

# WORLD NEUROLOGY

THE OFFICIAL NEWSLETTER OF THE WORLD FEDERATION OF NEUROLOGY

## Dakar Teaching Course Is a Success

BASED ON AN INTERVIEW  
WITH AMADOU GALLO  
DIOP, M.D., PH.D.  
*Chairman of WFN  
Africa Committee*

The World Federation of Neurology's African initiative has borne fruit: The first European Federation of Neurological Societies regional teaching course in francophone sub-Saharan Africa took place at the Université Cheikh Anta Diop in Dakar, Senegal, on June 26-28, 2008, in collaboration with the World Federation of Neurology (WFN) and the International Brain Research Organisation (IBRO).

The course was the direct result of the decision made in London in December 2006 by Dr. Johan Aarli, when he was elected president of WFN, to set up the WFN Africa Initiative, the Task and Advisory Force for Neurology in Africa (TAFNA) in 2007, and the Africa Committee of WFN in April 2008. Dr. Cheikh S. Boye, dean of the faculty of medicine, obtained free use of the university facilities, where a European and African faculty shared their knowledge with medical students and neurologists in training.

We acknowledge the dedication of EFNS President Jacques De Reuck and his Africa Project



Participants gather from the first EFNS-WFN-IBRO-UNESCO Neurology Regional Teaching Course in Dakar, Senegal. The course focused on peripheral neuropathies and neurodegenerative disorders.

Manager Dr. Jean-Michel Vallat, and the great help of Evelyne Sipido, liaison officer of the EFNS, who spent a huge amount of time organizing, e-mailing, calling, re-calling, and following every step of the planning. We also are indebted to the authorities at the Université Cheikh Anta Diop and the department of neurology for giving us their blessing and support.

It would have been difficult to hold the course if IBRO, UNESCO, the Pan African Association of Neurological Societies (PAANS), and the Pan Arab Union of Neurological Societies

(PAUNS) had not shared with us their generous and spontaneous human, financial, and material support. Dr. Raad Shakir, secretary general of the WFN, and Prof. Raj Kalaria, chair of IBRO's Africa Committee, took part in the regional teaching course.

The course in Dakar was conducted with two themes: peripheral neuropathies and neurodegenerative disorders. Faculty delivered lectures on epidemiology, symptoms, treatment, and management in the morning; cases were discussed in the afternoon. The course benefited from the expertise of Dr. Gilbert Avode

(Benin), Dr. J. L. De Reuck (Belgium), Dr. J. Dumas (France), Dr. M. Gonce (Belgium), Dr. R. Gouider (Tunisia), Dr. E. Grunitzky (Togo), Dr. R. Hughes (United Kingdom), Dr. R. Kalaria (United Kingdom-Kenya), Dr. B. Kouassi (Ivory Coast), Dr. M.M. Ndiaye (Senegal), Dr. A. Njamnshi (Cameroon), Dr. M. Rossor (United Kingdom), Dr. R. Shakir (United Kingdom), Dr. A. Thiam (Senegal), Dr. J.-M. Vallat (France) and Dr. D. Vodušek (Slovenia). Faculty came from Belgium, Benin, Cameroon, Côte d'Ivoire, France,

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#### From Ethiopia:

Addis Ababa University's neurology department looks to improve, and is well on its way.

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#### From Mongolia:

Did you know that 60% of Mongolia's neurologists are located in the nation's capital, as is more than half its total population?

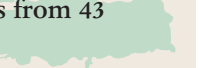
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#### From Turkey:

The 13th European Congress of Clinical Neurophysiology, in Istanbul, featured 820 participants from 43 countries.

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## Hormone Therapy May Benefit Cognition, Memory

BY MICHELE G.  
SULLIVAN  
*Mid-Atlantic Bureau*

CHICAGO — Hormone therapy might preserve cognition and memory in postmenopausal women and attenuate some cognitive deficits in Alzheimer's disease, new research suggests.

Controversy exists over the possible cognitive benefits of hormone therapy in older women, Mary Tierney, Ph.D., said at the International Conference on Alzheimer's Disease. "While pre-clinical and observational studies have shown a positive effect of estradiol on the brain and cognitive function, randomized con-

trolled trials using conjugated equine estrogens have shown no treatment effects in women at risk for Alzheimer's disease, or in women who have the illness." And the oft-cited Women's Health Initiative Memory Study suggested that hormone therapy might even hurt, not help, said Dr. Tierney of the Sunnybrook Health Sciences Centre, Toronto.

In a new 2-year trial, Dr. Tierney and colleagues randomized 142 women aged 61-87 to either placebo or to 1 mg estradiol daily plus 0.35 mg progesterin 3 days per week. None of the women had dementia, but all had normal or below normal baseline memory scores. The subjects' mean age

was 74; mean age at menopause was 49. Multivariate analysis controlled for age, years of education, apo E4 status, and prior hormone therapy use. There was no significant difference between groups on the primary end point of delayed recall, Dr. Tierney said. But when she split the group according to baseline California Verbal Learning Test (CVLT) scores, significant differences did emerge. Compared with women who scored below the 50th percentile on baseline, those on therapy who scored above the 50th percentile showed significantly less decline in delayed verbal recall than did those in the placebo group. Similar, but nonsignificant, differences

occurred on immediate recall, interference recall, cued recall, and recognition memory.

"The critical period for estrogen exposure to benefit cognition may not be limited to the menopause transition, since these women were more than 20 years postmenopausal," but might also be

related to the state of brain function when therapy is initiated, said Dr. Tierney.

In an interview with WORLD NEUROLOGY, Victoria Luine, Ph.D., said, "Recent studies on cognition in aging animals are

See **Hormone Therapy** • page 8

## Headquarters Has Moved

**W**FN Headquarters Office has moved to more modern premises after 10 years in the historic Medical Society of London building on Chandos Street in London.

The new home is in Richmond-upon-Thames, easily accessible to central London and from Heathrow airport. In addition to better office facilities and electronic communication, the new offices also include a meeting room.

The new mailing address is Hill House, Heron Square, Richmond-upon-Thames, TW9 1EP, UK.



The telephone numbers are +44 (0)208 439 9556/9557; the fax is +44 (0)208 439 9499.

The WFN's new e-mail address is [info@wfneurology.org](mailto:info@wfneurology.org).

## Committee Has Big Plans for 2009

BY ROGER N. ROSENBERG, M.D.

**A**t the Annual Meeting of the American Academy of Neurology, the WFN's Research Committee met to review and discuss the 2009 World Congress of Neurology (WCN).

The research committee has been involved in deliberations for the past several world congresses and has worked closely with local organizing committees and WFN trustees. The WCN 2009 Scientific Program, "Innovation in Neurology," was presented in detail by program cochair Dr. Naraporn Prayoonwiwat, representing the Thai Neurological Society and the WCN local organizing committee. A program was reviewed that included stroke, multiple sclerosis, epilepsy, movement disorders/dementia, and headache/pain.

Information about the parallel educa-

tion program lectures and sessions was given by Dr. Siwaporn Chankrachang, chair of the WCN Education Committee. Dr. Prayoonwiwat and Dr. Chankrachang were praised for their skill in developing the



DR. ROGER N. ROSENBERG

WCN 2009 Scientific and Educational programs.

Finally, Dr. Werner Hacke, a WFN trustee, outlined a proposal in which more groups from the research committee and individual research committee members will be included in an organizational plan still being developed for the governance of future Congresses.

Meanwhile, the committee urges WFN members to become active in the research groups so that future World Congresses will have renewed interest from the next generation of neurologists.

DR. ROSENBERG is the Research Committee Chair and a WFN trustee.

## World Federation of Neurology Site Now Updated



The updated World Federation of Neurology Web site is now online. It features an inviting, easy-to-use design. Check it out at [www.wfneurology.org](http://www.wfneurology.org).

## Nomination Deadline Extended

**N**ominations are invited from national neurologic societies and individuals for the following World Federation of Neurology posts:

- ▶ **First Vice President**  
(to take office Jan. 1, 2010).
- ▶ **Elected Trustee**  
(to take office October 2009).

Elections will take place at the Annual General Meeting (AGM) of the Council of Delegates during the Bangkok World Congress of Neurology, in Thailand, currently scheduled for Oct. 24-30, 2009.

The proposed candidates for first vice president will be required to formulate a full statement of their goals and objectives for the organization, which will

be published.

The previous deadline for receipt of nominations is being extended.

Names of those candidates who are willing to serve must be received at the WFN London headquarters by Friday, Nov. 14, 2008, at the latest.

The proposed candidates also should be sure to receive the official support of their respective national societies.

The names of those who are short-listed will be published in the March 2009 issue of *WORLD NEUROLOGY*.

They will also be posted on the WFN Web site at least 6 months before the date of the election.

Any additional nominations must be submitted jointly by five or more delegates at least 30 days before the Annual General Meeting.



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## THE PRESIDENT'S COLUMN

## Dakar 2008—Collaboration for the Future

BY JOHAN A. AARLI, M.D.  
President, WFN

As seen on the cover of this issue, the first international teaching course in neurology in Africa took place in Dakar, Senegal, June 26-28, 2008. Both the course and the subsequent neuroscience seminar given at the Université Cheikh Anta Diop were successes.

There are many excellent training courses in neurology every year. Why did the Dakar course receive such attention? First of all, the program was excellent. Discussion of the selected topics—peripheral neuropathies and dementia—was led by prominent speakers from Belgium, Benin, Cameroon, Cote d'Ivoire, France, Italy, Senegal, Slovenia, Togo, Tunisia, and the United Kingdom. The course addressed many of the practical difficulties of practicing in rural areas, of particular importance to the audience of nearly 150 trainees and specialists from countries throughout Africa.

There are two other important reasons for this success. One is that the meeting so clearly reflected the basic idea of the Africa initiative: With Africa—For Africa. The other is that it was a joint venture among several international organizations that worked hand in hand to make this course just the first of a series to be held on African soil.

This African initiative had many roots. The Université Cheikh Anta Diop, in Dakar, was instrumental in preparing the ground for the meeting, which was opened by Prof. Cheikh S. Boye, dean of the faculty of medicine.

It had been decided at the 2007 meeting of the Pan-African Society of Neuroscientists in Kinshasa to organize an international teaching course in clinical neurology in sub-Saharan Africa in 2008. The Africa Committee of the World Federation of Neurology, chaired by Amadou Gallo Diop, worked hard to realize the meeting. In a region where neurology is underdeveloped, the Pan-African Association of Neurological Sciences (PAANS), the umbrella organization that brings together African neurosurgeons and neurologists, supported the initiative. That organization has increasingly stronger influence on health authorities.

