 years with the vaccine, called MenAfriVac. The start of the vaccination campaign also may signal a change in the way in which vaccination programs are conducted in Africa.

"The concept of vaccination is changing in Africa," said Dr. Muhamed-Kheir Taha, director of the French National Reference Center for Meningococci at the Pasteur Institute in Paris, where he also is head of the invasive bacterial infections unit. "Previously, we had what we used to call 'reactive vaccination,' meaning we usually started vaccinating when the epidemiologic threshold was crossed, and now we are doing preventive vaccination."

In 2001, the World Health Organization (WHO) and the international nonprofit organization PATH founded the Meningitis Vaccine Project to develop MenAfriVac. The project brought together African ministers of health, U.S. government health agencies, philanthropic organizations, many strategic planning and surveillance groups, and vaccine industry partners.

MenAfriVac is being distributed to African nations in the meningitis belt, which stretches from Senegal to Ethiopia, before anywhere else. After Burkina Faso, the hyperendemic

See **Meningitis** • *page 4*

World Neurology
60 Columbia Rd., Bldg. B
Morristown, NJ 07960

CHANGE SERVICE REQUESTED

Presorted Standard
U.S. Postage
PAID
Permit No. 384
Lebanon Jct. KY

EDITOR IN CHIEF'S COLUMN

Oculomotor Apraxia Revisited

BY MARK HALLETT, M.D.

Recently, I saw a patient with oculomotor apraxia and ataxia. When I worked in Boston, many years ago now, Charles Barlow, our professor and chair, did not allow the presentation of patients with degenerative ataxia at Grand Rounds. He admitted that they were interesting patients, but we never had any idea of the diagnosis and he became too frustrated by our ignorance.

The situation is very different now, and the number of identifiable ataxias is very large and rapidly growing. Among them are patients who have prominent oculomotor apraxia in addition to the ataxia; and already several genetic mutations have been identified that cause this. Oculomotor apraxia is an impairment of initiation of voluntary saccades. To look laterally, the patient may blink to help with the initiation process or thrust the head toward the target and let the eyes catch up later. Some patients also have slow saccades, which is another reason to thrust the head. (Some patients who carry one of the genes for these disorders may not have oculomotor apraxia, and this is another example of phenotypic variability, which we still don't understand fully.)

Also recently, I tried progressive eyeglasses for the first time. I have been using trifocals for some time now, and a number of people have urged me to try progressives. I was warned that it would take a few weeks to get used to them, but I was willing to try. Because of the design of progressives, the visual field is narrowed laterally because of blurring, particularly for midrange or near objects. For midrange, read computer; for near, read book or newspaper. So when trying to see things to the side, you can't just move your eyes, you have to move (or thrust) your head. I tried to adjust to this over the course of a week. At first, I had to think about it, but with my cerebellum providing sensorimotor adaptation, looking to the side was gradually becoming more automatic. Over this period, I developed great sympathy for patients with oculomotor apraxia. I do not really like the idea of having to head thrust to be able see laterally. So I have now returned to trifocals. ■

WFN Junior Travelling Fellowships – 2011

This year, the WFN is again able to offer Junior Travelling Fellowships for young neurologists from countries classified by the World Bank as low or lower-middle income to attend approved international meetings.

There will be 40 fellowships; applicants should hold a post not above that of associate professor and be no older than 42 years of age. Candidates should send:

► The name and dates of the meeting they wish to register for;

► A CV and bibliography;

► A letter of recommendation from the head of their department; and

► An estimate of expenses (maximum, £1,000).

If a paper or poster is to be presented, an abstract should be included with the application. Applications must be received at the WFN office no later than Friday, April 1, 2011. Awards will be announced as soon as possible thereafter. ■

Calendar of International Events

2011

3rd Asian and Oceanian Parkinson's Disease and Movement Disorders Congress
March 25-27
Taipei, Taiwan
http://aopmc2011taiwan.com/

63rd Annual Meeting of the American Academy of Neurology
April 9-16
Honolulu, Hawaii, USA
www.aan.com/go/am11

European Paediatric Neurology Society Congress
May 11-14
Cavtat/Dubrovnik, Croatia
www.epns2011.com

20th European Stroke Conference
May 24-27
Hamburg, Germany
www.eurostroke.eu/

21st Meeting of the European Neurological Society
May 28-31
Lisbon, Portugal
www.congrex.ch/ens2011

June 5-9
Toronto, Canada
www.movementdisorders.org/congress/congress11/

European Neuro-Ophthalmology Society Meeting
June 18-21
Barcelona, Spain
www.eunos2011barcelona.com/

World Congress on Huntington's Disease
Sept. 11-14
Melbourne, Australia
www.worldcongress-hd2011.org/

Asia Pacific Stroke Conference
Sept. 29-Oct. 1
Colombo, Sri Lanka
www.apsc2011.com

7th International Congress on Vascular Dementia
Oct. 20-23
Riga, Latvia
www.kenes.com/vascular

20th World Congress of Neurology
Nov. 12-17
Marrakesh, Morocco
www2.kenes.com/wcn/Pages/Home.aspx

Movement Disorder Society 15th International Congress of Parkinson's Disease and Movement Disorders

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 Elsevier Global Medical News.

Editorial Correspondence: Send editorial correspondence to **World Neurology**, 5635 Fishers Lane, Suite 6000, Rockville, MD 20852, U.S.A.; worldneurology@elsevier.com; Phone +1-800-798-1822

Address Change: Fax change of address to +1-973-290-8245

POSTMASTER: Send change of address (with old mailing label) to **World Neurology**, Circulation, 60 B, Columbia Rd., 2nd Fl., Morristown, NJ USA 07960

World Neurology, ISSN: 0899-9465, is published bimonthly by Elsevier Inc., 60 B, Columbia Rd., 2nd Fl., Morristown NJ 07960. Phone +1-973-290-8200; Fax: +1-973-290-8250.

Global Medical Research
Publisher Peter F. Bakker,

Elsevier Global Medical News
A Division of International Medical News Group
President IMNG Alan J. Imhoff
Editor in Chief Mary Jo M. Dales
Executive Editors Denise Fulton, Kathy Scarbeck
Managing Editor Renée Matthews
Clinical News Editor Jeff Evans
Circulation Analyst Barbara Cavallaro
Executive Director, Operations Jim Chicca
Director, Production and Manufacturing Yvonne Evans Struss
Production Manager Judi Sheffer
Creative Director Louise A. Koenig

EDITORIAL OFFICE
5635 Fishers Lane, Suite 6000
Rockville, MD 20852
+1-240-221-4500 Fax: +1-240-221-2541

US ADVERTISING
Rory Flanagan
60 Columbia Rd., Building B
Morristown, NJ 07960
+1-973-290-8222 Fax: +1-973-290-8250
r.flanagan@elsevier.com

Classified Sales Manager, IMNG
Robert Zwick
+1-973-290-8250 Fax: +1-973-290-8250
r.zwick@elsevier.com

Classified Sales Representative
Andrea LaMonica
800-381-0569, Fax: 914-381-0573
a.lamonica@elsevier.com

INTERNATIONAL ADVERTISING
Chris Woods
32 Jamestown Road
Camden London NW1 7BY
+44 207424 4454
c.woods@elsevier.com

PRESIDENT'S COLUMN

Gearing Up for a Landmark Year

BY VLADIMIR HACHINSKI, M.D.

Happy New Year! 2011 promises to be an eventful year for the World Federation of Neurology (WFN). We plan to consider the first round of applications for project grants, hold an exploratory "brain summit, " upgrade our Web site, select a new Editor of the Journal of Neurological Sciences, and hold our first biennial World Congress of Neurology (WCN) in Marrakesh, Morocco, Nov. 12-17.

Grants for Projects

The WFN will award grants for specific educational or applied research projects in neurology and the applied neurosciences as part of its activities as a registered charitable organization in line with its **mission "to foster quality neurology and brain health worldwide."** The Federation's Committees, Task Forces, and Applied Research Groups; the Africa, Asia, and Latin America Initiatives; and individual member societies or individuals who are members of the aforementioned bodies, will be eligible.

We will apply the following criteria when we decide on the recipients:

► **Relevance:** How does the project address the mission of the WFN?

► **Value:** What is the return for invested effort, funds, or time?

► **Cost/Impact:** Priority will be given to low-cost, high-impact projects.

► **Viability:** Is this a limited time project with a measurable outcome or is it an initiative that will grow and become institutionalized? In the case of the latter, who will take over responsibility after the Federation's initial involvement ends?

► **Synergy:** First, there should be within the WFN, among its Committees, Initiatives, and Task Forces; second, with outside partners, governmental and nongovernmental organizations, the World Health Organization (WHO), and funding agencies; and third, there should be potential for publicity and fundraising.

► **Evaluation:** How will the outcome be measured? Grant proposals should be made through the Chairs of the WFN Committees, Task Forces, and the respective Initiatives (WORLD NEUROLOGY June 2010, p. 3, available at www.wfneurology.org/worldNeurology.php).

An Exploratory Brain Summit

The WFN has invited the leadership of the World Federation of Neurosurgical Societies, International Brain Research Organization, World Federation of NeuroRehabilitation, World Psychiatric Association, International Child Neurology Association, and the World Federation of Neuroradiological Societies, and the European Brain Council to a meeting in Geneva on March 30 to explore the feasibility of collaboration among the "brain" organizations.

All of the aforementioned organizations have accepted the invitation and we are awaiting confirmation from two others.

Dr. Ala Alwan, assistant director-general for Noncommunicable Diseases and Mental Health at the WHO, and his staff will also attend. A key item on the agenda will be to discuss how to ensure that health and policy issues pertaining to the brain get enough attention in the General Assembly of the United Nations session on chronic diseases scheduled for September.

Upgraded Web Site

A Task Force headed by Werner Hacke, Vice President of the WFN, and with members Wolfgang Grisold, Co-chair of the Education Committee, and Jerome (Pete) Engel, Webmaster of the WFN site, will consider proposals on upgrading the existing site to make it more dynamic and interactive and make recommendations to the Trustees.

Editorship of the *Journal of Neurological Sciences*

Robert Lisak has served as Editor for the Federation's journal for an unprecedented three terms, during which the publication has prospered scientifically and financially.

We are deeply grateful to him and his capable team. The change in editorship coincides with new directions taken by the current administration in regard to applied research and synergizing all our efforts.

Those who are interested in applying for the position should contact Professor Christopher Kennard, Chair of the Selection Committee (chris.kennard@clneuro.ox. ac.uk).

The World Congress of Neurology

This year's Congress in Marrakesh, Morocco, will be unique in two ways: It will be the first WCN of the new 2-year cycle, and it will be the first to be held on the African continent. In this issue of WORLD NEUROLOGY, there is a Call for Abstracts (p. 5) and each issue until the Congress from Nov. 12 to 17 will contain information about the event.

The 2013 Congress will be in Vienna, and the bidding process is now open for the 2015 WCN, which will take place in the Americas. So far, Canada; San Juan, Puerto Rico; Lima, Peru; Santiago, Chile; and Sao Paulo, Brazil, have been put forward as possible venues for the 2015 Congress. The Delegates will vote for the venue at the Marrakesh Congress.

