The World Federation of Neurology recently joined forces with the International Federation of Clinical Neurophysiology and patient support groups, including the Motor Neurone Disease Association (UK) and the American ALS Association, to convene a consensus meeting to address diagnostic criteria for amyotrophic lateral sclerosis (ALS; motor neurone disease).

The broad aim of the consensus meeting was to improve the process of diagnosis of ALS in the early stages of the disease, when clinical symptoms are minimal, thereby giving therapies the best chance of success. Previous ALS criteria, dating back to the original El Escorial and later Airlie House and Awaji criteria, used degrees of diagnostic certainty from possible to definite ALS. While such an approach makes sense, it also carries a degree of uncertainty for patients, their families, and clinicians. From a practical level, patients with a label of possible ALS...
FROM THE EDITORS

BY STEVEN L. LEWIS, MD, EDITOR, AND WALTER STRUHAL, MD, CO-EDITOR

Online Education for Virtually Every Neurologist

W e would like to welcome all neurologists worldwide to the October/November 2020 issue of World Neurology. This issue begins with the report from Matthew Kiernan for the ALS Consensus Committee, operating with the support of the WFN, about the development and publication of the new ALS diagnostic criteria, which are aimed to diminish ambiguity of patients’ diagnoses while also facilitating enrollment of patients into clinical trials. In this issue’s President’s Column, WFN President William Carroll reports on the current global efforts to understand, collaborate, and report on the neurologic aspects of COVID-19 and also updates us on the recent Annual General Meeting of the Council of Delegates, the success of the recent World Brain Day 2020, and current and current successful efforts related to virtual education in the current era from the WFN, the national societies, and WFN specialty groups. In his recurring column on the WFN Committees and Specialty Groups, WFN Secretary-General Wolfgang Grisold updates us on the activities of the WFN Congress Committee and the WFN Specialty Group on Rare Neurologic Diseases. In this issue’s history section, Aernoud T.L. Fiets and Ingrid M. Daey Ouwens describe the history of malaria fever therapy as a treatment for general paralysis of the insane from neurosyphilis, which may include cognitive, behavioral, and neurological patients throughout the world during this pandemic, and wish you all the best of health and safety.

DIAGNOSIS CRITERIA FOR ALS continued from page 1

may be denied entry to clinical trials, even though such patients would likely benefit from instigation of trial therapies compared with those recruited later in their disease.

Given that uncertainty around a diagnosis of ALS constitutes a potential barrier to patient enrollment in clinical trials, the consensus meeting held on the Gold Coast in Australia began by considering a broad range of data across different phenotypes, clinical presentations, and outcome measures, in addition to discussions that evaluated diagnostic technologies. Prior to defining consensus criteria, a collective understanding of ALS was established based around key tenets: that ALS represented a progressive disorder of the motor system, that it involves dysfunction of upper and lower motor neuron compartments of the nervous system, and that there is typically a focal onset. It was accepted that while upper motor neuron signs were not always clinically evident, involvement of the lower motor neuron was more often apparent through clinical examination. In terms of diagnostic technologies, supportive evidence of lower motor neuron dysfunction has tended to be derived from electromyography and neuromuscular ultrasound, particularly the detection of fasciculations in multiple muscles. Supportive evidence of upper motor neuron dysfunction was more limited, relying on transcranial magnetic stimulation studies of the central motor nervous system, MRI, and neurofilament levels. Although it was accepted that a diagnosis of ALS does not require these investigations. And finally, while ALS may include cognitive, behavioral, and psychiatric abnormalities, these features were not essential for a diagnosis. Accepting these broad concepts of disease, combined in an integrated fashion, a consensus was reached, whereby ALS was defined by the presence of:

- Progressive motor impairment, documented by history or repeated clinical assessment, preceded by normal motor function.
- Upper and lower motor neuron dysfunction in at least one body region (in the same body region if only one body region was involved), or lower motor neuron dysfunction in at least two body regions.
- Investigation findings that excluded alternative disease processes.