The International Brain Research Organisation (IBRO), in partnership with UNESCO's International Basic Sciences Programme, has been a powerful force to develop and sustain brain research across the African continent. IBRO and the International Basic Sciences Programme (IBSP) of UNESCO have formed a partnership to create an initiative called Building Brain Sciences in Africa. Over the last 2 years, it has developed close links

with the WFN and the European Federation of Neurological Societies (EFNS) to promote clinical neurosciences in Africa. This new collaboration strengthens the long-standing association of UNESCO and IBRO as the core of a broad-based partnership with other international and African organizations such as the EFNS and the WFN.

The EFNS had a central role in the conception and content of the teaching course. The organization has long encouraged strong collaboration in Africa, initially with North African (Francophone) countries and then with the many Anglophone African countries. It remains a forceful partner with the WFN in the Africa initiative. The Pan-Arab Union of Neurological Societies (PAUNS) also has a strong basis in the North African countries and always has been available to support African clinical neurology, teaching, and research.

The World Neurology Foundation (WNF), the charitable arm of WFN in North America, also was involved. They provided tool kits that contained neurologic equipment necessary for clinical examination that were distributed among meeting participants.

The Dakar course represented a primarily African initiative with many international organizations collaborating in a smooth and effective manner. It has paved the way for the Teaching Course in Neurology in Africa 2009. ■



DR. JOHAN A. AARLI

## Another Course Planned for 2009

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Italy, Slovenia, Togo, Tunisia (representing Maghreb and Arab countries of PAUNS), the United Kingdom, and Senegal.

Over 100 neurology trainees and specialists from 18 French-speaking African countries attended the course, held at the medical faculty site of the university. The trainees' enthusiastic participation, contribution, and strong willingness to learn were impressive. A highly interactive session was organized for the last day, at which were discussed several practical issues and difficulties concerning neurology practice in the bush. Dr. Gallo Diop introduced the concept of the "five-star neurologist," and suggested to the young neurologists to try to be caregiver, researcher, trainer, manager, and communicator. Representatives of WFN, PAANS, and PAUNS also reassured the attendees that their organizations are available to help African neurology practice, teaching, and research. E. Sipido (Italy), I. Mueller (Austria) and M. Soda (Senegal) were invaluable in providing logistical help.

At the opening ceremony Dr. Boye, Dr. Shakir (secretary general/treasurer of WFN), Dr. De Reuck (president of EFNS Management Committee), and Dr. Pierre Ndiaye (chair of the Association de Neurologie au Senegal) agreed on that this first regional teaching course had clear international implications.

The representative of the World Health Organization (WHO) in Senegal, Dr. Antonio Felipe, congratulated the organizers on their work and expressed WHO's wish to be involved in future initiatives. Dr. Marina Bentivoglio, IBRO secretary-general, also provided a brief but important overview of the work of the IBRO, and emphasized the statement made by Dr. Kalaria, representative of IBRO, at the opening ceremony.

The course followed the EFNS guidelines for regional teaching. It consisted of 2 half-days of teaching followed by 2 half-days of interactive clinical case discussions. A third half-day was added, which allowed for open discussion with students and faculty. Information about the Dakar course is at [www.efns.org/files/RTC\\_Dakar\\_final.pdf](http://www.efns.org/files/RTC_Dakar_final.pdf).

The World Neurology Foundation provided 52 tool kits paid for by donations from individual practicing neurologists; state and provincial societies in the United States, Canada, and Europe (via EFNS); and private individuals, who, although not involved in medicine, nonetheless understood the need for these neurology tools. Dr. Pierre Ndiaye, former chair of the department of neurology at Université Cheikh Anta Diop, recalled during the closing ceremony that it was the contents of such kits—the reflex hammer, the tuning fork, and other tools—with which the most famous neurologists, such as Charcot, described the syndromes and signs that are the basis of clinical neurology. The neurologic tool kits were distributed as equitably as possible among the countries that were represented in Dakar. Dr. Beugre Kouassi, chair of the education commission of the Africa Committee of WFN, conducted the distribution with the assistance of Evelyn Sipido, Dr. Avode, and Dr. Mansour Ndiaye, head of the department of neurology at the university. Information on the World Neurology Foundation can be found at <http://worldneurology.org/aboutUs.asp>.

The participants look forward to future collaboration with the WFN, EFNS, IBRO, UNESCO, and WHO in Africa. There are plans already for the second EFNS regional teaching course, to be held in anglophone sub-Saharan Africa in 2009. ■

## History of the Neurosciences: Research Group Update

BY GEORGE K. YORK III, M.D.

The WFN Research Group on the History of the Neurosciences aims to support original research in the history of the basic and clinical neurosciences and to foster international collaboration in original studies on the history of the neurosciences in non-Western cultures.

The group's published symposia are widely respected throughout the world.

The research group completed its work on the Sydney Symposium on the History of Cerebral Localization, which took place at the 2005 World Congress of Neurology in Sydney. It will be published in the Journal of the

History of the Neurosciences sometime this year. It is likely to become an authoritative source on the history of cerebral localization.

In Sydney, the contributors to the work, myself included, presented original research on selected topics in the history of localization. The symposium includes the following chapters:

- ▶ The Sydney Symposium on the History of Cerebral Localization: An Introduction, by G.K. York and D.A. Steinberg.
- ▶ Cerebral Localization in Antiquity, by F. Clifford Rose.
- ▶ Cerebral Localization in the 18th Century: An Overview, by A. Karenberg.
- ▶ Cerebral Localization in the 19th Century—The Birth of a Science and its Modern Consequences, by D.A. Steinberg.
- ▶ The Role of Focal Epilepsy in the De-

velopment of Jacksonian Localization, by M.J. Eadie.

- ▶ Localization of Language Function in the 20th Century, by G.K. York.

The research group does not plan to present a symposium at the upcoming 2009 World Congress of Neurology in Bangkok; however, it has tentative plans to present a symposium on the history of

epilepsy at a subsequent world congress. Provisional topics include:

- ▶ Epilepsy in Babylonia.
- ▶ The Sacred Disease.
- ▶ Epilepsy in Galenic Medicine.
- ▶ Electricity and Chemistry: Robert Bentley Todd and John Hughlings Jackson.
- ▶ The Synthesis of Pheno-

barbital.

- ▶ Hans Berger and the Use of the Electroencephalogram in the Diagnosis of Epilepsy.
- ▶ Social Constructs in the Care of People with Epilepsy.

The group will follow tradition and publish this symposium in its journal. The research group maintains close working contacts with other organizations devoted to the history of neurology, neuroscience, and medicine, including the International Society for the History of the Neurosciences and the history section of the American Academy of Neurology. It aims for closer links with such organizations; inquiries may be directed to [gkyork@ucdavis.edu](mailto:gkyork@ucdavis.edu). ■

DR. YORK is the chair of the WFN research group on the history of the neurosciences.



DR. GEORGE K. YORK III

## REPORT FROM THE EDUCATION COMMITTEE: Ethiopia Makes Good on WFN Outreach Efforts

BY THEODORE  
MUNSAT, M.D.

Two recently completed external reviews of the neurology department and residents at Addis Ababa University in Ethiopia have already resulted in correcting significant department needs and confirming the expertise of young neurologists in that country.

In December 2007, at the request of Dr. Guta Zenebe, neurology department chairman, and members of the Association of Neurologic Sciences of Ethiopia, the neurology department—founded in 1973 by Dr. Zenebe—was visited by WFN Education



DR. THEODORE  
MUNSAT

Committee members Dr. Gretchen Birbeck, associate professor and director of the International Neurologic and Psychiatric Epidemiology program at Michigan State University, East Lansing (U.S.A.); Dr. Amadou Gallo Diop, professor and chairman of neurology at Dakar (Senegal) University; and myself. Our goal was to carry out an external program review and to make recommendations for development.

Upon arrival, we met with the Ethiopian minister of health, the dean of the medical school at Addis Ababa University, and the chairs of all the relevant departments at the school. We visited both inpatient and outpatient facilities, and discussed them with faculty and residents. Upon leav-

ing, we drew up a report of our findings that was felt to be of great value to the department of neurology at the medical school, and we were told that several of the needs outlined in it have already been corrected.

One cannot underestimate the enormous difficulty in providing adequate education for health providers in this country that is so lacking in resources, or the remarkable results that have been obtained by the neurologists who work there.

Then, in April of this year, at the request of the department of neurology at Addis Ababa University, several other affiliates of the Education Committee of the WFN (Dr. James Johnson, consultant neurologist, Auckland, New Zealand; Prof. Pierre Bill, professor emeritus of neurology, University of Kwazulu-Natal, Durban, South Africa; and Dr. Redda Tekle-Haimanot, professor of neurology, Addis Ababa University) carried out an external evaluation of the first group of neurology resident graduates in that country.

All neurology residents at Addis Ababa University have had 2-3 years of internal medicine training, which is very appropriate for neurology practice in their country. Each resident is required to carry out a research project and defend a thesis. Dr. Zenebe and his associate Dr. Mehila Zebenigus have established a laudable

training program with specific objectives for each year of training, subspecialty training where available, and effective evaluation and feedback mechanisms.

The WFN external evaluation consisted of a multiple choice and essay written examination, an Objectively Structured Clinical Examination, and a bedside evaluation of cases. In the examiner's words, "The candidates were remarkably knowledgeable and confident, considering the lack of exposure to certain facilities" such as imaging and electrophysiology.

Because experience suggests that residents receiving training in their home country are much less likely to emigrate than are those who receive their training elsewhere, these results were especially welcomed, and they reinforced the WFN Education Committee's view that resident training is best carried out in one's own country. The six graduates will join the eight neurologists currently in practice.

The results of these two external reviews reinforced our view that carefully targeted WFN education efforts, in conjunction with other resources, can produce important results with modest resource input. In one example, neurologic care in Ethiopia has been assisted for many years by a remarkable organization of expatriate Ethiopian physicians and neuroscientists led by Dr. Enawgaw Mehari, a neurologist in private practice in Morehead, Kentucky (U.S.A.) and an honorary consultant at Addis Ababa University. The nonprofit organiza-



COURTESY DR. THEODORE MUNSAT

Dr. Munsat participated in rounds on a recent trip to the department of neurology at Addis Ababa University in Ethiopia.

tion that he has established, People to People, has provided major educational and resource assistance to the neurology department at the university, including electronic communication equipment, books, organization of conferences, and so on.

The department also receives support from the Mayo Clinic, Rochester, Minnesota (U.S.A.), in an effort led by Dr. James Bower to provide a cadre of visiting professors who are actively involved with resident, medical school, and nonphysician neurologic education. Additionally, Dr. Joseph Berger, chair of the department of neurology at the University of Kentucky, Lexington (U.S.A.), has been involved with a neuro-AIDS program. Finally, the department of neurology at McGill University, Montreal, Canada, has been an active participant in educational support for Ethiopia over many years.