Let us work hard throughout the coming year and celebrate our achievements in Marrakesh! ■

TEACHING COURSE — INDIA

Bid to Boost Interest in Movement Disorders as a Specialty

Over the past 2 decades, there have been major advances in the understanding of the pathophysiology of movement disorders, in particular in Parkinson's disease (PD). With the increase in life expectancy of the Indian population, the burden of PD and related disorders has been steadily increasing, and with that, the need to develop trained health care professionals for early diagnosis and comprehensive management of these patients is becoming a priority. However, a scarcity of postdoctoral fellowships in movement disorders has made that requirement more acute, which is why the World Federation of Neurology's Association of Parkinsonism and Related Disorders (WFN-APRD) has undertaken an initiative to bridge the gap by supporting movement disorders courses in India and globally.

BY PRAMOD KUMAR PAL, D.M.

Dr. Pal is Additional Professor of Neurology and movement disorder specialist at the National Institute of Mental Health & Neurosciences, Bengaluru, India.

In November last year, the WFN-APRD held the first teaching course in movement disorders in Bengaluru at the National Institute of Mental Health & Neurosciences (NIMHANS), India's leading center for the study of the neurosciences. As the organizing secretary of the event, I worked with Dr. Ravi Yadav, my colleague in the institute's department of neurology, and other Indian and international movement disorder specialists to plan the 2-day teaching course.

There were 225 delegates from across India. Also present were Prof. Erik Ch. Wolters, president of the WFN-APRD and course chair; Prof. Parthasarathy Satishchandra, NIMHANS director and vice chancellor; Prof. Zbigniew Wszolek, WFN-APRD treasurer; and Prof. Madhuri Behari, course chair and member of WFN-APRD educational committee.

The program included sessions on: Parkinson's disease and other parkinsonian disorders, the evaluation and management of dystonia and tremor, medical management of PD, surgical treatment of movement disorders, and video-based presentations of selected movement disorders. The key discussion topics included the differential diagnosis of parkinsonism, genetics of PD and dystonia, corticobasal diagnosis, progressive supranuclear palsy, and neurodegeneration with brain iron accumulation.

The highlights of the course were discussions on the medical management of different stages of PD, including early management, the role of continuous dopaminergic stimulation, and management strategies of nonmotor symptoms. Delegates were particularly interested to hear about using deep brain stimulation (DBS) for managing dystonia as well as PD.

Reviews of techniques for elecrophysiological evaluation of movement disorders and of using botulinum toxin in craniocervical dystonia and writer's cramp were also helpful for the attending specialists.

The course concluded with a 3-hour interactive video session covering a range of challenging topics, such as psychogenic, drug-induced, paroxysmal, pediatric, and movement disorder emergencies. Prof. Wolters presented the delegates with copies of *Parkinsonism and Related Disorders* (edited by Erik Ch. Wolters, T. van Laar, and Henk Berendse; Vrije Univeriteit Press, 2008).

The program provided a unique opportunity to the Indian neurologists, researchers, and medical students to enrich their knowledge on PD and other movement disorders from the basics to the most recent advances.

The program will go a long way in inspiring young neurologists to opt for specialization in movement disorders, which over time, will help in better patient care and research in India. ■

Effective in Children

Meningitis • *from page 1*

nations of Niger and Mali also began nationwide vaccination campaigns in December. If a funding gap of US$475 million is met, the WHO expects that all 25 countries in the meningitis belt will be using the vaccine by 2015. If that happens, the reduction in the number of meningitis cases is expected to save US$120 million annually in the period up to 2015 from national budgets that would be otherwise spent on costs for diagnosis and treatment, according to the WHO.

The vaccination campaign began just before the start of the dry season (January to May) when the yearly epidemics occur. Major epidemics of the disease occur every 7-14 years, and in 2009 they infected more than 88,000 people and killed more than 5,000 across the region. Serogroup A *Neisseria meningitidis* causes 80%-85% of the epidemics, according to the WHO.

Epidemics of group A meningococcal disease have been impossible to stop with older polysaccharide vaccines, despite millions of doses that have been given to individuals during epidemics. These vaccines induce a systemic immune response that is independent of memory T-cell activation and lasts only 2-3 years. They are also poorly immunogenic in children younger than 2 years. Polysaccharide vaccines also do not reduce the carriage of *N. meningitidis* in the nasopharynx, the bacteria's natural habitat, and thereby do not induce "herd immunity." This happens because polysaccharide vaccines induce only immunoglobulin M antibodies, which are not present on the surfaces of epithelial cells lining the nasopharynx, according to Dr. Taha.

Vaccinating used to start when the epidemiologic threshold was crossed, now it is being done preventively.

DR. TAHA

In contrast, MenAfriVac is modeled after the successful group C conjugate polysaccharide vaccine first used in the United Kingdom in the late 1990s and early 2000s. Conjugate vaccines are built with a protein attached to the bacteria's capsular polysaccharide antigen, which induces a longer-lasting T-cell–dependent immune response. This response produces immunoglobulin G antibodies that are present on the surface of epithelial cells in the nasopharynx, reducing carriage of the bacteria and providing herd immunity. This means that children younger than 2 years can receive the vaccine. The antibodies formed with MenAfriVac will likely persist beyond 5 years, said Dr. Taha, who was not involved in the development of the vaccine.

Courtesy WHO/R. Barry

A young woman in the district of Kaya in Burkina Faso receives the MenAfriVac vaccine during the pilot phase of the vaccination campaign in 2010.

A single dose of MenAfriVac costs less than half a U.S. dollar, in part because it was developed for less than a tenth of the US$500 million that conjugate vaccine development has typically cost. In comparison, Dr. Taha said, "the cost of the group C conjugate vaccine in Europe is about 30 euros, which is far away from [the price that] can be offered in Africa."

Courtesy Serum Institute of India Ltd

MenAfriVac is a conjugate vaccine that induces a longer-lasting T-cell–dependent immune response.

Clinical trials carried out in India and in several countries of the meningitis belt in people aged 1-29 years have shown that MenAfriVac is safe and has higher immunogenicity than the previous group A polysaccharide vaccine. In children aged 12-24 months, MenAfriVac induced 20-fold greater antibody levels than did the meningococcal A component of the licensed tetravalent ACWY polysaccharide vaccine.

Ongoing trials are determining whether a single dose of the vaccine given to children aged 9-12 months will be sufficient to generate long-lasting protection (Vaccine 2009;27[Suppl. 2]:B13-19).

Based on the experience of European countries in vaccinating people with a similar conjugated vaccine against group C meningitis, Dr. Taha estimated that at least 90% of the target population will need to receive MenAfriVac in order to reduce transmission of the disease to unvaccinated people. It's unknown whether this "quite high" coverage rate can be reached rapidly, he said.

Although MenAfriVac protects against group A meningococcal disease – by far the most prevalent type in Africa – outbreaks of meningitis caused by serogroups W135 and X in recent years mean that active surveillance for epidemics will still be necessary, he said. ■

Norwegian Study Calculates Aneurysm Rupture Risk

BY LAIRD HARRISON
Elsevier Global Medical News

FROM THE ANNUAL MEETING OF THE CONGRESS OF NEUROLOGICAL SURGEONS

SAN FRANCISCO – The annual risk of an intracranial aneurysm rupturing may be lower than most previous estimates, according to calculations based on data from a large Norwegian population-based study.

Although earlier studies have placed the annual risk of rupture at 0.5%-5%, Dr. Tomm Brostrup Müller of St. Olav's Hospital/Trondheim (Norway) University Hospital and his colleagues came up with the figure of 0.83%.

Neurologists have long debated the management of unruptured intracranial aneurysms. "Our patients want to know the risk of rupture, and they want to know the risk of treatment," he said at the meeting. "We now have quite good data on the risk of treatment. The controversy is mainly related to the risk of rupture."

Researchers have found two methods for estimating the risk of rupture. One is to look at the natural history of ruptured aneurysms in which a group of patients is followed over time. This provides some information about the size and location of the aneurysms most likely to rupture, but the data in all these studies are confounded by selection bias, Dr. Müller said.

The second method is to study a large population, dividing the incidence of ruptures by the prevalence of aneurysms. "We have good data on aneurysmal subarachnoid hemorrhage from all over the world," Dr. Müller said. "However, the incidence of unruptured intracranial aneurysms is another story." This may explain why previous studies have resulted in a wide range of estimates of risk.

The Norwegian researchers hoped to come up with a more accurate estimate of risk by studying more people for a longer period of time. So they used data from the Nord-Trøndelag Health Study (HUNT), one of the largest population-based studies ever conducted.

All inhabitants of the county of Nord-Trøndelag in central Norway older than 20 years were invited to participate. A total of 95,097 people were followed during 1984-1986 or during 1995-1997. The investigators recorded the number of aneurysmal subarachnoid hemorrhages that occurred in these first two waves of the study.

"To our knowledge, this is the first time that the incidence of unruptured intracranial aneurysms and the prevalence of subarachnoid hemorrhage has been established for one large population cohort," he said.

The researchers then randomly selected 1,000 participants aged 50-65 years from the third wave of the study (which took place during 2006-2008) and scanned them with magnetic resonance angiography. They found that 19 participants had aneurysms: 17 had one aneurysm each, 1 had two aneurysms and 1 had three aneurysms. The prevalence was therefore 1.9%.

They verified all but two of these aneurysms either intraoperatively or by CT scan or digital subtraction angiography. The aneurysms measured 2-6 mm in diameter in 13 cases and 7-9 mm in 9 cases.

Clinicians handled these aneurysms according to their practice. They treated two of the patients endovascularly and five surgically. In the patient with three aneurysms, they clipped two and coiled the other. They took a conservative approach with the remaining 11 patients, following up by MRI and CT.

From this survey, the investigators calculated the incidence of aneurysmal subarachnoid hemorrhage in participants aged 50-65 years as 15.7/100,000 person-years. Dividing the incidence by the prevalence (0.000157/0.019) yielded an annual rupture risk of 0.83%.

In the total HUNT population, the incidence of aneurysmal subarachnoid hemorrhage was 10.2/100,000 person-years. If the annual rupture risk is the same in this population, that would mean its overall prevalence of unruptured intracranial aneurysms was 1.2%.

Dr. Müller said the study had limitations. People aged 50-65 years may not represent the whole population, though this age group is particularly relevant for the study of aneurysm ruptures. Also, the population-based approach does not allow for analysis of the size and location of aneurysms that rupture.

The investigators reported no relevant disclosures. ■

20TH WORLD CONGRESS OF NEUROLOGY

Modern Meets Historic in Captivating Marrakesh

BY MARIA BENABDELJLIL, M.D.
Secretary of the 20th World Congress of Neurology's Local Organizing Committee

The North African city of Marrakesh, Morocco, will host the 20th World Congress of Neurology (WCN) this year on Nov. 12-17. The Congress is held under the High Patronage of His Majesty Mohammed VI, King of Morocco.

It will take place at Le Palais des Congrès, which is on a large avenue in the heart of Marrakesh. This international exhibition center can provide all the necessary technical needs for organizing a successful meeting.

Marrakesh is the prime tourist resort in Morocco and has more than 150 hotels. Many hotels are located close to the exhibition center and have sufficient capacity to accommodate all prospective attendees – at less than 15 minutes' walk. The city is also well known by for its riads, which are traditional houses and palaces with interior courtyards that offer luxury and modern comforts.