No doubt as a result of all this outreach, the department of neu-

rology at Addis Ababa has a plan to establish a neuroscience institute at the university to house the neurology, neurosurgery, and psychiatry departments. The Ethiopian Ministry of Health has designated Zewditu Hospital, the current home of the department, for this purpose. Ethiopia is also a new but important participant in the WFN continuing education program. With approximately 80,000,000 people in sub-Saharan east Africa, Ethiopia has more than its share of health, resource, and political problems. But despite many hurdles, neurologists in Ethiopia have the will, insight, skills, and persistence to provide better care for the citizens of their country. I am certain that, with help from their many friends, their future is bright. ■

DR. MUNSAT, *emeritus professor of neurology at Tufts University, Boston, U.S.A., is chair of the WFN's Education Committee.*

## At Stockholm Brain Institute, Collaboration Is Key

BY HANS FORSSBERG, M.D.,  
AND ÅSA HEDBERG, PH.D.

At the Stockholm Brain Institute, clinical researchers from several neurologic disciplines work together with basic neuroscientists and computational scientists to gain better understanding of cognitive brain functions in health and disease.

The Stockholm Brain Institute (SBI) is a research center for cognitive and computational neuroscience based on 10 research groups from the three universities in Stockholm: Karolinska Institute, Royal Institute of Technology, and Stockholm University. The groups represent key scientific areas from life and medical sciences, behavioral sciences, and mathematical sciences.

SBI is located on the premises of the University Hospital, which allows interaction with clinicians from disciplines such as psychiatry, neurology, and neuropediatrics. The clinicians' strong influence on the center results in clinically relevant projects.

Research is mainly focused on three cog-

nitive functions: learning/memory, emotion, and action/perception. These areas are approached from three perspectives: normal development and aging; sex differences; and pathophysiology, with a focus on neurodevelopmental disorders (autism, attention-deficit/hyperactivity disorder, cerebral palsy); psychiatric disorders (schizophrenia); and neurodegenerative disorders (Alzheimer's, Parkinson's, Huntington's disease). The goal is to explore the pathological processes underlying these disorders to develop new principles for prevention and intervention, as well as new biomarkers.

The research has a systems neurobiology approach; that is, from genes, cells, and neural networks to cognitive functions and behavior. SBI is also unique in its



COURTESY DR. HANS FORSSBERG

Dr. Forssberg is director of SBI, where clinicians and basic scientists drive neurologic research.

strong computational group. Mathematical modeling is used to achieve a coherent understanding of the multilevel systems that underlie cognitive functions, in which numerous factors vary independently. Based on empirical data, the work of the computational neuroscience group builds mathematical models of neural networks by means of single neurons with specific

properties (such as ion channels and intracellular pathways). These models can test various hypotheses and disease pathways.

SBI has developed strong alliances with partners from the biomedical and biotechnology industries, including AstraZeneca, IBM, Neurosearch, and Karolinska Innovation, with whom SBI researchers initiated Cogmed, a small biotech company. The collaboration includes the building of common infrastructure, collaborative research projects, and a research school, allowing SBI to build up a top-of-the-line PET facility with high-resolution research tomography combined with a Blue Gene/L computer for image reconstruction and analysis. The ultrafast computer also is used for mathematical modeling and real-time simulation of neural networks with several hundred thousand neurons. ■

DR. FORSSBERG is the director of SBI. DR. HEDBERG is the scientific coordinator.

# Lisak Is Fellow by Distinction of Royal College of Physicians

*His research helped to define immune processes in the pathogenesis of neurologic disorders.*

BY DENISE NAPOLI  
Associate Editor

**D**r. Robert Lisak, an American, has been elected as a fellow “by distinction” of the Royal College of Physicians in London, one of the highest honors the United Kingdom-based society can bestow.

Of 13 such fellowships awarded this year, only 5 went to Americans.

Dr. Lisak, editor of the *Journal of the Neurological Sciences* (the official journal of the World Federation of Neurology), has been conducting research and taking a leadership role within the field of neurology for nearly half a century.

“I was involved in some of the earliest studies examining the role of T cells, B cells, and antibodies in the pathogenesis” of multiple sclerosis, he said.

He cited, for example, a study of antimyelin antibodies in neurologic diseases (*Arch. Neurol.* 1974;32:163-7).

He also has conducted important research into the in vitro cell-mediated immunity of cerebrospinal fluid lympho-

cytes to myelin basic protein in primary demyelinating diseases (*N. Engl. J. Med.* 1977;297:850-3), as well as studies concerning the animal model of experimental autoimmune encephalomyelitis.

In the field of myasthenia research, Dr. Lisak’s work “has focused on immune regulatory mechanisms and cellular interactions that allow for the development of this autoimmune disease. Since I have also been involved in therapeutic trials and studies, I guess I have been doing what is now called translational research for 42 years.”

Dr. Richard Lewis, professor and associate chair of neurology with Dr. Lisak at Wayne State University, Detroit, said in an interview that he has known Dr. Lisak for more than 30 years.

A resident at the University of Pennsylvania, Philadelphia, when Dr. Lisak was on the faculty, Dr. Lewis recounted that Dr. Lisak’s passion for research “bordered on the obsessive.”

“I was impressed at that time by his encyclopedic knowledge, his enthusiasm for neurology—particularly for the immuno-

logic disorders—and his incredible energy and drive.

“[Dr. Lisak] was doing translational research before the term was coined. I remember drawing extra tubes of [cerebrospinal fluid] on every patient I did a lumbar puncture on, so that Dr. Lisak could investigate immunologic markers of disease,” commented Dr. Lewis.

Dr. Lisak earned his MD at the College of Physicians and Surgeons, Columbia University, New York.

He also trained in medicine at Montefiore Medical Center and the Bronx Municipal Hospital, both in New York.

His neurology and immunology training took place at the University of Pennsylvania, Philadelphia, and at the National Institute of Mental Health.

Additionally, Dr. Lisak also completed a Fulbright fellowship at the University of London.

Some of Dr. Lisak’s upcoming projects include combining the use of molecular biologic techniques with cell biology, and immunologic approaches to study in further detail the effect of cytokines on glial cells and neurons, work done in collabo-

ration with Joyce Benjamins, Ph.D., and others.

“In myasthenia gravis, Samia Ragheb, I, and other members of our neuromuscular group are looking at how a B-cell factor called BAFF may be involved in the evolution of the autoimmune process. And as in the past when I was at Penn and London, I have had the benefit of fantastic collaborators.”

Dr. Lisak said that his research over the years has been supported by many institutions, including the National Institutes of Health, the National MS Society, the Muscu-

lar Dystrophy Association, the Guillain-Barré Syndrome/Chronic Inflammatory Demyelinating Polyneuropathy Foundation, the Myasthenia Gravis Foundation of America, the Fulbright-Hays grant, and several pharmaceutical companies. He also thanked the department of neurology at Wayne State, his current research home.

“The honor also reflects on the department of neurology at Wayne State University, and its accomplishments, as well as the continued improvement in the *Journal of the Neurological Sciences*. ■



DR. ROBERT LISAK

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# Fitness May Slow Brain Atrophy in Alzheimer's

BY MICHELE G. SULLIVAN

Mid-Atlantic Bureau

CHICAGO — Keeping fit may help reduce brain atrophy in patients with early Alzheimer's, researchers said at the International Conference on Alzheimer's Disease.

An exercise-tolerance study confirmed that the hippocampus was significantly larger in patients who had higher fitness levels, Dr. Jeffrey Burns said at the meeting, which was sponsored by the Alzheimer's Association. The association with fitness level also was found with whole-brain volume during a previous study in the same cohort, he added in an interview.

"Those in the lower half of fitness level have four times more brain atrophy than [do] those in the higher fitness group," compared with normal aging, said Dr. Burns, director of the Hoglund Brain Imaging Center at the University of Kansas, Kansas City (U.S.A.).

In an interview with *WORLD NEUROLOGY*, Dr. Yves Rolland of Hôpital La Grave-Casselardit in Toulouse, France, who was not involved in the current study, said it added neuroimaging evidence to the available epidemiological and basic research. "However, no randomized controlled trials have yet demonstrated that regular physical activity, a modifiable lifestyle factor, prevents dementia."

In the current study, Dr. Burns and his colleague, Robyn

Honea, Ph.D., evaluated cardiorespiratory fitness in 119 subjects older than 60; 56 had no dementia, and 63 had early-stage Alzheimer's. All undertook a treadmill test, which measured peak oxygen consumption during the most strenuous part of the test. They also underwent MRI.

All of the AD patients showed disease-related atrophy in the hippocampus, temporal cortex, and parietal cortices.



DR. YVES ROLLAND

But patients with higher fitness levels had significantly greater white matter volume in the hippocampus, inferior temporal gyrus, and precentral gyrus.

"We found that the level of fitness was strongly related to volume in the parietal area, and also in the hippocampus," Dr. Burns said.

"That's affected early in Alzheimer's, and the brain undergoes a lot of atrophy in that region as the disease progresses."

He noted that it is not possible to characterize the percentage of volume preserved in the more fit subjects, because the measurement tool—voxel-based morphometry—provides only a linear correlation. "But on the whole, people who were more fit had larger brains."

In another interview with *WORLD NEUROLOGY*, Laura Eggermont, Ph.D., of Vrije Universiteit, Amsterdam, who was also not involved in the study, said that the findings were timely and relevant, but it was unfortunate that the

level of cognitive functioning was not also mentioned. "The literature on healthy cognitive aging also shows a strong relationship between level of physical activity and brain volume, and some randomized controlled trials have shown that aerobic physical activity interventions benefit cognitive function, specifically higher order executive control processes."

Reduced atrophy in both grey and white matter could also have implications for cognitive and independent functioning. However, a previous study showed that, although more active AD patients had reduced brain atrophy, they did not show better cognitive functioning after controlling for age (*Neurology* 2008;71:210-6).

As understanding of the relationship grows, exercise prescriptions could become part of an Alzheimer's treatment program, Dr. Burns suggested. Dr. Rolland added that physical activity is an especially appealing low-cost, low-risk alternative treatment for this major public health priority.

"In addition to the multiple reasons for engaging in physical activity, preserving brain health could be a strong and convincing argument to promote activity in the population and one which could have a major impact on medical practice and public health education."

However, Dr. Eggermont advised caution regarding exercise in the elderly, whose ability is often hampered by disease or disability.

Neither of the researchers disclosed any conflicts. ■

## Partial Dopa Agonist Gives Benefit in Early PD

BY PATRICE WENDLING

Chicago Bureau

CHICAGO — Pardoprunox, a partial dopamine D2- and D3-receptor agonist and full serotonin 5-HT<sub>1A</sub>-receptor agonist, significantly improved symptoms in patients with early Parkinson's disease in a multicenter phase II clinical trial.

Investigators randomized 139 patients with idiopathic PD to placebo or pardoprunox titrated from 9 mg/day to 45 mg/day. Mean age was 59; the majority were Hoehn and Yahr stage 1.5 or 2 (66% pardoprunox, 70% placebo).

The mean change from baseline in Unified Parkinson's Disease Rating Scale (UPDRS) motor scores was significantly greater with pardoprunox than placebo at the end of a flexible 2- to 6-week titration phase (-6.1 vs. -3.1) and after a fixed 3-week maintenance period (-7.3 vs. -3.0).

After the maintenance period, there were significantly more responders in the pardoprunox group (51%) than in the placebo group (16%).

UPDRS activities of daily living and Clinical Global Impression scale were also significantly more improved in the pardoprunox group, said Dr. Juliana Bronzova, reporting on behalf of the Bruegel Study Group at the 12th

International Congress of Parkinson's Disease and Movement Disorders.

Of the 69 patients on pardoprunox, 22 discontinued because of adverse events (15) or consent withdrawal (7). Of the 70 patients randomized to placebo, 7 discontinued because of adverse events (1) or consent withdrawal (6).

The most common events in the pardoprunox and placebo groups included nausea (32 vs. 3), asthenia (10 vs. 0), increased blood pressure (5 vs. 3), somnolence (17 vs. 4), and headache (13 vs. 5), said Dr. Bronzova of Solvay Pharmaceuticals, which makes pardoprunox and sponsored the study.

In an interview with *WORLD NEUROLOGY*, Dr. William J. Weiner, director of the Maryland Parkinson's Disease and Movement Disorders Center at the University of Maryland, Baltimore, who was not involved with the study, said that the absolute change between the groups, -4.3 points, is not only statistically significant, but also "falls within the range of a clinically meaningful change" but still "similar to that seen with traditional agonists. Whether or not partial dopamine agonist treatment in PD is better in the short or long term than a traditional dopamine agonist or levodopa remains to be seen." ■



DR. WILLIAM J. WEINER

## Targeted Deep Brain Stimulation Improved Tic Severity in Tourette

BY PATRICE WENDLING

Chicago Bureau

CHICAGO — Deep brain stimulation of limbic relays within the basal ganglia circuitry reduced tic severity in patients with Tourette syndrome.

In three patients with severe and medically refractory TS, researchers applied high-frequency bilateral deep brain stimulation to the centromedian-parafascicular complex (CM-Pf) of the thalamus and the ventromedial part of the globus pallidus interna (GPI).

The greatest improvement of tics was seen with ventromedial GPI stimulation, Dr. Luc Mallet said at the 12th International Congress of Parkinson's Disease and Movement Disorders. The total Yale Global Tic Severity Scale score was reduced 65%, 96%, and 74% from baseline in patients 1, 2, and 3, respectively.

CM-Pf stimulation reduced tic severity by 64%, 30%, and 40%, respectively. Combining thalamic and pallidal stimulation did not improve tic reduction (*Arch. Neurol.* 2008;65:952-7).

In patient No. 2, the best result was obtained after 1 month, but the effects decreased after 2 months, even with increased voltage, said Dr. Mallet of Pitié-Salpêtrière Hospital, Paris. Very good long-term effects were observed in patient No. 1, who was identified with borderline personality disorder before surgery. The decrease in tic severity was accompanied by a dramatic reduction in self-injurious behaviors and impulsiveness, allowing the patient to start psychotherapy, to improve autonomy and social relationships, and to return to full-time work 2 years after surgery.

In patient No. 2, a stable reduction in tic sever-

ity was achieved 27 months after surgery using 20 hours of pallidal stimulation followed by 4 hours off. In patient 3, tic severity was reduced by 74% at 20 months without medication under pallidal and thalamic stimulation.

DBS is not without risks, said Dr. Mallet in an interview with *WORLD NEUROLOGY*. "DBS should be reserved to the refractory forms of the disease or for patients who are intolerant to pharmacological treatments. Aside from these considerations, there are few drawbacks because DBS is reversible and adjustable through four available contact localizations and through adjustment of electrical parameters, including frequency, pulse width, and voltage."

In another interview with *WORLD NEUROLOGY*, Dr. Joseph Jankovic, director of the Parkinson's Disease Center and Movement Disorders Clinic at the Baylor College of Medicine, Houston, who was not involved with the study, said, "It confirms the findings of our initial

report of effectiveness and safety of GPI DBS [*Neurology* 2007;68:159-60] in a 15-year-old boy with malignant Tourette syndrome [*Mov. Disord.* 2007;22:1743-50]. Since this report of the youngest case of TS treated with DBS, we have studied five other patients with similar improvements in their tics as well as their obsessive-compulsive and self-injurious behavior."

Dr. Jankovic has helped form guidelines for the evaluation of potential candidates for DBS in Tourette (*Mov. Disord.* 2006;21:1831-8). "Only those patients whose tics are so troublesome that they interfere with normal physical activity, result in self-injury, or are otherwise disabling despite optimal medical therapy should be considered," he said. ■



DR. LUC MALLET



DR. JOSEPH JANKOVIC

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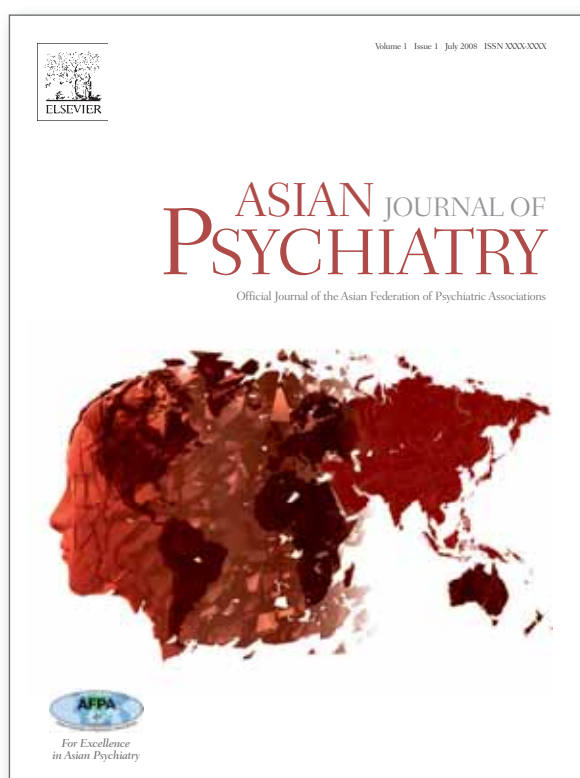


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## NEWS FROM THE NATIONAL SOCIETIES

## The Pioneers of Neurology in South America

BY RICARDO F. ALLEGRI, M.D.,  
PH.D., AND CECILIA M.  
SERRANO, M.D.

The history of neurology in South America has its roots in 1885, when the Hospital San Roque de Buenos Aires initiated its Nervous Diseases Service. Its first director was Dr. José María Ramos Mejía, a writer, sociologist, scientist, and outstanding public citizen. In 1887, only 5 years after Dr. Jean-Martin Charcot was awarded the chief of neurology position at the famous Hôpital de la Salpêtrière in Paris, Dr. Ramos Mejía became the first professor of neurology in South America, at the Universidad de Buenos Aires.

Three others—Dr. Christofredo Jakob, a German neuropathologist; Dr. José A. Estévez, a skilled clinician; and Dr. José Ingenieros, a sociologist—collaborated with him to develop the field in Argentina.

In 1892, Dr. Augusto Orrego Luco, who was trained in France by Dr. Charcot, took over as professor of nervous diseases at the Universidad de Chile, Santiago. He was the most prominent figure in Chilean neurology during the second half of the 19th century, and was nicknamed the Charcot of America. In 1907 the department of neurology was taken over by his disciple, Dr. Joaquín Luco Arriagada (who was trained by Dr. Joseph Babinski).

In Brazil, the discipline emerged in 1912 when the school of medicine at the Universidade do Rio de Janeiro created its first department of neurology. Its first full professor, Dr. Antônio Austregésilo Rodrigues de Lima, was a politician, writer, and skilled physician; he is considered the father of Brazilian neurology.

The São Paulo School of Neurology was founded in 1925, when Dr. Enjolras Vampré was appointed head of the department of psychiatry and neurology. Dr. Vampré, who also was trained at Salpêtrière, is considered the founder of the neurology in São Paulo.

In 1925, Chilean doctor Luco Arriagada created the Hospital del Salvador Servicio de Neurología in Santiago. In 1932 the Sociedad de Neurología, Psiquiatría y Neu-



Dr. Allegri and Dr. Serrano say neurology was born on the continent toward the end of the 19th century.

rocirugía de Chile was founded. When Dr. Arriagada retired, Dr. Lea Plaza was made chair of neurology at the University of Chile, and Dr. Jorge Oyarzun became chief of neurology at the Hospital del Salvador.

In 1925, Uruguay also took an important step with the creation of the department of neurologic diseases at the School of Medicine of Montevideo, with Dr. Américo Ricaldoni as its chairman. In 1927, the Uruguayan government created the Instituto de Neurología de Montevideo (the first neurologic institute in Latin America), with Dr. Ricaldoni as its designated director.

Peru's nascent field of neurology began in 1935 with Dr. Julio Oscar Trelles Montes, who was trained in Paris by Dr. Jean Lhermitte. Dr. Trelles is considered the father of Peruvian neurology. In 1937, he founded the Revista de Neuropsiquiatría, and 1 year later, the Sociedad de Neuropsiquiatría y Medicina Legal. In 1940, he was made professor of neuropathology at the school of medicine at Universidad Nacional Mayor de San Marcos. By this time, Dr. Trelles was also tending to the Refugio de Incurables in Lima, which was later renamed Hospital Santo Toribio de Mogrovejo. Almost every neurologist in Peru studied at this hospital in some capacity under Dr. Trelles's 30-year directorship.

In Uruguay at the beginning of 1937, Dr. Alejandro Schroeder, who was trained in Germany, was appointed director of the Institute of Neurology in Montevideo. After

Dr. Schroeder's tenure there, the institute, which was renamed Instituto de Neurología Prof. Dr. Américo Ricaldoni, has been ranked among the top in South America. In 1939 the Sociedad de Neurología y Neurocirugía de Montevideo opened with Dr. Schroeder as its first president.

In Venezuela, neurology began when Dr. Pedro B. Castro returned from Paris in 1936, where he had been trained by Prof. Georges Charles Guillain

at Salpêtrière. In 1938, Dr. Castro took over as a neurology consultant at Hospital Vargas, Caracas. In 1940, the Universidad Central de Venezuela created its first department of neurology and psychiatry and named Dr. Castro its chairman.

Chilean neurology was invigorated in 1939 when Dr. Alfonso Asenjo Gómez, who was trained in the United States by Dr. Walter Dandy and in Germany by Dr. Wilhelm Tönnis, created the Hospital del Salvador's service of neurosurgery.