Marrakesh is a wonderful and safe city. It is only 3 hours by direct flight from many European countries. For those coming from Africa, Arabic countries, Asia, and the Americas, there are flights to Casablanca, which is linked to Marrakesh by highway, rail, and air (a trip of about 2 hours).

©MASSIMO GIANNINI/ISTOCKPHOTO.COM

Morocco's natural scenery ranges from vast inland desert areas (above) to beautiful stretches of Atlantic coastline.

Marrakesh is one of five imperial cities in Morocco. It dates back to the late 11th century and is distinctive in its architecture, traditional crafts, cuisine, and the legendary hospitality of its people. Weatherwise, it is among the sunniest cities in the kingdom. In November, temperatures range between 12° C at night and 26° C during the day.

Attendees would do well to find some time to explore the city. They could visit the main monuments of the city on foot, or take excursions to view the region's beautiful landscapes, such as the snowy Oukaïmeden and the glorious Atlantic coastline.

We expect the content of the Scientific Program to be substantial to the field, and we are making progress in our planning. The program contains 40 topics with 80 sessions; there will be 295 speakers from 54 countries. The various scientific sessions will include Teaching Courses, Plenary Sessions, Main Topics, Free Communications, Regional Sessions, Daily Debates (Controversies in Neurology), Sponsored Symposia, and the Tournament of the Minds. There will also be Exhibitions and Guided Poster Walks.

The classic neurological topics will be featured: Epilepsy, Movement Disorders, Stroke, Dementia, Neuro-immunological diseases, and Muscle Diseases; and there will be updates on other related topics such as neurocritical care, palliative care, and stem cell and new treatments in neurology. The Scientific Program will highlight the particularities of the practice of neurology in developing countries, such as stroke in the young, the diagnosis of cognitive disorders, and tropical CNS infections.

There will be six Teaching Courses daily, seven Workshops, and free educational courses for young neurologists. The Teaching Courses will be provided by acclaimed specialists in their fields of neurology.

There will be 150 Free Communications, for which participants should submit their abstracts online by Wednesday, June 15, 2011.

The 4th Tournament of the Minds will be held during the congress. There will be one team per country, made up of four people, and teams will compete by answering questions across a range of neurological topics in a knockout competition. Countries wishing to participate should contact the president of their local member society for information on coordinating a national team. For more information, visit **www.wcn-neurology.org**. ■

Services to Be Developed

Nigeria-Florida • *from page 1*

The 236 attendees included neurologists, neurosurgeons, family practitioners and internists, psychologists, psychiatrists, nurses, physical therapists, residents, and medical students; members of the lay public, such as stroke patients and care givers; and lay advocates and media health correspondents, who came from across the geopolitical spectrum.

The format was indicative of a "broad tent" approach to collaborating with a variety of specialties and lay persons.

Discussions emphasized the importance of incorporating patients' religious leaders and families into the therapeutic team in roles to enhance recovery, and attendees recognized that stroke awareness campaigns may need to involve faith-based organizations to address local belief systems (Eur. J. Neurol. 2009;16:998-1003).

The meeting agenda was arranged around four major clinical themes:

► Stroke, including epidemiology; the pattern of presentation in Nigeria; problems that hamper stroke education, diagnosis, and treatment; and how to be creative in overcoming these obstacles;

► Epilepsy, movement disorders, and headaches;

► Patient advocacy as a way to improve neurological care, the basic neurosciences, and the clinical neurosciences; and

► Patient-centered discussions that involved a range of basic clinical neurology instruction.

The NSNS agreed at the meeting that it would develop educational programs to inform people about stroke and other key neurological disorders. It will also reach out to important components of Nigerian society, notably church congregations and the families of patients, in the treatment of and recovery from acute and chronic neurologic disorders.

Books and Tool Kits

During the meeting, the WNF also provided the NSNS and the NSS with text books on stroke that were donated by Cambridge University Press and Oxford University Press, as well as copies of *The Neurological History and Examination* by Dr. Monroe Cole (Vantage Press, New York, 2006). Dr. Martin Samuels donated a copy of his recent text, *Samuels's Manual of Neurologic Therapeutics* (Lippincott Williams & Wilkins, New York, 8th edition, 2010; co-edited with Dr. Allan H. Ropper). Dr. Naselli, Dr. Olajide Williams (Nigerian-trained M.D., Board Member of the WNF), and Dr. Finkel made the presentations.

The meeting culminated with the presentation of 40 Tool Kits for neurologists. The funds for the kits came from donations from individual neurologists, group practices, and health care systems in Florida, and they were assembled and delivered by the WNF. The Foundation has now provided 200 kits to individual neurologists in Africa (see WORLD NEUROLOGY, August 2009, p. 15)

The November conference established the foundation for building the collaboration between the Florida and Nigerian neurological societies and could serve as a model of how this type of partnership can be replicated in other countries. It also marked the inauguration of a unified and effective Nigerian International Brain Research Organization (IBRO) Alumni Group, which will work effectively with all of the country's basic and clinical neuroscience groups and provide a platform for further networking with the health care system in Nigeria.

COURTESY KOLAWOLE WAHAB

Members of the partnership's Joint Steering Committee included (from left) Prof. Yomi Ogun, Dr. Susan Naselli, Dr. Alli Malek, Dr. Njide Okubadejo, Dr. Michael Finkel, Dr. Olajide Williams, Dr. Kolawole Wahab, and Dr. Omolara Ojo.

The next NFNP conference will be held this year, possibly before the World Congress of Neurology in November. The NSNS local organizing committee will propose the topics for the meeting, the FSN will recruit its speakers from its membership, and the NSNS will recruit speakers from within Nigeria and interested members of the Nigerian expatriate neuroscience community. Basic science topics will in large part be determined by input from local chapters of the NSNS and the US-based Society for Neuroscience.

Funding for the meeting was arranged by donations from the University of Florida Foundation and the American Academy of Neurology's Palatucci Advocacy Leadership Forum, and fees paid by vendors and attendees. Twenty percent of the funds were raised in Nigeria. After the meeting, the partnership received a grant of 5,000 euros from IBRO, a donation of US$600 from Dr. Naselli and Dr. Malek, and a challenge grant from Florida that can reach US$5,000. ■

DR. SCHNEIDER *is on the Public Relations Committee of the WFN and is a member of the board of the World Neurology Foundation.*

Gaps in Epilepsy Care in Europe, Report Says

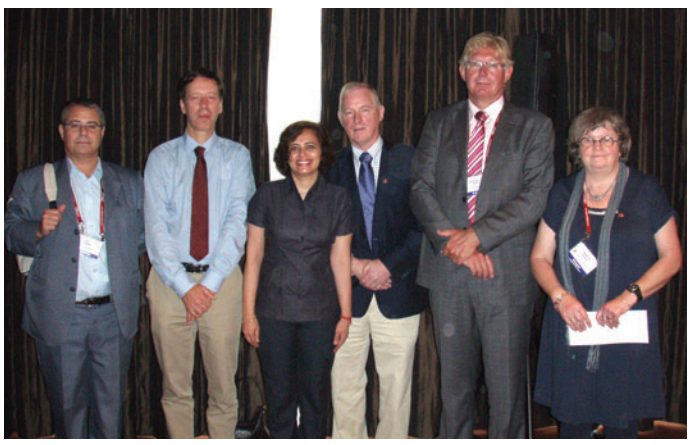
BY HANNEKE M. DE BOER

A recent report on the current challenges in epilepsy care in the European region concludes that many aspects of the care are seriously underresourced.

The report, "Epilepsy in the WHO European Region: Fostering Epilepsy Care in Europe," is the first regionwide report on epilepsy. It was launched in August by Dr. Matthijs Muijen, the World Health Organization's regional advisor on mental health and brain disorders for Europe, during the 12th European Conference on Epilepsy and Society in Porto, Portugal.

The report is part of a series of regional reports on epilepsy from all six of the WHO's regions that was developed under the auspices of the Global Campaign Against Epilepsy's advocacy and awareness initiatives.

The campaign is a joint project of the International League Against Epilepsy (ILAE), the International Bureau for Epilepsy (IBE), and the WHO.



At the launch of the epilepsy report at the 12th European Conference on Epilepsy and Society, were (from left) Ley Sander (SEIN), Matthijs Muijen (WHO regional advisor), Tarun Dua (WHO), Mike Glynn (IBE), Jean Willem Barzilay (WHO Collaborating Centre, SEIN), and Hanneke M. de Boer.

Epilepsy is responsible for high levels of suffering, affecting more than 50 million people worldwide, thus making it an important public health problem. In Europe, 6 million people are affected, and 15 million Europeans will have one seizure at some time in their lives.

In developed and developing countries, people with epilepsy, and sometimes their family members, are often stigmatized, which generates a hidden burden that discourages them from seeking the diagnosis and care they require. Stigma leads to discrimination, and it is not uncommon for people with epilepsy to be denied access to education or be discriminated against in the workplace. Dr. Gro Harlem Brundtland, director-general of the WHO from 1998 to 2003, said in that respect, "every country is a developing country."

Estimates put the annual number of epilepsy-related deaths in Europe at 33,000, of which at least 13,000 are preventable. According to Mike Glynn, president of the IBE, mortality among people with epilepsy is two to three times higher than it is in the general population.

"An estimated 40% of all epilepsy-related deaths result from a phenomenon called sudden unexpected death in epilepsy, yet the mechanism behind [it] remains unknown and awareness of risk factors is very low. Research into this and other aspects of epilepsy is vital for improving our understanding [of epilepsy] and ultimately patient care," Mr. Glynn says.

Yet epilepsy is the clearest example of a neurological disorder for which effective and cost-efficient treatment is available. Recent studies in high- and low-resource countries show that, if properly treated, up to 70% of people with this condition could be seizure free and live productive and fulfilling lives. However, an estimated 40% of people with epilepsy in Europe do not receive appropriate diagnosis and treatment.

Access to treatment differs enormously between countries – and even within countries, based on the levels of urbanization and socioeconomic factors. The ILAE Commission on European Affairs conducted a survey of ILAE chapters in Europe to gauge the needs and resources available to provide basic epilepsy care across Europe. The data showed that 10% of countries in Europe do not have epilepsy specialists, half have no epilepsy surgery, and 30% have no neuropsychological or rehabilitation services for people with epilepsy.

Photos courtesy Hanneke M. de Boer

Epilepsy affects about 6 million people in Europe, says Global Campaign Against Epilepsy's Hanneke M. de Boer.

Epilepsy research in the region is in desperate need of more funding. A recent review on the epidemiology of epilepsy showed that no studies were identified from large areas of Europe, especially from Eastern European – except for the Baltic countries – and Eastern Mediterranean countries.

The authors of the report said prospective studies in different settings should be encouraged to establish the magnitude of possible geographic differences in the incidence of epilepsy and the contribution of different etiologies and risk factors to those geographic variations. They added that long-term, population-based outcome studies of people with specific epileptic syndromes and risk factors, as well as special groups such as children, adolescents, and the elderly, are urgently warranted.

The report highlights a number of other research challenges, such as prevention of the unfavorable evolution of early-onset severe epileptic encephalopathy, for example, West syndrome; prediction and prevention by appropriate pharmacologic or surgical procedures of lesional epilepsies with poor outcomes; and finding new, more effective antiepileptic and antiepileptogenic pharmacologic agents capable of counteracting the course of epileptogenic processes that eventually lead to chronic severe epilepsy.