In Buenos Aires in 1941, Dr. Vicente Dimitri was designated professor of neurology at the University of Buenos Aires. With Dr. Dimitri, neurology in Argentina came into its own.

In 1943, Dr. Adherbal Tolosa, Dr. Paulino Longo, and Dr. Oswaldo Lange created the Arquivos de Neuropsiquiatria in São Paulo under the direction of Dr. Lange. This journal remains foremost in neurosciences in Latin America; its articles are accessible in Index Medicus, World Health Organization, Bireme, Lilacs, and Latindex.

In 1944, Dr. Deolindo Augusto de Nunes Couto took over as chairman of the department of neurology at Universidade Federal do Rio de Janeiro and consolidated activity in neurology in Brazil. In 1946, he founded the Instituto de Neurología da Universidade Federal do Rio de Janeiro, which carried out extensive research in neurology, neurophysiology, and neurosurgery. This institute, later renamed Instituto de Neurología Deolindo Couto da

Universidade Federal do Rio de Janeiro, became the international face of Brazilian neurology.

In Argentina, Dr. Jose Pereyra-Kafer became chairman of the Hospital Ramos Mejía Neurology Service (formerly Hospital San Roque) in Buenos Aires, and then took over as professor of neurology at the University of Buenos Aires. The Sociedad Neurológica Argentina (SNA) was founded in 1957. In 1953, the Instituto de Neurocirugía e Investigaciones Cerebrales of Chile opened, and for the following 34 years it was directed by Dr. Asenjo.

Dr. Andrés Rosselli Quijano, who trained in the United States with Dr. Raymond Adams, Dr. Maurice Victor, and Dr. C. Miller Fisher, founded a neurology unit in 1956 that was annexed to the neurosurgery department at Hospital Militar Central de Bogotá. The Sociedad Neurológica de Colombia was formed in 1963.

In 1953 the Archivos Venezolanos de Psiquiatria y Neurologia was created. Neurology and psychiatry became independent specialties in 1959 under Dr. Castro, the first chairman and founder of the new department of neurology at the Universidad de Venezuela. The quarterly Pan-American Congress was conceived within the framework of the WFN. The first open conference was held in October 1963, in Lima, Peru, chaired by Dr. J. Oscar Trelles, the country's prime minister.

In conclusion, neurology in South America emerged toward the end of the 19th century, following the origin of the specialty in Europe and its official baptism with Charcot at Salpêtrière in Paris. The first steps took place almost simultaneously in five countries: Argentina, Brazil, Uruguay, Chile, and Peru. In the other countries, the development of neurology took place later in the 20th century. ■

DR. ALLEGRI and DR. SERRANO work at *Servicios de Neurología & Neuropsicología and Centro de Estudios Médicos e Investigaciones Clínicas, Buenos Aires.* Adapted from a journal article published by Dr. Allegri in the *Journal of the Neurological Sciences* (J. Neurol. Sci. 2008 Aug 15;271: 29-33).

## HT May Aid Cognition

Hormone Therapy • from page 1

congruent with these findings on women who were never users, past users, and current users, and suggest that better outcomes of [HT] occur when therapy is begun around the menopause or in rats when estradiol levels have begun to decline." Dr. Tierney "raises the intriguing possibility that 'menopausal age' may not be as critical as 'brain age.'" But it will be difficult to model that hypothesis in animals, noted Dr. Luine, professor of psychology at Hunter College of the City University of New York.

In another study, Kara Bottiggi Dassel, Ph.D., of the Barrow Neurological Institute, Phoenix (U.S.A.), examined the effect of past hormone use on the cognitive deficits of Alzheimer's patients. The study included 49 women (average age, 75) categorized as current hormone therapy users (20), past users (18), or never-users (11). All had a diagnosis of Alzheimer's; there were no differences in func-

tional levels or Clinical Dementia Rating scores. While there were no significant differences in memory, past users scored significantly better than never-users on the dementia rating scale, with a clinically meaningful mean score difference of 31 points. Past users also scored significantly better than never-users on the Controlled Oral Word Association Test and the clock drawing test, both measures of executive function. She then examined hormone use by baseline dementia ratings. Women were split into "higher functioning" (mean dementia rating score 68) or "lower functioning" (mean dementia rating score 120). Among the higher-functioning group, 45% were past hormone therapy users, 45% were current users, and 10% were never-users. Among the lower group, 25% were past users, 35% were current users, and 40% were never-users.

"The length of illness was similar among women in the higher group, suggesting that there is less of a decline in cognitive functioning in the hormone therapy users," Dr. Dassel said.

Dr. Luine commented: "Some earlier RCTs with pos-

itive outcomes on both memory function in women and in Alzheimer's dementia also used natural hormones like this newest study by Tierney and colleagues. However, it is important to note that there is a difference between cognitive loss with 'normal' aging and the severe cognitive losses that occur with Alzheimer's disease. Thus far, no drug or hormone has been able to have a major impact on the progression of Alzheimer's disease. Thus, it is probably still optimistic to posit that estradiol might be 'a magic bullet' for this disease." She added that while "positive results of [HT] in young and aging populations have been seen in Europe, Japan, and China," in addition to the United States, all observational or longitudinal trials suffer from a bias in which HT users "tend to be younger, healthier, and better educated—all traits which predict positive brain/cognitive aging and thus contribute to a positive outcome" for those on HT therapy.

The researchers said they had no conflicts. ■

Senior Writer Jeff Evans contributed to this report.



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## HIGHLIGHTS FROM THE JOURNAL OF THE NEUROLOGICAL SCIENCES

# Three Inflammatory Markers Elevated in PPS

BY ALEX TSELIS, M.D. PH.D.

Most patients with acute neurologic infections survive, but residual problems are common and usually manifest as incomplete resolution of the acute deficits. It is not uncommon, however, to develop new complications several months or even years later. Examples include seizures and the parkinsonian syndrome following encephalitis lethargica.

It has been known that polio patients occasionally experienced a return of their original symptoms decades after an apparently complete resolution; a case report by Raymond and Charcot first appeared in 1875. Sporadic observations of the problem continued until the number of patients became large enough to call attention to this newly recognized clinical entity, post-polio myelitis syndrome (PPS). Clinical criteria were established in the mid-1980s, and research efforts intensified.

While a number of hypotheses were advanced to explain this late-developing weakness, with concomitant fatigue and pain, none is universally accepted. The comparison with multiple sclerosis (MS), another chronic neurologic disease (with a relapsing and eventually chron-

ic progressive course) in which fatigue is prominent, suggests itself.

The effects of the chronic immune activation in the central nervous system in MS likely manifest themselves in part with fatigue, a well-known and often disabling symptom. Recent studies have looked at specific markers of inflammation and correlated them with symptoms in MS. Various measures of fatigue and pain were catalogued and inflammatory markers in the blood investigated. These included tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ), interleukin 1- $\beta$ , and interleukin 6 (IL-6). Leptin, a recently identified molecule involved in inflammatory processes, body weight, and sleep, also was elevated in PPS. The expectation was that MS, with abundant evidence for a role



DR. ALEX TSELIS

of active inflammation in causing these symptoms, would be associated with considerably elevated inflammatory markers, compared with PPS and normal controls.

The results of these studies were quite unexpected. The inflammatory markers were elevated in both MS and PPS patients, compared with normal controls.

In a recent paper by a group of investigators from McGill University, Montreal, some of these intriguing results are explained in more detail (*J. Neurol. Sci.* 2008;271:80-6).

The authors examined 51 postpolio myelitis syndrome patients and a control group of 31 normal, age-matched, local volunteers. The participants had measurements taken of their serum levels of inflammatory markers, fatigue, muscle pain, and strength, as well as disease duration and joint pain.

The authors found that levels of TNF- $\alpha$ , IL-6 and leptin, specifically, were elevated in the patients with PPS, compared with the normal controls.

Additionally, TNF- $\alpha$  was correlated with muscle pain. Dr. Daria A. Trojan, one of the senior authors of this study, is a physiatrist who first began seeing PPS patients during her fellowship under Dr. Neal Cashman and has continued as a staff physician in the PPS clinic at the Montreal Neurological Institute. Dr. Trojan pointed out that a prospective study is needed to confirm and extend these results and that they may provide support for a trial of immunomodulating agents in this disease.

While it is too early to state whether these findings have implications for amyotrophic lateral sclerosis, these results document an inflammatory state in one form of motor neuron disease, albeit a much more slowly progressive one. ■

DR. TSELIS is an associate professor of neurology at Wayne State University, Detroit. He is the book reviews editor for the *Journal of the Neurological Sciences*.

## NEUROLOGIC PEARL

# Cerebral T Waves and Takotsubo-Like Cardiomyopathy

BY MARTIN A. SAMUELS, M.D.

Although the heart normally autoregulates using Starling's law and its own endogenous nervous system, it is potentially under the influence of the rest of the nervous system. In an autonomic storm, for example, dramatic alterations in cardiac rhythm and function may occur.

As long as the ECG has been in use, clinicians have recognized that catastrophic neurologic or psychiatric events may alter the appearance of the ECG. This observation was made by Dr. Harold Levine at the old Peter Bent Brigham Hospital, Boston, and was probably named "cerebral T waves" by the renowned and creative cardiologist Dr. George Burch of Tulane University in New Orleans.

However, the cause was presaged by Dr. Walter Bradford Cannon, the distinguished Harvard Medical School physiologist. In 1942, he wrote his memorable paper, "Voodoo' Death," in which he recounted many descriptions of the phenomenon of being literally frightened to death that he had gathered from the anthropological literature. Dr. Cannon hypothesized that these deaths were caused by an intense action of the sympathetic-adrenal system.

Subsequent studies have confirmed that the major mechanism of neurocardiac dysregulation is the release of catecholamines directly into the myocardium by sympathetic nerves. The central nervous system is represented in the heart in the insula, with efferent connections—via the amygdala and hypothalamus—to the intermediolateral cell column and the stellate ganglia.

Balance between the right and left sides and the sympathetic and parasympathetic nervous systems is also important in maintaining normal neurocardiac control. This network—the anatomical basis of the "fight or flight" hypothesis—may be activated by life-threatening stress with little chance of escape or control, or by physiological perturbations.