Well-crafted legislation that is based on internationally accepted human rights standards could prevent violations and discrimination, promote and protect human rights, enhance the autonomy and liberty of people with epilepsy, and improve equity in access to health care services and community integration.

However, the current reality is that the laws that affect the lives of people with epilepsy are either outdated, as is the case in many countries, or there is a total absence of protective legislation. In the United Kingdom, for example, a law forbidding marriage for people with epilepsy was repealed relatively recently, in the 1970s.

Dr. Muijen said the report could serve as "an advocacy tool and an instrument for dialogue" with governments, health care providers, and groups such as consumer associations, nongovernmental organizations, and academic institutions for those who are striving "to combat stigma, restore dignity, and reduce the treatment gap for people with epilepsy in Europe." ■

Ms. De Boer is the coordinator of the Global Campaign Against Epilepsy and senior officer for international contacts at the Epilepsy Institutes in the Netherlands Foundation – SEIN in Heemstede.

WFN's Said Heads European Neurological Society

Prof. Gérard Said of France, director of the World Federation of Neurology's Research Group on Neuromuscular Disorders, has been inaugurated as president of the European Neurological Society. He succeeds Prof. José Ferro of the University of Lisbon, Portugal.

Prof. Said's research and clinical interests are in peripheral neuropathy, with a focus on the diagnosis, treatment, and management of peripheral nerve disorders. He has coauthored numerous journal publications and textbooks on diabetic neuropathy as well as studies of neuropathies relating to infections and environmental influences.

PROF. GÉRARD SAID

Prof. Said is also known for his substantial contributions as an educator and administrator. He has taught neurology at the medical school of the University Paris-Sud since 1982, during which time he served a term as president of the medical school's teaching program.

Prof. Said was a cofounder of the ENS in 1986 and its secretary-general until 2007. He is a member of numerous French, European, and American neurological societies. He has been or is on the boards of several journals and is joint chief editor of the *Journal of Neurology*. ■

This article is based on information from the ENS.

Correction

Dr. Tissa Wijeratne, a member of the WFN's Education Committee, should have been included as an author of the article on the establishment of a working group within the Federation by graduates of the American Academy of Neurology's Donald M. Palatucci Advocacy Leadership Forum (World Neurology, "Palatucci Fellows Pass On Leadership, Advocacy Message," December 2010, p.14). Dr. Wijeratne has been an active faculty member of advocacy workshops that have been held in Manila, Cairn, and Sri Lanka.

14th European Congress on Clinical Neurophysiology

and

4th International Conference on Transcranial Magnetic and Direct Current Stimulation

Rome, 21st-25th June, 2011

CONVENER
Paolo Maria Rossini

ORGANISING COMMITTEE
Giancarlo Comi
Giorgio Cruccu
Domenico De Grandis
Vincenzo Di Lazzaro
Paolo Girlanda
Walter Paulus
Fabrizio Vernieri

EXECUTIVE COMMITTEE

IFCN – International Federation of Clinical Neurophysiology
President Paolo Maria Rossini
Secretary Daniel Cibilis
Treasurer Reinhard Dengler
Past President Hiroshi Shibasaki
Editor-in-Chief David Burke
Members-at-Large Mamede de Carvalho - Lawrence H. Phillips

IFCN - European Chapter
Chairman Luis Garcia-Larrea
Secretary and Treasurer Walter Paulus
Members-at-Large Anders Fuglsang-Frederiksen - Jonathan Cole

CONGRESS VENUE
Centro Congressi Europa
Università Cattolica del Sacro Cuore
Facoltà di Medicina e Chirurgia "A. Gemelli"
Largo Francesco Vito, 1
Rome - Italy

SCIENTIFIC SECRETARIAT
Neurosciences Department
Ospedale Generale "S. Giovanni Calibita"
Fatebenefratelli - Isola Tiberina
00100 Rome - Italy
Tel. ++39 06 6837300 - Fax ++39 06 6837360
michele.delucia@afar.it

ORGANIZING SECRETARIAT
O.I.C. Srl
Organizzazione Internazionale Congressi
Viale G. Matteotti, 7 - 50121 Florence - Italy
Tel. ++39 055 50351 - Fax ++39 055 5001912
eccn2011@oic.it - www.oic.it/eccn2011

For further information please visit

www.oic.it/eccn2011

2010 WFN JUNIOR TRAVELLING FELLOWSHIP REPORTS

Picking Up Valuable Take-Home Lessons

7th World Stroke Congress, Seoul, South Korea (Oct. 13-16)

BY MORENIKEJI ADEYOYIN KOMOLAFE, M.D.

I used my WFN Junior Travelling Fellowship to attend the World Stroke Congress in Seoul. At a teaching course on acute stroke management, I learned about the organization of stroke units in both developed and developing countries. I was particularly intrigued by a lecture by Dr. Nijasri Suwanwela on how she and her colleagues have been able to set up stroke units and thrombolysis in Thailand.

I also attended the plenary sessions organized by the Asian Pacific Stroke Organization, which showed some important similarities in the epidemiology of intracerebral hemorrhage in patients in Asian and African countries.

A satellite symposium on managing long-term stroke recovery made me more aware that the disabilities after a stroke are ongoing. The patient may not complain, so the physician needs to be alert to identify and manage the disabilities promptly. A multidisciplinary approach is essential, early mobilization must be encouraged, and patients and their relatives must be involved in the management.

Setting Up Patient Support Systems

The presentations on stroke support organizations showed how patients and their family members can set up a group support system to help each other cope with stroke-related disabilities, and also to act as an advocacy group that can motivate for changes in policies that affect stroke patients.

The free communications and abstract presentations were highly informative, and I enjoyed being able to interact with my colleagues from other countries, discussing a range of issues, from driving and stroke, to the role of the media in increasing public awareness of stroke and how to prevent the early complications of stroke.

The World Stroke Organization award lectures given on the last day by Prof. Peter Rothwell, Prof. Louis Caplan, and Prof. Vladimir Hachinski were inspiring.

Since attending the meeting, I have been more focused on my teaching and research work. I look forward to other opportunities to learn new skills and apply them in clinical settings in Nigeria. I also intend to pass what I learned on to my colleagues and other health care workers. I know that by working with them, we can be the voice for stroke in Nigeria and Africa as a whole, and perhaps the catalyst for positive change in dealing with this condition.

I thank the WFN this unique opportunity and its generous support in the Nigerian way: "E se, a dupe!"

Dr. Komolafe *is a consultant neurologist at the Obafemi Awolowo University, Ife-Ife, Nigeria.*

BY AKSHAY ANAND, PH.D.

I attended many excellent lectures at the World Stroke Congress and I came away feeling that I had gained a valuable new perspective on stroke research.

A lecture by Prof. Ulrich Dirnagl of the Berlin (Germany) School of Mind and Brain focused on the important variables that are omitted in animal research, such as the role of infections in pathogenesis of stroke, the role of beta-blockers, and the establishment of animal models that possess the comorbidities seen in human stroke.

I recommend that more research scientists be invited to make presentations at clinical meetings. It would add perspective for clinicians in applying the reductionist approach to resolving clinical problems, and it would expose the researchers to clinical trials, the lack of which in most clinical studies might have contributed to the slow pace of translational research in stroke.

There were several sessions on the importance of creating stroke units, which have been shown to result in the better management of the disease. Other sessions looked at clinical trials that used aspirin and novel agents including antiplatelet therapy, and the clinical implications of cerebral microbleeds in patients treated with antithrombotics. A satellite symposium addressed the key elements in stroke prevention and new developments in neuroprotection.

From iPhones to Neuroprotection

The poster sessions were equally interesting, especially a presentation by Japanese investigators who have developed an iPhone application that imports neuroimaging data for enhanced stroke management. In another poster, the researchers reported on creating a medial cerebral artery occlusion in mice and then testing several therapies for their neuroprotective effect.

A session on genetics looked at the emerging technologies for identifying genes and the advances in the genetics of ischemic stroke. A lecture on advances in genetics of ischemic stroke by Dr. Hugh Markus of St. George's, University of London (England) was particularly interesting. I found a workshop on publishing very useful as it provided tips for editing and publishing scientific papers. This will help me a great deal as I have editing assignments for a neuroscience journal.

Dr. Anand *is assistant professor in the department of neurology at the Postgraduate Institute of Medical Education & Research, Chandigarh, India.*

The 14th Congress of the European Federation of Neurological Societies, Geneva, Switzerland (Sept. 25-28)

BY ASHRAF VALAPPIL, M.D.

The lectures, teaching courses, and workshops offered as part of the 4-day program at the EFNS Congress were informative and of great practical value. Overall, it was an enriching experience to be in the presence of renowned neurologists and the many other experts who brought us up to date on the latest developments in the neurological sciences.

A Rich Selection of Teaching Course

I attended a teaching course titled "How Do I Examine …?" in which a presentation on double vision by Prof. Christopher Kennard of Oxford (England) University covered a range of aspects of neuro-ophthalmology and contained much practical advice.

I also attended two other teaching courses, one titled "Controversies in Neurology" and another on stroke syndromes. In the latter, there was an in-depth discussion of functional paralysis that made me more aware of the challenges in diagnosing, communicating, and treating patients with the condition.

Another teaching course, "Methods and Their Pitfalls in Clinical Science," chaired by Prof. Jan van Gijn of the University of Utrecht (the Netherlands) introduced me to the basic components of clinical research. Again, most of the course presentations focused on practical clinical issues and included case discussions.

Exchange of Views and Information

I enjoyed sharing my views and knowledge with others during the poster sessions. I presented a poster on "Neuroinfections – A Hospital-Based Study," for which my colleagues and I studied the burden of neuroinfections in our hospital and the yield of various microbiological tests in neuroinfectious diseases. My presentation was followed by a lively discussion that provided helpful comments on the work.

I thank the WFN for its support, which allowed me to attend this inspiring meeting and learn so much.

Dr. Valappil *is a neurologist at the Malabar Institute of Medical Sciences in Calicut, Kerala, India.*

4th World Congress on Controversies in Neurology, Barcelona, Spain (Oct. 28-31)

BY IRMA KHACHIDZE, PH.D.

My participation as a WFN Junior Travelling Fellow at the Congress on Controversies in Neurology equipped me with useful information and skills that I have been able to apply in my clinical practice and share with my colleagues.

The session on epilepsy was particularly interesting for me as much of my research and clinical experience has been in epileptology. I trained in clinical diagnostics at David Tatishvili Medical Center in Tbilisi, Georgia, and completed my doctorate in 2009 on EEG changes in epileptic children treated with antiepileptic drugs (AEDs).

The sessions provided me with in-depth, current information on epilepsy and its psychological aspects, especially discussions on whether or not stress can trigger seizure and the therapeutic issues relating to epilepsy. I also attended sessions on imaging and headache, and again, the presenters gave valuable scientific advice and guidance on how to deal with complicated cases.

EEG Changes in Children on AEDs

I presented a paper based on my doctoral research. The aim of the study was to investigate the alteration of different EEG characteristics in epileptic children during AED therapy.

The analysis of the dynamics of background EEG characteristics during different stages of the therapy is very important for revealing the possible early predictors of the treatment's benefit/adverse effects and for optimizing the therapy. Complex changes in EEG, such as the baseline activity in parallel to reduction of epileptiform activity and improvement of clinical signs might benefit assessment of AED therapy efficacy.

I am very grateful to the WFN for giving me this opportunity to improve my skills.