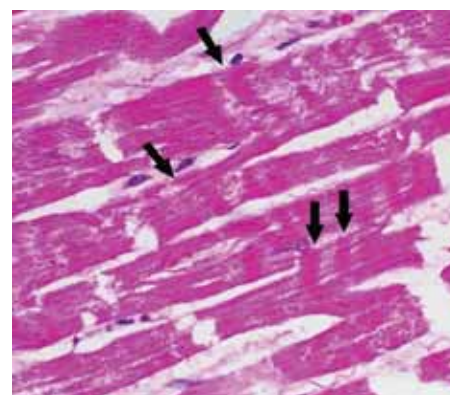


DR. MARTIN A. SAMUELS

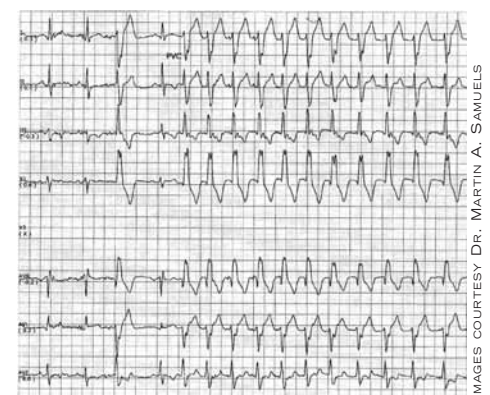
Causes of neurocardiac dysregulation are subarachnoid hemorrhage, seizures from the insulae, and intense psychological stress. The most typical ECG alterations involve repolarization, with deeply inverted T waves seen prominently in the anterior, inferior, and lateral precordial leads; but many other ECG abnormalities have been recorded, including heart block, bradycardia, asystole, ventricular tachycardia, alteration in the shape and width of the QRS complex, and U waves.

In recent years, thanks to the availability of echocardiography, it has been recognized that in extreme circumstances of acute stress, an acute cardiomyopathy—characterized by a disproportionate hypokinesia of the left ventricular apex—may develop. This pattern of left ventricular apical ballooning, as seen by echocardiography or contrast ventriculography, has been likened to the shape of a Japanese octopus trapping pot called the takotsubo; hence, the name takotsubo-like cardiomyopathy.

Patients with the takotsubo-like cardiomyopathy (usually older women) have suffered a recent psychological stressor, resulting in acute heart failure and chest pain; they demonstrate the typical left ventricular apical ballooning pattern seen on the



(L) Myocardial contraction band necrosis is typical of the neurocardiac lesion. (R) ECG shows a healthy man's emotional distress during recollection of events.



IMAGES COURTESY DR. MARTIN A. SAMUELS

echocardiogram. Such patients usually have a cardiac enzyme leak (for example, troponin), indicating that this process causes authentic cardiocyte damage.

The cardiac pathology is characteristic and known as contraction band necrosis. (See left figure.) This process is probably caused by Cannon's sympathetic storm with release of catecholamines directly into the endocardium. The pattern of dysfunction reflects the density of catecholamine receptors in the various parts of the heart. At a cellular level, the catecholamines, released from sympathetic nerve terminals, open a receptor-operated calcium channel, which leads to the ECG changes, followed by calcium-mediated free radical damage to cardiomyocytes.

Takotsubo-like cardiomyopathy is potentially completely reversible, provided a malignant arrhythmia does not intervene. The appearance of ventricular tachycardia in one patient, induced by discussing a stressful event, is illustrated above, at right.

It is likely that neurocardiac damage falls on a continuum, with benign alterations of the ECG on the mild end of the spec-

trum and takotsubo-like cardiomyopathy on the severe. Similar mechanisms may well play an important role in many related phenomena, such as sudden unexpected death in epilepsy; sudden unexpected nocturnal death syndrome; sudden infant death syndrome; cardiac arrhythmias associated with epileptic seizures; insular infarcts and intracerebral hemorrhages; sudden death associated with natural catastrophes (such as earthquake); death and cardiac problems after man-made disasters (the Sept. 11 attacks in New York); and cardiac events in association with emotional excitement (the increased rate of cardiac events in Germany during the World Cup matches on days when the German team was playing).

It is important for neurologists to be aware of the neurocardiac connection. It may be possible to prevent such problems in high risk patients with the use of benzodiazepines,  $\beta$ -blockers, calcium channel blockers, and free radical scavengers. ■

DR. SAMUELS is the neurologist-in-chief and chairman of the department of neurology at Brigham and Women's Hospital, Boston.



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*The vote for the city that will host the World Congress in 2011 will be taken by national delegates during the Asian-Oceanian Congress of Neurology in October 2008 in New Delhi, India*

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*For further information on the Moroccan Society of Neurology's bid to host the World Congress of Neurology, 2011, please visit our website at [www.MarrakeshWCN2011.com](http://www.MarrakeshWCN2011.com)*

*Site visit to be carried out.*



## PROFILES IN NEUROLOGY

## The Practice of Neurology in Mongolia

*Training has been cut from 2 years to 1 year;  
residents are unsalaried;  
exams are not standardized.*

BY SARANGEREL JAMBAL, M.D.

I am glad to have the great opportunity to write about the practice of neurology in my country, Mongolia. Let's begin with its interesting history.

The practice of neurology got its start in Mongolia in 1939 with the establishment of 10 neurologic beds in the Central Hospital by the Russian neurologist Dr. N.Ya. Semyonova.

In 1947, a neurologist who was a faculty member of Leningrad Medical High School, Dr. G.Ya. Liberson, founded the neurology department in the medical faculty of Mongolian State University.

Dr. G. Ya. Liberson's work was taken over by the first Mongolian neurologists, Dr. G. Lodon and Dr. L. Dagzmaa.

In the 1950s and 1960s, the first scientific research works were done in the field of neuroinfections (neuroleues, epidemic encephalitis, polomyelitis) according to the social and ecological requirements of the country at that time (G. Lodon, D. Rawdandorj). At this time,

**ABOUT 60% OF ALL MONGOLIAN NEUROLOGISTS ARE WORKING IN THE CAPITAL ULAANBAATAR, WHICH HAS MORE THAN HALF OF THE POPULATION.**

the second adult neurology ward and the first one for children were launched, the first department of neurosurgery was founded, and the use of new diagnostic methods such as EEG and pneumoencephalography (PEG) was adopted (Tsagaankhuu G et al. 2007).

In the 1970s and 1980s, the neurologic service in the country expanded to become an independent medical branch and improved the quality of neurologic care by increasing the number of neurologists (about 100) and founding neurologic wards in all province hospitals (each with about 20 beds and two neurologists).

At that time, the Mongolian neurologists were supported mostly from Ukrainian neurologists (E.P. Zagorowsky), and inherited their methods (Tsagaankhuu G et al. 2007).

The political changes in the late 1980s and early 1990s with the end of the Cold War smashed completely the old socialist social system in the country.

While the loss of contact with Russian neurologists was keenly felt, one benefit was that Mongolian neurology was of-

fered new chances to develop professional relationships with neurologists from other countries.

In 2002, the Mongolian neurologic association "Monneurology" was founded, and it became a member of the WFN.



DR. SARANGEREL JAMBAL

Also in 2002 the first international epilepsy seminar-workshop was held with the support of the ASEAN Epilepsy Society. In 2006, the first international neurologic INFO-Seminar was held in Ulaanbaatar, with the initiation of WFN and international participation opening new opportunities in foreign relations.

Today, the neurologic service in Mongolia consists of more than 20 medical doctors with PhDs and about 200 neurologists.

The number of neurologists in Mongolia is 7.8 per 100,000 people, which is a very high proportion compared to most other countries of the world.

About 60% of all Mongolian neurologists are working in the capital Ulaanbaatar, where more than a half of the population is concentrated (1.5 million of Mongolia's entire population of 2.5 million people live in the capital city).

The number of neurologic beds is about 900 in the whole country, about 3.7 per 10,000 (Baasanjav D et al, 2006).

In recent years, neurologic research has focused on the epidemiology of most common neurologic disorders such as stroke, epilepsy, neurodegenerative and neuroinflammatory diseases.

The stroke epidemiology study revealed that there is a high percentage of the hemorrhagic type (about 50% vs. about 40% ischemic stroke and 10% subarachnoid hemorrhage), which requires special attention to prevention (Baasanjav D et al, 1999).

Also, several research studies were done on epilepsy, which is a significant cause of disability in Mongolia. But because of flaws in the design of these studies, their findings do not distinguish various exact types of epilepsy, limiting the studies' usefulness.

From 1997 to 2000, the neurogenetic group from the U.S. National Institutes of Health, which was led by Dr. Lev Goldfarb, collaborated with the Mongolian Medical Research Institute to undertake research on neurohereditary diseases in Mongolia.

The investigators found a high prevalence of certain neurogenetic disorders associated with certain regions of the country.

For example, Charcot Marie Tooth [CMT] type 2 disease was prevalent in Arkhangai province, where there were about 100 cases in the population of 97,000.

Other disorders with a geographic



COURTESY DR. SARANGEREL JAMBAL

Dr. Sarangerel Jambal assesses blood flow using Doppler ultrasound on a patient at the "Reflex" Neurological Clinic in Ulaanbaatar, Mongolia.

prevalence included the observations of CMT type 1 disease in Khulunbuir, Dornod province; hereditary spastic spinal paralysis in the Khowd and Uws provinces; and familial oligophrenia in Dornod province

Cases of myotonic dystrophy were registered in nearly all provinces.

Not all provinces were involved in the epidemiologic research, but the fact that hereditary neurologic disorders occur in high prevalence within a country that has small population deserves special clinical attention.

Despite the high number of specialists and neurology beds in Mongolia, there are many problems resulting from the difficult

**MONGOLIA HAS 7.8 NEUROLOGISTS PER 100,000 PEOPLE, A VERY HIGH RATE FOR THAT PART OF THE WORLD, AND 900 NEUROLOGIC BEDS.**

current socioeconomic situation in the country.

There is insufficient medical and social insurance, both of which were newly founded in Mongolia only 10 years ago.

The low level of knowledge and outdated training methods of some neurologists are leading to misdiagnosis and treatment failures in many cases.

Neurologic residency training lasted for 2 years during the period from 1997 to 2001 and included psychiatry training. Since 2002, the training program has been shortened to 1 year.

The quality of clinical training is limited by numerous problems: Neurology residents must often pay for part or all of their training costs; they lack proper workplaces; and they are unsalaried.

In most respects, neurology residency training in Mongolia lacks standards, adequate supervision, and standardized examinations.

Established neurologists require but usually do not receive training in order to bring them up to date with the massive increase in new diagnostic methods in recent years.

Without such training they risk misinterpreting test results.

Pharmaceutical companies are not inclined to introduce their new drugs in Mongolia because our small population means fewer sales for them.

Some important medical branches in neurology, such as neurorehabilitation, are still nonexistent in the country. Instead, this type of treatment has been replaced by minimally effective traditional treatment methods.

To become familiar with the latest versions of diagnostic and treatment research, the neurologic consultant of the Ministry of Health began to implement a CME program for neurologists.

The younger generation of neurologists eagerly participates in these CME opportunities. All recent information must be translated into Mongolian because knowledge of the English language is not widespread.

We are also working on setting and renewing the special standards and guidelines for neurologic diseases which can be generally diagnosed and treated.