Dr. Khachidze *is a consultant in the department of clinical neurophysiology, David Tatishvili Medical Center, Tbilisi, Georgia.*

BEFORE THE RESEARCH
IS PUBLISHED...

BEFORE THE DRUG
IS APPROVED...

BEFORE THE GUIDELINE
IS ISSUED...

YOU READ
IT FIRST IN

ELSEVIER

Clinical Neurology News

THE LEADER IN NEWS AND MEETING COVERAGE

— We Write Medicine's First Draft —

www.clinicalneurologynews.com

NEUROLOGICAL HISTORY

Haller's Delineation of Sensation and Movement

The popularity of medical teaching centers waxed and waned through the ages. Whereas Padua was among the sought-after centers in the 16th and 17th centuries, Leiden became so in the early 18th century, Edinburgh in the late 18th century, and Paris in the early 19th century, with cities in the German-speaking countries (Vienna and Berlin, in particular) becoming prominent in the second half of that century.

It was of no surprise that in the early 18th century that hundreds of European medical students traveled to Leiden, among them, the young Swiss student Albrecht von Haller (1708-1778) who had studied in Tübingen, Germany. Haller had been inspired by reading Herman Boerhaave's *Institutiones Medicae* (1708), which had a physiological character and of which he published an annotated edition (1739-1744). At the time, Boerhaave (1668-1738) was at the height of his career as professor of botany, medicine, and chemistry at Leiden University. Haller's opinion of Boerhaave's lectures was positive. "I listened to him from 1725 to 1727, for somewhat more than two years. I remember that I was filled with an unbelievable delight, when I heard him explain for the first time the true medicine with extraordinarily charming eloquence." In the first half of the following decade, Boerhaave presented a series of lectures on the state of knowledge on the nervous system, *Praelectiones de Morbis Nervorum* (1730-1735).

BY PETER J KOEHLER, M.D., PH.D.

Dr. Koehler is a neurologist in the department of neurology at the Atrium Medical Centre, Heerlen, the Netherlands. Visit his Web site at www.neurohistory.nl.

When Haller left the Netherlands in 1727, he had finished his thesis and traveled to London and Paris. At age 28, he was called to the chair of medicine and botany at the newly founded University of Göttingen in Germany. His *Primae Lineae Physiologiae* (*First Lines of Physiology*; 1747) is considered the first modern textbook of physiology.

The work was intended as a correction and improvement of Boerhaave's *Institutiones* and included updates on new discoveries such as those of the Italian physician and pathologist, Giambattista Morgagni, and the anatomists Jacob Winslow (Danish), Bernhard Siegfried Albinus (Dutch), James Douglas (Scottish), and others. Haller wrote in a letter to Morgagni: "I have added the proof sheets of my physiology, intended for use in my yearly lectures. Far too many things have been discovered since Boerhaave, which it would be negligence to omit."

In *Primae Lineae*, Haller addressed the controversy surrounding the solid character of the fibers of the medulla and nerves, which according to some scholars were supposed to work by means of vibrations transmitted to the brain. However, the comparison with elastic cords that tremble did not hold for him. Nerves are soft and not tensed, he reasoned, and "therefore, the nervous fibers can not possibly tremulate in an elastic manner."

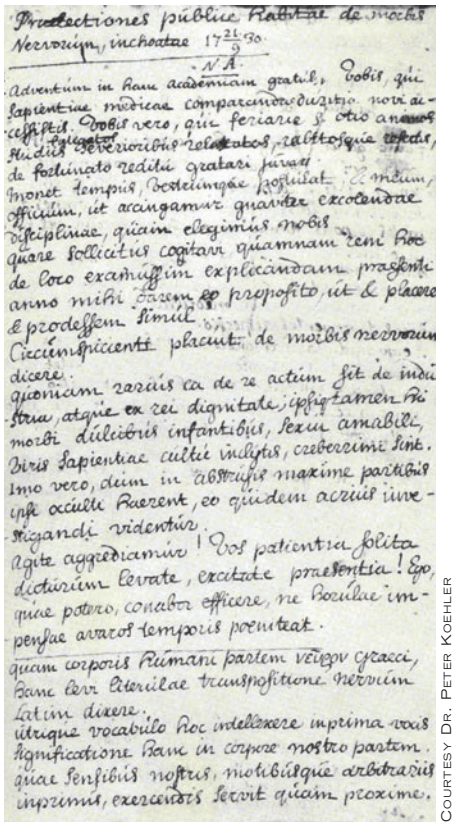
Moreover, he noted that if nerves are cut into two pieces, they do not shorten or draw back their divided ends. He also reasoned that "the force of an irritated nerve is never propagated upward," which is also in contradiction to an elastic character. So he argued that the theory of a fluid flowing from the brain through the nerves must be true, and that the fluid could be put "in motion by an organ of sense," transmitting sensation to the brain. Therefore the nerves must be hollow, he asserted.

Haller commented on the nature of the nervous fluid in these hollow nerves, writing that "electrical matter is, indeed, very powerful, and fit for motion," but believed that electricity would spread beyond the nerves, to flesh and fat, "and a ligature on the nerve takes away sense and motion, but cannot stop the motion of a torrent of electrical matter." He realized that the "nervous liquor then, which is the instrument of sense and motion, must be exceedingly moveable, so as to carry the impressions of sense, or commands of the will, to the places of their destination, without any remarkable delay: nor can it receive its motions only from the heart."

One of Haller's most influential publications was *A Dissertation on the Sensible and Irritable Parts of Animals* (1732). His method may be considered new in so far that he systematically investigated a large number of body parts to observe whether these were sensible and/or irritable.

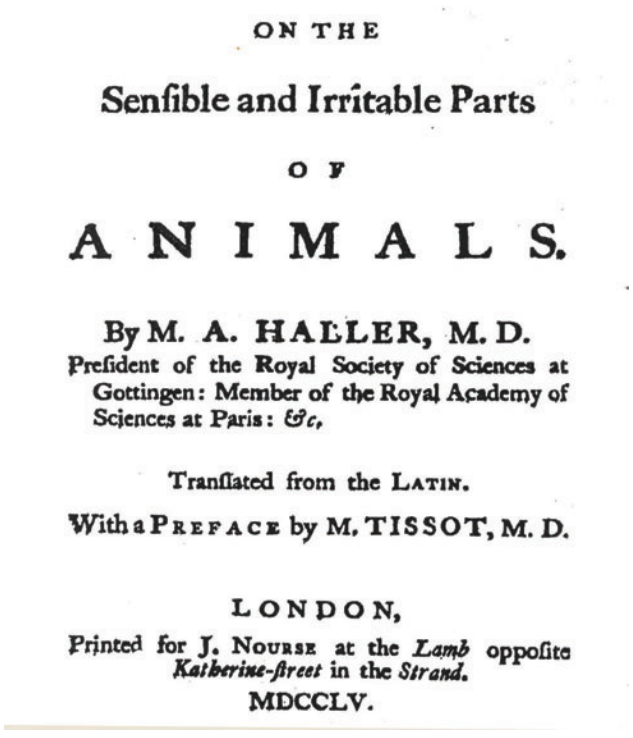
He was motivated by his observation that "the source of the great error in physic has been owing to physicians … making few or no experiments, and substituting analogy instead of them." The two most important conclusions Haller drew from the series of experiments were that only those parts that are supplied with nerves possess sensibility, and irritability is a property of the muscular fibers.

Despite the criticism of his work, Haller's importance for physiology is still recognized, in particular for his decisively localizing the two basic properties of the organism, sensation and movement, in two different tissues. ■



COURTESY DR. PETER KOEHLER

A page from a Boerhaave lecture (*Hermanni Boerhaave Praelectiones de Morbis Nervorum, 1730-1735*, by B.P.M. Schulte. Leiden: Brill, 1959).



ON THE

Senfible and Irritable Parts

OF

ANIMALS.

By M. A. HALLER, M. D.
Preſident of the Royal Society of Sciences at Gottingen: Member of the Royal Academy of Sciences at Paris: &c.

Tranſlated from the LATIN.

With a PREFACE by M. TISSOT, M. D.

LONDON,
Printed for J. NOURSE at the *Lamb* oppoſite *Katherine-ſtreet* in the *Strand*.
MDCCLV.

The title page of the translation of Albrecht von Haller's work in which he localized sensibility and irritability.

This essay is an adaptation from a chapter by Dr. Koehler in Brain, Mind and Medicine: Essays in Eighteenth-Century Neuroscience *(Harry Whitaker, C.U.M. Smith, and Stanley Finger, Editors. New York: Springer, 2007, pp. 213-31).*

Novel Infantile Parkinson Disorder Detailed

BY PATRICE WENDLING
Elsevier Global Medical News

FROM LANCET NEUROLOGY

Researchers have delineated the clinical and molecular features of dopamine transporter deficiency syndrome, a newly recognized childhood neurological disorder with Parkinsonian features.

The syndrome was uncovered in 2009, after detailed genetic sequencing in three children from two families identified loss-of-function mutations in the SLC6A3 gene that encodes the dopamine transporter (DAT) (J. Clin. Invest. 2009;119:1595-603). Variants of the SLC6A3 gene have been implicated in a variety of neurological and neuropsychiatric diseases, including attention-deficit/hyperactivity disorder.

Dopamine transporter deficiency syndrome is the first identified Parkinsonian disorder to be caused by genetic alterations of DAT. The discovery of the mutations led to the diagnosis of eight additional cases detailed in the current cohort of 11 patients by Dr. Manju Kurian and her associates (Lancet Neurol. 2010;10:54-62).

"Increased recognition of dopamine transporter deficiency syndrome will expand the range of phenotypes identified, allow accurate diagnosis and genetic counseling, prevent unnecessary investigations, provide further insights into genotype-phenotype correlations and DAT function, and accelerate the development of therapeutic strategies," wrote the authors.

The syndrome affects both motor and cognitive development and is associated with reduced life expectancy. Four of the 11 children, enrolled from pediatric neurology centers in the United Kingdom, Germany, and United States, have died secondary to respiratory complications and cardiac failure.

The clinical presentation of dopamine transporter deficiency syndrome can mimic dyskinetic, spastic, and mixed cerebral palsy, with seven of the children initially misdiagnosed with cerebral palsy. The median age at presentation was 2.5 months (range, 0.5-7 months). Other clinical features include early neonatal irritability and feeding difficulties, eye

Continued on following page

OBITUARY

Charles M. Poser (1923-2010)

BY GUSTAVO C. ROMÁN, M.D.

Professor Charles Marcel Poser passed away peacefully in his sleep on Nov. 11, 2010, at age 87. He was born of American parents in Antwerp, Belgium, but grew up in New York City.

Poser was the founding Editor in Chief of WORLD NEUROLOGY and co-organizer of the first meeting of the World Federation of Neurology in 1957 in Brussels, where the draft WFN constitution was prepared by a committee consisting of Ludo van Bogaert (Belgium), H. Houston Merritt (USA), Macdonald Critchley (UK), Pearce Bailey (USA), August Tournay (France), Georg Schaltenbrand (Germany), and for which Poser was secretary.

Poser obtained his bachelor's degree (Phi Beta Kappa) from the College of the City of New York in 1947 and his medical degree from the College of Physicians and Surgeons, Columbia University, in 1951. After an internship at Roosevelt Hospital in New York, he became a neurology resident and then chief resident in Merritt's service at the Neurological Institute of Columbia-Presbyterian Medical Center.

In 1955, he went on a Fulbright Scholarship to the Institute Bunge in Antwerp to work with van Bogaert, a neuropathologist and the first president of the WFN.

On his return, he was on faculty at the University of Kansas, Kansas City, Kan., USA and at the University of Missouri, Kansas City, Mo., USA. He served with distinction as professor and chair of the department of neurology at the University of Vermont College of Medicine, Burlington, before settling in Boston in 1981, where he was lecturer in neurology at Harvard Medical School, Boston University, and Tufts University. He retired in 2005.

Valuable Lessons in Diagnosis and Pathology

Poser said he learned from his two mentors the two aspects of neurology that he found most attractive. Merritt taught him to make a diagnosis on the basis of a good history, and van Bogaert helped him understand the underlying pathology.

Poser had a range of neurological interests. For example, he recognized the neurological learning disabilities in children. In the early 1970s, he invited Dr. Blanche Podhajski to join the neurology department at the University of Vermont College of Medicine where she subsequently founded the Stern Center for Language and Learning in 1983. The Charles M. Poser Lecture named in his honor continues to be held at the center annually.

But Poser's main field of clinical and research curiosity were the myelin diseases, in particular multiple sclerosis (MS). He classified metabolic myelin diseases as "dysmyelinations" and "myelinoclastic diseases" and coined the term "vasculomyelonopathy" for the immune-mediated myelin diseases of the nervous system. He was best known for the widely used Poser criteria for MS, which he and his colleagues proposed (Ann. Neurol. 1983;13:227-31).

Poser emphasized the importance of neuroepidemiological methods in the study of MS, correctly noting the need to separate MS from disseminated encephalomyelitis (Arch. Neurol. 2008;65:674), particularly in recurrent cases following vaccinations or viral infections (Arch. Neurol. 1978;35:166-70).

COURTESY DR. GUSTAVO C. ROMÁN

Dr. Charles M. Poser emphasized the importance of neuroepidemiological methods in the study of MS.

Given Poser's keen interest in history, there is a historical theme in some of his publications. In one article, he proposed the role of Viking susceptibility genes to explain geographic isolates with high MS prevalence in the Mediterranean (Ann. Neurol. 1994;36:S231-43).

Publications a Confluence of Disease and History

Two of his books, one on tropical diseases and the other on malaria, detail the histories of those diseases (*The History of Tropical Neurology: Nutritional Disorders*, by George W. Bruyn and Charles M. Poser. Canton Mass.: Science History Publications, 2003; and *An Illustrated History of Malaria*, by Charles M. Poser and George W. Bruyn. London New York: The Parthenon Publishing Group, 1999).

He also published a textbook on tropical diseases (*Tropical Neurology*, Raad Shakir, Charles M. Poser, and Peter K. Newman [Editors]. London: WB Saunders Co., 1995) and he founded *The Journal of Tropical and Geographical Neurology*, the official journal of the WFN's Research Group on Tropical Neurology, in 1991. In 1962, Poser published the first multinational drug compendium of neurological drugs (*International Dictionary of Drugs Used in Neurology and Psychiatry*, Charles M. Poser. Springfield, Ill.: C.C. Thomas, 1962).

He earned numerous awards and honors during his lifetime, including the Order of Leopold II (of Belgium), and was a Gold Member of the American Academy of Neurology in recognition of his more than 50 years of membership.

Charlie Poser, mon cher maître, was a gifted diagnostician who approached the neurological diagnosis using the gestalt obtained from a careful clinical history, following the detective technique used by of one of his favorite characters, Inspector Maigret of the French Police Judiciaire. He was a compassionate clinician, an original researcher, a truly international neurologist, a caring mentor, and a dear friend. He is survived by his wife Joan Crawford Poser – the lifelong editor and corrector of style of all his manuscripts – and by two sons, William and Nicholas. Professor Poser's teachings will be remembered by his students around the world. ■

DR. ROMÁN *is a WFN Elected Trustee and the Jack S. Blanton Distinguished Endowed Chair Director Alzheimer & Dementia Center, Methodist Neurological Institute, Houston, USA.*

Continued from previous page

movement abnormalities and late-onset pyramidal features.

Despite severe motor impairment, cognitive skills did not seem to be so severely affected, reported Dr. Kurian of the department of medical and molecular genetics at the University of Birmingham, England. Although none of the children were able to speak, most had good receptive language and situational understanding. Many had developed methods of nonverbal communication including head- and eye-pointing techniques or use of communication aids using eye gaze.

Because of the rarity of the syndrome and the presence of some of its clinical features in several infantile neurological syndromes, a definitive diagnosis cannot be made on clinical grounds alone, the authors noted. Essential neurological investigations include brain MRI, metabolic investigations and cerebral spinal fluid (CSF) neurotransmitter analysis.

CSF neurotransmitter analysis showed that all of the children had an elevated ratio of homovanillic acid to 5-hydroxyindoleacetic acid, ranging from 5.0 to 13.2 (normal range, 1.3-4.0). A raised ratio in CSF is a key finding for the diagnosis of dopamine transporter deficiency syndrome because it does not occur in any other disorder of dopamine metabolism, according to the authors. The lack of routine CSF neurotransmitter analysis in many centers, however, suggests the syndrome is likely to be undiagnosed.

Increase in Extraneuronal Dopamine

The authors postulate that defective reuptake of dopamine into the presynaptic neuron causes accumulation of extraneuronal dopamine, thus resulting in dopamine degradation and raised concentrations of homovanillic acid in CSF analysis. Interestingly, the serotonin biosynthetic pathway and concentration of 5-hydroxyindoleacetic acid in CSF are normal in children with the dopamine transporter deficiency syndrome.

On brain MRI, none of the children had gross structural defects or signal abnormalities in the basal ganglia. Eight had subtle neuroradiological abnormalities, such as prominence of the external frontotemporal subarachnoid spaces and mild delay in myelination.

Patients 1-3 had homozygous *SLC6A3* mutations, whereas patients 4-11 had homozygous and compound heterozygous mutations. Loss of function in all missense variants was recorded from in vitro functional studies. In addition, in vivo DaTSCAN (Ioflupane I 123 injection) imaging in patient 3, at 10 years of age, showed complete loss of DAT activity in the basal nuclei, providing further evidence that loss of DAT function has a causative role in the pathogenesis of dopamine transporter deficiency syndrome.

Therapeutic strategies have had little or no effect on clinical symptoms. Two patients, however, showed a clinical response to cocareldopa, but they had mutations that were shown to be associated with some residual DAT activity on functional investigation.

Severity, Response to Therapy

The researchers suggested that characterization of further cases of dopamine transporter deficiency syndrome will allow improved interpretation of whether genotype can predict disease severity or response to drug treatment.

Birmingham Children's Hospital Research Foundation, Birth Defects Foundation Newlife, Action Medical Research, U.S. National Institutes of Health, WellChild, and the Wellcome Trust funded the study. Dr. Keith Hyland is co-owner of Medical Neurogenetics, a company that provides genetic and metabolic testing for dopamine transporter deficiency. All other authors report no conflicts of interest. ■

PERSPECTIVE — ZAMBIA

Clinical Officers Attend Workshops on Epilepsy

BY ANDRE C.B. PETERS, M.D., PH.D.

I spent a month in Zambia last year working with clinical officers (COs) and medical residents in the department of pediatrics and child health at the University Teaching Hospital (UTH) in Lusaka to expand their neurological knowledge and train them in examination, diagnosis, and treatment of neurological disorders.

There were two workshops on epilepsy for the COs (see sidebar), one in Lusaka and another in Ndola, a mining city in the country's Copperbelt region. The workshop content was drawn from the Epilepsy/Seizure module in the World Health Organization Mental Health Gap Action Programme's (mhGAP) *Intervention Guide for Mental, Neurological, and Substance Use Disorders in Non-Specialized Health Settings* (2010). The mhGAP program is a technical tool developed for health care providers who work in nonspecialized health care settings. The facilitators enjoyed the interactive teaching approach.

COURTESY DR. ANDRE PETERS

The participants in the epilepsy workshops took tests both before and after the courses, and the results showed that they had made substantial progress.

The participants were highly motivated and eager to learn. Conversely, my cofacilitators – Dr. Evans Mpabalwani, a pediatrician at UTH; Edward Mbewe, a CO at Chainama Hills College Hospital, Lusaka; and Prof. Elwyn Chomba of the head of the University of Zambia School of Medicine – and I learned a lot from the trainees, and our individual experiences with patients were invaluable. We administered pre- and posttests and the results showed that the participants made substantial progress. In their feedback, the participants said they appreciated the demonstration videos and use of role play in learning how to interact with patients and the discussions with the facilitators.

The most common problems we faced were the limited choice of antiepileptic drugs – often only phenobarbitone and carbamazepine were available – and the short supply of drugs to the health centers. That presented substantial challenges for COs, who often might know how a patient with epilepsy should be treated or managed, but can't do so adequately because of the limited choice or scarcity of therapies.

I also participated in two clinics for patients with epilepsy at Chainama Hills College, one a review clinic run by Dr. Mbewe; the other, a clinic with William Phin. To acquaint myself with the full spectrum of the health challenges COs face and their role in delivering primary health care to the communities, I participated in a general clinic in Chawama, a very poor area of Lusaka, with Godfrey Chisenga, a CO I met during one of our workshops. I was very impressed the way in which he worked – quietly, authoritatively, and skillfully, tending to babies and seniors, children with tuberculosis, and performing minor surgery. In just over 3 hours, he attended to 31 patients. The scenario at the Chawama clinic was a good example of skilled clinical officers having to deliver care with limited resources.

In the UTH's department of pediatrics, case-based learning is endorsed as the best teaching method. I participated in four weekly neuroclinics at the hospital. Patients with neurological problems are crowded into the clinics, where Dr. Mpabalwani and a resident hold simultaneous consultations in the same room. A physiotherapist and sometimes one or more medical students also assist at the clinic. The pathology is varied, ranging from severe cerebral palsy cases to headache. There are many children with epilepsy (from infantile spasms to idiopathic epilepsy with tonic-clonic seizures), developmental and movement disorders, and subacute new cases, such as a boy with myoclonic status epilepticus, who was admitted to the hospital.

I also participated in a general pediatric clinic, again with Dr. Mpabalwani, where the focus was on young HIV-positive children who were receiving antiretroviral treatment. I was impressed by the systematic approach of this group, with forms being prepared for every visit along with detailed, preprinted medication schedules.

During clinical demonstrations, in particular in cases with a primary neurological problem – such as a Guillain-Barré patient, a girl with presumably acute disseminated encephalomyelitis, myelomeningocele – I tried to teach the neurological way of thinking on these problems and demonstrated the neurological physical examination in admitted children to the residents. Although I had no scheduled, daily program in the department of pediatrics, after 4 weeks, I had a rough idea about the most frequent neurological problems in daily practice. The panorama of a full year would undoubtedly cover the content of a child neurology textbook.

The residents, in general, are eager to learn and do online research to help them tackle the diagnostic problems they encounter. I met some remarkably intelligent, highly motivated residents with a deep passion for their profession. But when it comes to neurological problems, they are not sufficiently familiar with the basics of the neurological, physical examination, nor with the principles of a diagnostic neurological approach. There are no textbooks available on pediatric neurology. CT scans are available, but the residents are not familiar with CT interpretations; a new MRI scan has recently been installed, but again, there are shortcomings with the interpretations. Likewise, an EEG machine in Chainama is unreliable and the interpretations are of limited value.