Mongolia is located in the center of the Asian continent, is bordered by Russia and China, and, belongs neither among the Southeast, Pacific, nor Middle East countries.

The climate is dry and cold. Mongolia has its own culture and language, and a population with a nomadic style of life that has existed for thousands of years.

We hope our geographical, cultural, and climatic conditions will not be a barrier for expanding our foreign relationships, and we continue to make strides to improve our neurologic services in Mongolia. ■

SARANGEREL JAMBAL, M.D., known to her friends as Saraa, is a neurologist at the "Reflex" Neurological Clinic in Ulaanbaatar, Mongolia.

## Calendar of International Events

### 2008

**9th International Conference on Alzheimer's Disease Drug Discovery**  
 October 6-7, 2008  
 New York, USA  
[www.worldeventsforum.com/addf/9thadd/index.html](http://www.worldeventsforum.com/addf/9thadd/index.html)

**36th Annual Meeting of the International Society for Paediatric Neurosurgery (ISPN)**  
 October 12-16, 2008  
 Cape Town, South Africa  
[www.ispn2008.org](http://www.ispn2008.org)

**6th International Congress on Mental Dysfunctions & Other Nonmotor Features in Disease**  
 October 16-19, 2008  
 Dresden, Germany  
[www.kenes.com/pdment2008](http://www.kenes.com/pdment2008)

**Dystonia Europe 2008**  
 October 17-19, 2008  
 Hamburg, Germany  
[www.dystonia-europe-2008.org](http://www.dystonia-europe-2008.org)

**46th Annual Meeting of the Academy of Aphasia**  
 October 19-21, 2008  
 Turku, Finland  
[www.academyofaphasia.org](http://www.academyofaphasia.org)

**2nd World Congress on Controversies in Neurology (CONY)**  
 October 23-26, 2008  
 Athens, Greece  
[www.comtecmed.com/cony/2008](http://www.comtecmed.com/cony/2008)

**12th Asian Oceanian Congress of Neurology (AOCN 2008) & 16th Annual Conference of the Indian Academy of Neurology (IANCON 2008)**  
 October 23-26, 2008  
 New Delhi, India  
[www.aocn2008.com](http://www.aocn2008.com)

**9th International Congress of Neuroimmunology**  
 October 26-30, 2008  
 Forth Worth, Tex., USA  
[www.isni2008.org](http://www.isni2008.org)

**19th International Symposium on ALS/MND**  
 November 3-5, 2008  
 Birmingham, England  
[www.mndassociation.org/research/for\\_researchers/international\\_symposium/index.html](http://www.mndassociation.org/research/for_researchers/international_symposium/index.html)

**European Charcot Foundation Symposium 2008: Multiple Sclerosis and Gender**  
 November 13-15, 2008  
 Taormina, Italy  
[www.charcot-ms.eu/Symposium\\_2008-pages-id-197-sid-128.htm](http://www.charcot-ms.eu/Symposium_2008-pages-id-197-sid-128.htm)

**1st International Headache Summit**  
 November 14-17, 2008  
 Tel-Aviv, Israel  
[www.headache-summit.com](http://www.headache-summit.com)

**Neuroscience 2008**  
 November 15-19, 2008  
 Washington, D.C., USA  
[www.sfn.org/am2008](http://www.sfn.org/am2008)

### 2009

**37th Annual International Neuropsychological Society Meeting**  
 February 11-14, 2009  
 Atlanta, Ga., USA  
[www.the-ins.org/meetings](http://www.the-ins.org/meetings)

**2nd Asian and Oceanian Parkinson Disease and Movement Disorder Congress**  
 February 15-17, 2009  
 New Delhi, India  
[www.aopmcindia.com](http://www.aopmcindia.com)

**5th Annual Update Symposium Series on Clinical Neurology & Neurophysiology**  
 February 16-17, 2009  
 Tel Aviv, Israel  
[www.neurophysiology-symposium.com](http://www.neurophysiology-symposium.com)

**2nd European Brain Policy Forum**  
 February 25-26, 2009  
 Brussels, Belgium  
[www.kenes.com/ebpf2009](http://www.kenes.com/ebpf2009)

**9th International Conference on Alzheimer's and Parkinson's Diseases: Advances, Concepts and New Challenges**  
 March 11-15, 2009  
 Prague, Czech Republic  
[www.kenes.com/adpd](http://www.kenes.com/adpd)

**5th World Congress of the World Institute of Pain**  
 March 13-16, 2009  
 New York, USA  
[www.kenes.com/wip](http://www.kenes.com/wip)

**24th Conference of Alzheimer's Disease International**  
 March 25-28, 2009  
 Singapore  
[www.adi2009.org](http://www.adi2009.org)

**2nd International Symposium on Psychogenic Movement Disorders and Other Conversion Disorders**  
 April 2-4, 2009  
 Washington, D.C., USA  
[www.movementdisorders.org/education/pmd](http://www.movementdisorders.org/education/pmd)

**61st Annual Meeting of the American Academy of Neurology**  
 April 25-May 2, 2009  
 Seattle, Wash., USA  
[www.aan.com](http://www.aan.com)

**19th World Congress of Neurology**  
 October 24-30, 2009  
 Bangkok, Thailand  
[www.wcn2009bangkok.com](http://www.wcn2009bangkok.com)

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IS PUBLISHED...

BEFORE THE DRUG  
IS APPROVED...

BEFORE THE GUIDELINE  
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## BOOKS TO CONSIDER

## Memoir: 'Seizing Opportunities'

BY JOHN WALTON, M.D.

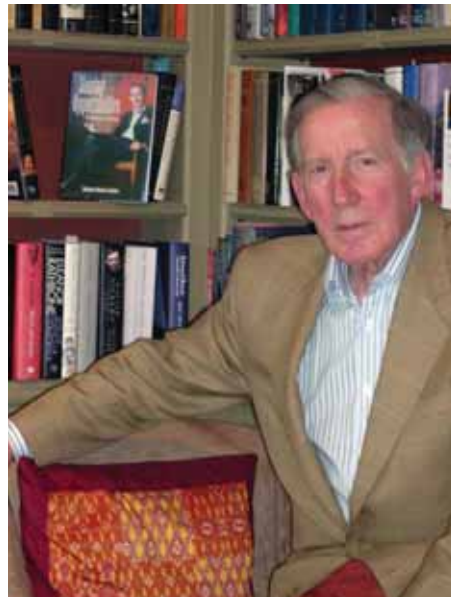
**S**eizing Opportunities: The Reminiscences of a Physician" (Weardale, England: Memoir Club, 2008) is a charming and well-written memoir from Dr. Richard Godwin-Austen, former Secretary-Treasurer General of the WFN.

Richard came from a distinguished, if in some ways eccentric, family. Among his forebearers were knights, generals, and other individuals of distinction. Not least was his great uncle, Henry Haversham Godwin-Austen, who discovered the second-highest mountain of the world, which in my childhood was known as Mount Godwin-Austen, though it is now generally referred to as K-2. The name Godwin-Austen still identifies a glacier in the Himalayas.

After Dr. Godwin-Austen's schooling, training, and subsequent career in London and Devon, he eventually arrived in Nottingham (England), as a consultant neurologist. He served as president of the Association of British Neurologists in addition to his 8-year-long post at the WFN, which he served with distinction.

Among the anecdotes that enliven the text is the story of how the now famous British film actor Hugh Grant, in his earlier, formative years, was a lodger in the Godwin-Austen household. Another highlight is the author's experiences during a 3-month stay in Bagdad, when he was called to consult with the then-president of Iraq, shortly before Saddam Hussein assumed that office.

More personal episodes from Dr. Godwin-Austen's life are also faithfully recounted, including his early courtship of Susan Toller. That relationship ended when they realized that the demands of his early career made it impossible for him



COURTESY DR. RICHARD GODWIN-AUSTEN

**Dr. Richard Godwin-Austen, former Secretary-Treasurer General of the WFN.**

to marry. She left for the United States. Subsequently, Richard and his first wife Jane enjoyed an exceptionally happy marriage, which ended with Jane's tragic death in a motor accident in which Richard suffered only minor injuries; Dr. Godwin-Austen's description of the accident is quite poignant. His advances, through a mutual friend, toward the woman who was to become his second wife led to another happy marriage, which also is recounted in great detail. Touchingly, Dr. Godwin-Austen has dedicated this volume to both of his wives.

Medical autobiography is a specialized art form, but this book will be read with pleasure by many of Dr. Godwin-Austen's friends, admirers, and others as well, and is a delightful example of the genre.

*John Walton (Lord Walton of Detchant) is the author of several books and a past president of the WFN.*

## Text: 'Cancer Neurology In Clinical Practice'

BY MACIEJ M. MRUGALA, M.D., PH.D.

**I**welcomed the second edition of "Cancer Neurology in Clinical Practice" with great joy and expectation. This volume is already a classic in neuro-oncology literature.

This book covers a broad spectrum of neuro-oncology topics that were organized in an easy-to-follow manner, and many of the authors are experts in their respective fields.

This book will be welcomed by neuro-oncology fellows who, in the past, lacked a single compendium that would guide them in their studies of the field. Although we do have numerous excellent resources in neuro-oncology, many of them focus on intracranial disease and primary brain tumors. Only a few address neurologic complications of cancer and give advice on day-to-day management of neuro-oncology patients. "Cancer Neurology in Clinical Practice" (New York: Humana Press, 2008) fills that void; it is a comprehensive, highly specialized yet practical textbook. Its style could be compared with "Office Practice of Neurology" from Samuels and Feske that many of you have on your bookshelves.

Who else will embrace this book? Most certainly savvy neurology residents and medical oncology fellows, because this tome is saturated with useful clinical information. It also belongs on the shelf of the general neurologist who frequently takes care of cancer patients and needs a quick,

readable, and practical reference. Even well-seasoned neuro-oncologists will likely refer to this text for problems less frequently encountered.

The first half covers diagnostic tools and symptoms of cancer neurology, including chapters on seizures, headache, mental status changes, cancer pain, and steroid therapy. These chapters should be required reading for all physicians who care for cancer patients.

There are dedicated chapters dealing with complications of cancer therapy, including those associated with newer treatments as well as older and rarer ones. The book closes with 13 chapters on neurologic complications tied to specific malignancies.

One would like to read this volume cover to cover. It might be a challenge, though, for most of us who carry a significant clinical workload. But even reading it "chunk by chunk," highlighting important information and frequently returning to it, would be immensely useful. The layout of each chapter is very clear and intuitive, and one can find the information one needs in a few turns of the page. Tables are clear and not overcrowded (kudos to the graphics editors!), images are of superb quality, and references are easy to read. Overall, this book is a great addition to any professional library.