It was clear that the medical school curriculum should include a well-defined, focused pediatric neurology course. Given the high percentage of neurological problems in general pediatrics (at least 25%), the input of a pediatric neurologist – at least part-time – is highly desirable. Prof. Chomba would like to implement this, but under the current financial constraints the position cannot be filled.

As long as these financial limitations continue, the World Federation of Neurology has, in my opinion, an important mission in Zambia: To ensure that visiting child neurologists can provide care on a regular basis at UTH. For my part, I hope to have contributed in a small way, in particular for the residents. ■

DR. PETERS *is Professor Emeritus of (Child) Neurology, University of Utrecht, the Netherlands.*

Cornerstones of Delivery

Clinical officers are health care providers who are trained in clinical medicine, surgery, and community health to provide health care services to populations in some Sub-Saharan African countries. They train for 3-4 years in a curriculum based on a medical model, graduating with a diploma or bachelor's degree. They can work with a medical doctor or independently. In the United States, Europe, and Australia, they are known as physician assistants. (For more information, go to www.uk.amref.org.)

Top Award for British Epileptologist

Dr. Simon D. Shorvon, a world-renowned epileptologist, has been named recipient of the William G. Lennox Award for 2010.

The award was conferred by the American Epilepsy Society and the Lennox and Lombroso Trust for Epilepsy Research and Training in recognition of Dr. Shorvon's extensive work in elevating the level of epilepsy care and bringing the disorder into the mainstream of medical research in England, Europe, and elsewhere around the world.

Dr. Shorvon, the clinical subdean and professor of clinical neurology at the Institute of Neurology at the University College of London (UCL), is a leading authority on status epilepticus. He was among the first to conduct studies documenting the treatment gap for people with epilepsy in the developing world. Among his many contributions to the field are his creation of the world's first MRI unit dedicated solely to epilepsy research; extensive research on antiepileptic drugs; and, studies of prognosis, mortality, and life expectancy in epilepsy.

Dr. Shorvon is editor of the journal *Epilepsia*, is a prolific author of original research articles, and author or editor of numerous monographs and books, several of which are considered definitive texts. He was the founding chairman of the International League Against Epilepsy's regional commission in Europe and instrumental in organizing the European community of national epilepsy chapters.

The award was established in 1966 and is given annually to a senior AES member who has a record of lifetime contributions and accomplishments related to epilepsy. ■

This article is based on information from the AES.

COURTESY AMERICAN EPILEPSY SOCIETY

Dr. Simon D. Shorvon has been honored for his work in epilepsy.

NEUROLOGICAL ESSAY

The Brain as a Fisherman's Net

People who work with the brain know that it is very difficult to imagine how it works. It is even more difficult to explain such concepts to the general public.

One way is to picture the brain as a giant, irregularly shaped fishing net made of intersecting ropes of various thicknesses. Lined up along the many sides of this net are thousands of "people" who stretch, pull, or slacken the ropes. Different sections of the net tighten or relax in response to these orchestrated manipulations. The ropes might also oscillate as waves pass across the net – sometimes resonating by "jumping" across the gaps between the ropes, and sometimes vibrating along the ropes. This network represents the substrate, the neural network.

BY DR. IVAN REKTOR

Dr. Rektor is head of the First Department of Neurology, vice-rector of Masaryk University, Brno, Czech Republic, and president of the European Society for Clinical Neuropharmacology.

Why is this activity not chaotic? How can we imagine the higher-order neural activity, the upper-level brain functions?

Imagine that the people holding the ropes do not pull on them randomly. Instead, there is an enormous orchestra behind them, perhaps playing a Bruckner symphony. Each person holding onto the ropes is matched to an instrument in the orchestra, so that when a particular instrument is played, the corresponding person will relax or tighten the rope. The "first violin" triggers one set of ropes to be pulled; the "flute" prompts another set to be slackened, and these motions are intermingled with other instrument-movement sequences across the net.

In this analogy, the instruments represent brain functions so that the first violin, for example, might be speech; the violoncello, hearing. The ropes that are pulled in various directions in response to the first violin have more intersections in some parts of the net – let's say this is Broca's area – than in others. In some parts, there are more intersections with the violoncello ropes. This is Wernicke's area. Meanwhile, the "trumpets" – sight – are playing, too, contributing to the vibration of the whole net. The delight of seeing the orchestra play harmonizes with the joy of listening to the music.

But what is the source of the enjoyment of the music? The emotions might be linked with the oscillations of the ropes, the cumulative result of both the physical movement of the ropes and their diameter, length, and material characteristics. The oscillations might be harmonic or disharmonic – as are emotions. Again, although they might be more concentrated in certain locations, their effect is felt over the entire system, as the mood does. And when the string and wind instruments go silent, nothing happens – the lack of activity means relaxation, but not everywhere on the net. The tympani might resound, slowly stretching the central and some lateral parts of the net. As the drumming synchronizes and gets slower and slower, reverberating across the net, we fall asleep.

The orchestra plays from a score. I can imagine this: tremendous complexity presided over by a firm, though flexible and variable order. However, who conducts the music? I myself would like to know. And someone must have written the symphony …

I recently read an article about nest digging in ants in which the investigators noted that when ants are grouped together in a laboratory setting, they will build a nest, but that there is often great variability among the groups in the complexity and quality of the structures (Proc. Natl. Acad. Sci. USA 2009;106:18616-20). However, if the number of ants in a particular group reaches a critical value, then the structure they build is more complex. I think that the higher-order neural activity might resemble such nest-building activities in ants: When the critical threshold is achieved, a higher-order system is formed by simple elements (Proc. Natl. Acad. Sci. USA 2009;106:18616-20).

Sometimes, the ropes might be tugged simultaneously – that would be a generalized epileptic seizure. Some nets are imperfect, because the machine that created them was badly programmed. That would be analogous to a genetic disorder. The ropes might get tangled; this is a functional disorder. And other times, the ropes might snap, creating holes in the net. Pulling at ropes in other parts of the net might partially compensate for the lost functioning around the holes. Or perhaps the ropes will get old, worn, and atrophic. A group of fishermen sit around the net fixing it. These fishermen are us, the doctors.

My picture of the brain functioning is certainly more intuitive than scientific. If you think that it does not make sense, I am not going to argue with you. Instead, tell me about your image of how the brain works. ■

Editor's comment: *Prof. Rektor has made a nice analogy for how the brain works, and this might well be useful when explaining the brain to lay people. Indeed, this is very much like a developing sophisticated method for analyzing brain function called graph theory in which brain connectivity is shown to have characteristics of a small world network. Prof. Christian Gerloff and I have written about this in an editorial for Brain (2010;133:952-5). Other analogies are welcome. Analogies can be a useful pedagogical technique. One that I have found valuable is comparing action potential production to the workings of a flush toilet. Generally, when moving the handle on the toilet, it will flush or not (all or none). After flushing, there is a time when it won't flush (absolute refractory period), then it will be more difficult to flush (relative refractory period).*

Cortical Slow Activity Linked to Impaired Consciousness

BY SHARON WORCESTER
Elsevier Global Medical News

FROM BRAIN

Impaired consciousness in temporal lobe seizures is associated with cortical dysfunction in the form of bilateral frontoparietal slow waves, according to an analysis of intracranial electroencephalography recordings from a study of patients with mesial temporal lobe epilepsy.

The findings, which provide the first direct evidence of this relationship, suggest that ictal neocortical slow activity and loss of consciousness in temporal lobe seizures might be the result of seizure spread to bilateral temporal lobes, possibly through the disruption of normal subcortical activating systems, according to Dr. Dario J. Englot, a neurological surgery resident at the University of California, San Francisco, and his colleagues.

To explore the "puzzling feature" of behavioral unresponsiveness or impaired consciousness that commonly occurs during temporal lobe seizures – and which can't be easily explained by mesial temporal involvement – the investigators performed intracranial EEGs during 38 complex-partial seizures and 25 simple-partial seizures in 26 patients (12 men, 14 women) with surgically confirmed mesial temporal lobe epilepsy. Behavioral responsiveness was assessed by blinded review of video taken during the seizures. The patients' mean age was 35 years.

The main goal was to investigate changes in cortical electrical activity during complex-partial seizures and simple-partial seizures and to determine how the changes relate to seizure activity in the temporal lobes.

"We found that neocortical slow activity is observed in bilateral frontoparietal cortices during complex-partial seizures, associated with impaired responsiveness, but not during simple-partial seizures, during which responsiveness is intact," the investigators wrote (Brain 2010;133:3764-77).

The neocortical slow waves closely resembled the cortical slowing seen during other unconscious states such as sleep, coma, and deep anesthesia, and have been shown in previous studies to be associated with frontoparietal decreases in cerebral blood flow during seizures.

Continued on following page

COMMENTARY

This study is an excellent attempt to answer one of the major puzzles in epilepsy. It provides one of the only direct demonstrations of changes in brain activity and metabolism, and provides support for a mechanistic theory of how behavioral unresponsiveness occurs.

However, although the authors suggest similarity of mechanisms among temporal lobe seizures, encephalopathy, and coma, I believe that with more select and transient frontoparietal slowing, one could produce the behavioral inattentiveness without evidence of a global motor decrease that occurs in coma or encephalopathy. Patients with complex-partial seizures often remain standing, move their limbs and look about; they are not inert with eyes closed.

This paper mixes the term unconsciousness with behavioral unresponsiveness. I remain unconvinced that states of lethargy, coma, and deep sleep are all that analogous to temporal lobe seizure–induced frontoparietal suppression. Rather, one can postulate, and the data suggest, the restricted "anterior" neocortical involvement in network inhibition hypothesis. More speculation on how to solve this with dynamic functional imaging studies might be forthcoming, and currently studies using implanted and grid electrodes for seizure surgery offer opportunities for selected measurements.

DR. PETER W. KAPLAN *is a professor of neurology at Johns Hopkins University School of Medicine in Baltimore, Md., USA.*

MOVIE REVIEW

Parkinson's, Health Care Are Subtexts to This Rom-Com

"Love and Other Drugs"
Directed by Edward Zwick; featuring Anne Hathaway and Jake Gyllenhaal

The film "Love and Other Drugs" is much more than just another romantic comedy. Based on Jamie Reidy's 2005 memoir *Hard Sell: The Evolution of a Viagra Salesman*, the film presents a satirical view of the culture of aggressive marketing by pharmaceutical companies through their drug representatives. That alone is a reason to see the movie, but there is more, much more.

Anne Hathaway plays Maggie Murdoch, a 26-year-old artist with young-onset Parkinson's disease (PD). She's hardly a typical PD patient, but Hollywood must do what it must do to make the film exciting and sexy and, thus, promotable. Her boyfriend is Jamie Randall (Jake Gyllenhaal), whose physician father considers him to be a loser in comparison to his newly wealthy, but nerdy younger brother. Jake is a womanizer and an aggressive, unscrupulous, rep pushing Viagra and pimping for doctors. With irresistible charm, he not only seduces female clinic staffers who facilitate his easy access to the doctors, but also disarms the otherwise guarded Maggie.