*DR. MRUGALA is assistant professor in the division of neuro-oncology in the department of neurology and neurosurgery at the University of Washington, Seattle.*



**DR. MACIEJ M. MRUGALA**

## A Track Record of Extending, Connecting, Exchanging

BASED ON AN INTERVIEW WITH  
RAAD SHAKIR, M.D.  
Secretary-Treasurer, WFN

**I**t is almost 40 years since Dr. Raad Shakir, the WFN's secretary-treasurer general, received his medical degree from the University of Baghdad. Since then, his postgraduate pursuits and his many clinical, research, and academic endeavors have taken him to the United Kingdom, the Middle East, South East Asia, Africa, and the United States.

Members are familiar with Dr. Shakir's decades of service to the WFN. What they may not know are the years of training and research that prepared him for that task.

Over his career, his chief research area has been tropical neurology. One of his earlier WFN posts was as secretary and then chairman of its tropical neurology research group, then as secretary of the research group's Asian division.

Building on his experience with Asia, Dr. Shakir worked with Dr. Johan Aarli, WFN president, to bring the Chi-

nese Neurological Society to the membership of the WFN. Soon after he was instrumental in establishing the Africa Committee at a stakeholders' meeting in Stellenbosch, South Africa. With the committee in place, the WFN can now work with African entities to provide them with support and training.



**DR. RAAD SHAKIR**

Dr. Shakir's close work with these and other international organizations, together with his established expertise in central nervous system infections, culminated in his selection as chairman of the neurology working group for the 11th edition of the World Health Organization's International Classification of Diseases.

The excellence of Dr. Shakir's medical education and neurology training prepared him well for the leadership role he has played so well for WFN and other organizations. After receiving his medical degree in Baghdad, Dr. Shakir trained in neurology at the Institute of Neurological Sciences in Glasgow, Scotland. In 1980, he moved to Kuwait, where he was a consultant neurologist and associate professor then academic dean at the University of Kuwait Medical School in Kuwait City. During that time, he spent

a year at Harvard Medical School in Boston as a lecturer in the department of neurology.

In 1991, Dr. Shakir became consultant neurologist and clinical lecturer at the University of Newcastle Upon Tyne. Since 1995, he has been a consulting neurologist at London's Charing Cross Hospital and Central Middlesex Hospital and is currently head of the department and chief of service of the neurosciences/head and neck directorate at Imperial College, also in London.

Dr. Shakir is a member of the Royal Colleges of Physicians and a fellow of the Royal Society of Medicine and the Royal Society of Tropical Medicine and Hygiene. He has served as the editor for three journals—Medical Principles and Practice, Journal of Tropical and Geographical Neurology, and Neurological Infections and Epidemiology—and as author of numerous papers and book chapters, as well Tropical Neurology (published by W.B. Saunders; first edition, 1999, and second edition, 2003).

In addition to the WFN, Dr. Shakir has also maintained a longtime association with the International League Against Epilepsy, with stints as treasurer of the league's commission on tropical diseases and as a member of its education and public relations committees. ■

# A. Martin Halliday, M.D., 1926-2008

BY S.J. JONES, M.D.

**D**r. Martin Halliday died March 18, 2008, at the age of 81.

Dr. Halliday's outstanding career in neurology and clinical neurophysiology spanned the exciting decades from 1950 to 1990, when advances in the specialty came frequently.

His pioneering enthusiasm for computer technology placed him at the forefront of research into sensory evoked potentials (EPs), arguably the first noninvasive "window" onto specific processes of the human brain.

While deeply interested in all aspects of brain function, Dr. Halliday never forgot that the chief virtue of EPs consisted in what they could contribute to clinical neurology.

Dr. Halliday showed academic promise from an early age. He passed the entrance examinations for both Oxford and Cambridge universities at 15 years old but was deemed too young to attend.



DR. MARTIN HALLIDAY

By the age of 20, he had graduated with first-class honors from the University of Glasgow.

His subsequent medical training was followed by an obligatory period of military service, during which his aptitude for research became apparent. His work on the effect of sleep deprivation on hand tremor was prompted by the need to quantify and minimize the risks of pilot fatigue during the Berlin airlift.

This led to an invitation from Dr. Arnold Carmichael to join the newly established Medical Research Council unit at the National Hospital for Nervous Diseases in London.

Dr. Halliday's subsequent espousal of EP research followed the lead of his colleague Dr. George Dawson, who had shown that consistent stimulus-related potentials could be extracted from the electroencephalogram (EEG) by means of analogue signal-averaging. In 1961, with the inestimable technical assistance of Dawson's electronic wizard, Jack Pitman,

Dr. Halliday introduced the first generation of digital signal-averaging devices to clinical neurophysiology. The nucleus of his team was completed by his research assistant and wife, Lisl.

Dr. Halliday's most significant clinical breakthrough came in the early 1970s, when his work with Dr. Ian McDonald and Dr. Joan Mushin showed for the first time that visual EPs could be used as a highly sensitive diagnostic test in patients suspected of having optic neuritis or multiple sclerosis (MS).

It was this discovery that led directly to the adoption of similar methods in neurodiagnostic departments all over the world, and to an explosion of visual EP (VEP) research. Subsequent papers from Dr. Halliday's lab refined the method and quantified the diagnostic power of VEPs in MS and other demyelinating diseases, demonstrating the complementarity of VEP methodology with imaging techniques such as magnetic resonance imaging.

It is essentially the same method that remains in use today, and is still regarded as

the benchmark test for pathophysiological studies of optic nerve demyelination. Published at the end of his career, the second edition of Dr. Halliday's largely self-penned reference work, "Evoked Potentials in Clinical Medicine," seems unlikely ever to be superseded.

One of Dr. Halliday's many virtues was his insistence on due credit being accorded all his collaborators, including the most junior. A kind friend as well as an inspiring chief, Dr. Halliday was a cultured and humane man whose extramural interests extended to the arts (especially music) and philosophy.

Perhaps his least-known contribution was in the promotion of Advaita, a Hindu philosophical school that addresses the ultimate truth underlying the religions of the world.

His third book in this area, "The Spiritual Awakening of Science," is soon to be published posthumously. ■

DR. JONES is Honorary Consultant, National Hospital for Neurology and Neurosurgery, London.

## MEETING HIGHLIGHTS

# The 13th European Congress of Clinical Neurophysiology

BY PAOLO M. ROSSINI, M.D.

**A** total of 820 participants from 43 countries (including non-European countries such as Thailand, Korea, Australia, Egypt, and New Zealand) attended the 13th European Congress of Clinical Neurophysiology, which took place from May 4 to May 8, 2008 in the Istanbul (Turkey) Convention Centre.

The congress was convened by Prof. Onder Us of the city's Institute of Neurological Sciences at Marmara University, and featured more than 400 scientific presentations in the field of clinical neurophysiology, including studies on epilepsy, movement disorders, Alzheimer's disease, stroke, sleep disorders, peripheral neuropathies, and myopathies.

Data also were shared on some of the future therapies of interest to this important medical specialty, including deep and surface brain stimulation, transcranial magnetic stimulation, robots for rehabilitation, the brain-computer interface, psychophysiology and brain cognition, and brain imaging.

The congress was enriched by the participation of the executive committee of the International Federation of Clinical Neurophysiology (IFCN), which is led by Prof. Hiroshi Shibasaki, its president, and also by the active involvement of several prominent neuroscientists who are interested in and deal with electromagnetic brain function in Europe.

One major highlight of the congress was the attendance of a large number of young contributors, 60 of whom benefited from the Young Travel Fellowships awarded by the IFCN and the European Chapter. The number of fellowships awarded was the greatest in the congress's history.

Besides the scientific activity, the con-



COURTESY DR. MARK HALLETT

**Dr. Rossini said one highlight was the many young investigators in attendance.**

gress offered an exciting social program. The faculty dinner and gala dinner were held in enchanting historic buildings in old Istanbul, amid terrific views of the Bosphorus.

The General Assembly of the European Chapter also chose the site of the next congress.

Presentations were made by the Austrian Society, in support of Innsbruck, and also by the Italian Society, in support of Rome.

Ultimately, the delegates expressed their votes (22 to 15) in favor of having the next congress in Rome in 2011.

We'll see you in Rome! ■

DR. ROSSINI, of the department of neurological sciences, La Sapienza University, Rome, is the chairman of the European Chapter of Clinical Neurophysiology.

## Sympathetic Skin Response Reflects Degree of Spine Injury

**S**ympathetic Skin Response Reflects Degree of Spine Injury in Patients," a paper by young investigator Dr. Hatice Kumru and colleagues, was recognized at the 13th European Congress of Clinical Neurophysiology in Turkey with an award that is named for Prof. Korkut Yalrkaya, a highly respected Turkish neuroscientist.

The study's findings may eventually help neurologists and other providers develop an index of recovery of sympathetic function in patients who sustain spinal cord injury, by confirming the importance of supraspinal centers and the sympathetic descending pathways for the generation of the sympathetic skin response.

Dr. Kumru, of L'Institut Guttmann Hospital Clinic, in Barcelona, with colleagues Dr. Joan Vidal, Dr. Pedro Schestatsky, Dr. Jesus Benito, Dr. Maria Perez, and Dr. Josep Valls-Sole, characterized the dysfunction in the circuit responsible for the sympathetic skin response (SSR) in patients with spinal cord injury (SCI) and, specifically, whether the dysfunction was in the afferent or efferent arm of the response to somatic inputs.

The researchers analyzed the sympathetic skin response of the hands and feet in patients with spinal cord injury at various levels and of varying severity. Subjects were 16 complete

and 34 incomplete spinal cord injury patients.

The lesions were above T4 in 18 patients, between T4 and T10 in 20 patients, and below T10 in 12 patients.

Control subjects were 15 healthy volunteers matched for gender and age.

The sympathetic skin response was recorded during deep breathing, unexpected acoustic stimuli, single electrical stimuli to the median and peroneal nerves, and brisk hand muscle contraction.

However, the response was absent in hands and feet in three patients with complete spinal cord injury above T4.

It was present in the hands and absent in the feet in 10 complete spinal cord injury patients and in 3 patients with incomplete spinal cord injury at various levels.

In patients who had responses in both the hands and feet, the mean latency difference between them was significantly longer than in control subjects, regardless of stimulus modality ( $P$  less than .0001 for all comparisons).

The amplitude of the sympathetic skin response was bigger in control subjects than in patients in hands and feet, but the differences were only significant for brisk hand muscle contraction in the foot.

Dr. Kumru's paper was selected for the honor over 10 other finalists.



DR. HATICE KUMRU

Welcome  
to the



# 19th World Congress of Neurology

October 24<sup>th</sup>-30<sup>th</sup>, 2009  
Bangkok, Thailand

“Innovation in Neurology”



“Deadline for abstract submission is March 31<sup>st</sup>, 2009.  
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