THE FILM DRAWS ATTENTION TO THE IMPORTANCE OF HONESTY IN OUR RELATIONSHIPS WITH PATIENTS, COLLEAGUES, AND SPONSORS OF RESEARCH.

Maggie and Jamie's relationship, based initially on a sexual, no-strings-attached arrangement, gradually evolves into a deeper and genuine attraction. As Jamie goes about trying to find the "cure" and help for Maggie, he encounters numerous obstacles that highlight the frustrations many patients and caregivers face in dealing with the health care system. In one scene, Jamie, abandons his company's exhibit at a Chicago medical convention and joins Maggie at a local support group for PD patients, who share their inspiring and emotional stories. During a break, the husband of one of the patients tells Jamie he should leave Maggie to avoid a life of full-time caregiving, warning Jamie he will eventually even have to take care of her personal hygiene. But Jamie gradually transforms from an unsympathetic, self-centered jerk who initially views Maggie as a sex object to a caring companion who appreciates her as an intelligent, creative woman. He is determined not to allow her PD to interfere with his lifelong commitment to her.

BY JOSEPH JANKOVIC, M.D.

Dr. Jankovic is the Distinguished Chair in Movement Disorders and director of the Parkinson's Disease Center and Movement Disorders Clinic, in the department of neurology, Baylor College of Medicine, Houston, Texas, USA.

Overall, the movie is done well, but it does have its flaws. Its depiction of PD is disappointing as it is very superficial, focusing on tremor as the only manifestation of the disease and failing to explore other motor and nonmotor aspects of the disease and its overall impact on quality of life. For example, Maggie's left hand tremor – the only sign of her PD – is anything but typical. Instead of demonstrating the characteristic supinating-pronating rest tremor, Maggie's (or is it Anne Hathaway's?) tremor is predominantly an action tremor, present particularly during fine motor tasks involved in cutting, cooking, and her other activities as an artist.

In addition, the tremor is intermittent, irregular in frequency, changes amplitude and direction, is distractible, and has other features typically encountered in psychogenic tremor. I looked very closely through the credits to see if I recognize any parkinsonologists or neurologists as consultants to the movie, but noted only Michael J. Fox's name, whom I presume coached Miss Hathaway in her portrayal of the PD patient. Although Mr. Fox holds honorary doctorates awarded to him in well-deserved recognition for his numerous contributions to PD research, it would have been more helpful to have a neurologist as a consultant for the movie.

Although some might deem the implied criticism of the pharmaceutical industry and its representatives justifiable, I couldn't help but notice that the only doctor in the film, Maggie's neurologist, is depicted as sleazy and corrupt so as to imply that other physicians also indulge in unethical practices.

The film is set in the 1990s, a period marked in the United States by overindulgence by pharmaceutical companies in promoting their products by offering physicians and hospitals a range of handouts, from pens and pads, to free samples and dinners, to lavish trips and other costly gifts. And while millions of dollars were spent on these and other promotional activities, drug costs skyrocketed to such an extent that many patients could not afford them. Indeed, Maggie regularly volunteers to take groups of elderly patients in buses from the northern U.S. state of Ohio to neighboring Canada so that they can buy their medications at cheaper rates.

Other interesting characters in the film include Hank Azaria, as a neurologist who can be easily persuaded to switch from Prozac to Zoloft by an offer of free Viagra samples, and Judy Greer as a naive hospital administrator. Gabriel Macht plays a Prozac-selling rival who beats up Jamie when he finds him dumping his Prozac samples in a parking lot trashcan. (The trashed Prozac, however, is picked by a homeless man, whose depression apparently improves as a result of which he is now able to successfully apply for a job. Was this meant to be a product placement or an unintended commercial for Prozac?)

I enjoyed "Love and Other Drugs" because it is more than mushy romantic comedy. It's an entertaining yet substantial film that draws attention to the plight of patients with chronic diseases such as PD and to the challenges they face in navigating a health care environment that does not always adhere to principles of compassion and integrity. Although new guidelines about full disclosures of potential conflicts of interest in the United States should help restore the public's trust in physicians and their relationships with pharmaceutical industry, the film reminds the public to be vigilant. It draws attention to the importance of honest relationships with our patients, colleagues, and sponsors of research and education.

In my professional decisions, I have always tried to adhere to the principle of "do what is best for your patients and never recommend anything to them that you would not advise to your loved ones." This philosophy, which has served me well over more than 3 decades of neurological academic practice, is also at the core of this film. Many unanswered questions remain, however: What has the pharmaceutical industry done with the money they no longer spend on the lavish promotion of their products, and will those dollars be redirected to reducing drug costs, supporting more research into novel and innovative treatments, and funding patient and physician education free of commercial bias? ■

Continued from previous page

Also, fast seizure activity was noted in the lateral, but not mesial, temporal lobe on the side of seizure onset, and fast seizure activity was noted in the temporal lobe contralateral to seizure origination, they said.

"These findings indicate a strong relationship between seizure spread outside of its mesial temporal focus and frontoparietal slow rhythms, and suggest that long-range network interactions may participate in impaired neocortical function, slow activity, and unresponsiveness during bilateral temporal lobe seizures," the authors wrote.

Side of seizure onset might also affect responsiveness in temporal lobe epilepsy. The investigators found that in patients with typical left-sided language dominance, 88% of seizures that began in the dominant (left) hemisphere were complex-partial seizures, whereas only 53% of those beginning in the right hemisphere were complex-partial seizures.

"These findings suggest that seizures beginning in the language-dominant hemisphere may be somewhat more likely to impair behavioral responsiveness than those originating on the nondominant side," they said.

The study is the first to report direct evidence of a relationship between bilateral ictal neocortical slow activity and impaired consciousness during temporal lobe seizures – a relationship that represents an important pathophysiological difference between complex-partial and simple-partial seizures, the investigators noted.

Network Inhibition Hypothesis

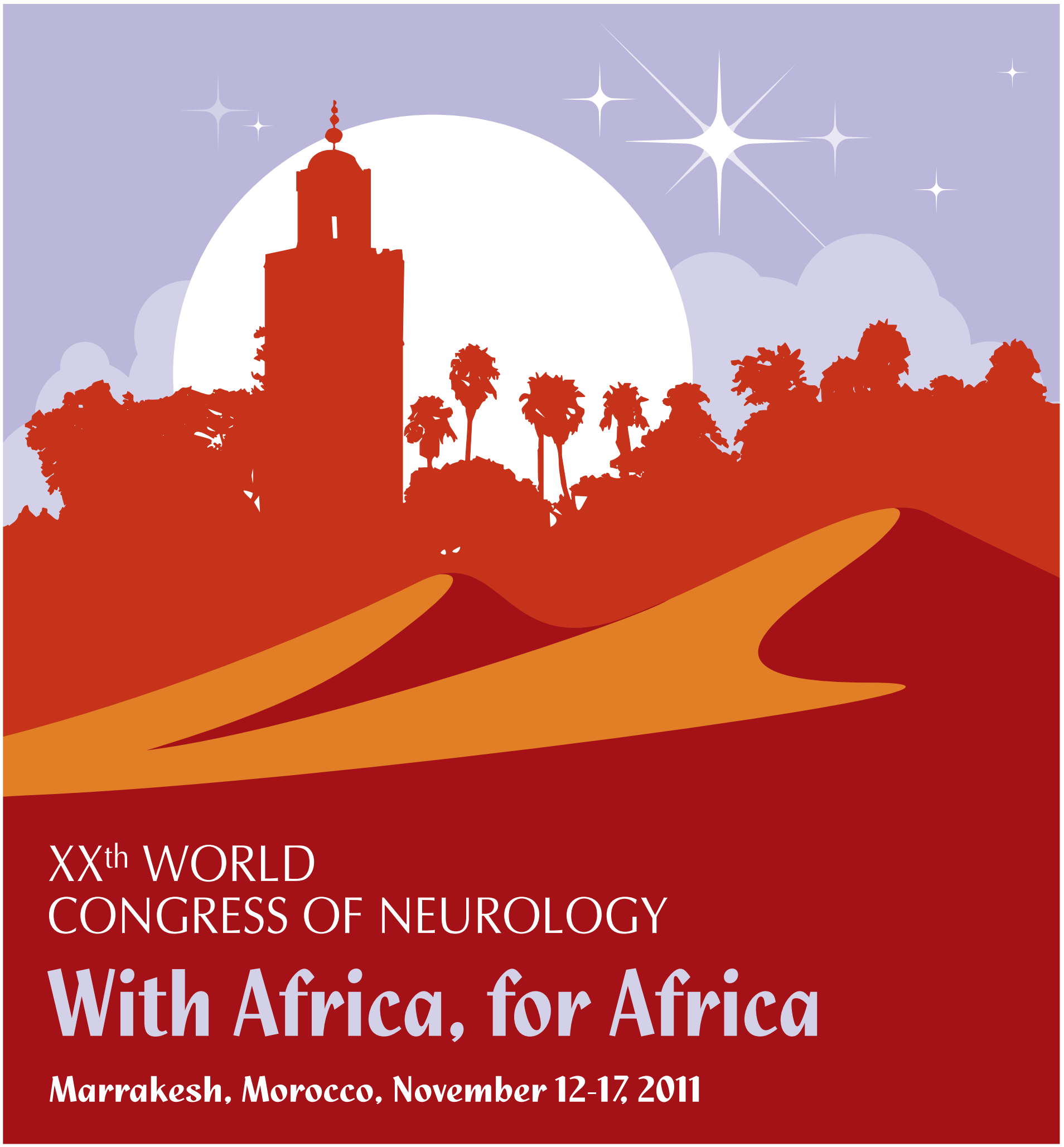
The answer to the question of why seizure propagation out of its mesial temporal focus into the lateral temporal lobe and contralateral temporal lobe might lead to depressed cortical function and impaired consciousness lies in the "network inhibition hypothesis," which states that "as seizure discharges propagate out of their mesial temporal focus, they become more likely to disrupt function in midline subcortical activating structures."

Further study is needed because improved understanding of the relationship of network pathophysiology and underlying unconsciousness in temporal lobe epilepsy could have important clinical implications for helping to prevent the vehicle accidents, drownings, poor work and school performance, and other potentially tragic consequences associated with this disease, they said.

Also, a better appreciation of the long-range network effects of temporal lobe seizures could lead to the development of important new therapeutic strategies, and thus deserves further attention, they added.

"Given that cortical dysfunction produced by recurrent limbic seizures adversely affects patients' quality of life, understanding the network contributions to impaired consciousness in temporal lobe epilepsy and devising new targeted interventions to prevent these pathophysiological effects remain vitally important goals," the authors wrote.

The National Institutes of Health, the Donaghue Foundation, and the Betsy and Jonathan Blattmachr family funded this study. ■



XXth WORLD CONGRESS OF NEUROLOGY

With Africa, for Africa

Marrakesh, Morocco, November 12-17, 2011

www.wcn-neurology.org

XXth WCN 2011 MARRAKESH مراكش
World Congress of Neurology

kenesinternational
a Kenes Group® company

Conference Organizers: Kenes International,
1-3 Rue de Chantepoulet, PO Box 1726, CH-1211
Geneva 1, Switzerland, Tel: + 41 22 908 0488;
Fax: + 41 22 906 9140; E-mail:wcn@kenes.com
Web:www.kenes.com/wcn

WFN

SOCIETE MAROCAINE DE NEUROLOGIE