In adapting these simplified criteria for ALS, the previous diagnostic categories of possible, probable, and definite were abandoned. Such assessment of a likelihood of disease served to generate misinterpretation by patients, who may inadvertently have considered that such terms represented the likelihood that ALS was causing their symptoms. In reality, the consensus group acknowledged that nearly all patients diagnosed as possible ALS continue to progress and ultimately die from ALS. Moving forward from these new consensus criteria, it is anticipated that ALS patients will be fast-tracked into clinical trials. With the advent of these new criteria, the diagnosis of ALS can be made earlier, and definitively.

Reference:
PRESIDENT’S COLUMN
continued from page 1

workers, and hospital facilities are struggling to care for those affected. Within this activity, we are also witnessing a disturbing trend of disbelief and even outright opposition toward the need for change in social behavior. There is a nagging sense that beneath the surface, there is a latent feeling of every person for themselves.

It is essential in such environments that professional organizations, such as ours, remain united in our efforts to care for those with neurological diseases. Record accurately those with COVID-19-related neurological illness, support colleagues in the battle with COVID-19, and maintain the training of our next generation of neurologists.

As I have mentioned before, the WFN was already moving to a more electronic-based medium for its educational and communication activities prior to COVID-19. There are now several changes underway within the WFN that will likely drive new and innovative programs. These may result in transformation of WFN operations and potentially persist after the pandemic has subsided.

In communication, the London office has completed the first step to improve its ability to reach all member societies and their individual neurologists. Almost all 122 member societies have contributed to the updating of their contact details, for which the trustees and office staff are most grateful. The second step will be to ensure that material disseminated to member societies is timely, meaningful, and reciprocal. In an era where physical meetings may never be the same again, this is an important and essential development.

Examples of how this development has already proven beneficial are the recent Council of Delegates Annual General Meeting, the trustee election, and the promotion of three successful educational programs. In all of these, up-to-date information was communicated to all member societies and through many of them to their memberships.

For the first time in the history of the WFN, a virtual Annual General Meeting was held on Sept. 9. This was notable also for the large number of member society delegates, given that in a non-World Congress of Neurology year, as 2020 is, attendance numbers are typically on the low side. Business was conducted in the usual format and essential motions proposed and carried. Dr. Morris Freedman was declared the new elected trustee following a smooth electronic electoral process contested by six high quality candidates. The clarity, rapidity, and accuracy of the election were greatly appreciated by the office staff, who are usually tasked with such matters manually. While this format lacked the usual intense discussions and face-to-face canvassing, it allowed many more societies to participate without having to travel or to arrange proxies.

Improved communication with member societies has also aided the promotion and the production of educational activities. Two WFN specialty groups and a regional organization have illustrated this aspect effectively. First, the Neuromuscular Disorders Specialty Group, chaired by Prof. John England, partnered with the Spanish Neurological Society to hold a virtual International Congress on Neuromuscular Diseases (ICNMD) Sept. 11-14. Some 800 registrants from almost 50 countries attended the congress and will be looking forward to the next congress in July 2021 in Valencia. Second, the Tropical and Geographical Neurology Specialty Group has just begun the second series of its highly popular and successful, mainly fortnightly, Neuroinfection sessions. Chaired by Prof. Chandrasekhar Meshram and supported by the Indian

It is essential in such environments that professional organizations, such as ours, remain united in our efforts to care for those with neurological diseases, record accurately those with COVID-19-related neurological illness, support colleagues in the battle with COVID-19, and maintain the training of our next generation of neurologists.

See PRESIDENT’S COLUMN page 4
International Webinars of Experts in Clinical Neurophysiology:
New Paths of Sharing Science for Neurology Education in the Era of the COVID-19 Pandemic

BY ABDERRAHMANE CHAHIDI, ZOUHAYR SOURIHI, MOHAMED CHIRAA, NAJIB KISSANI, REDA OUAZZANI
 MOROCCAN SOCIETY OF NEUROPHYSIOLOGY & MOROCCAN LEAGUE AGAINST EPILEPSY, MOROCCO.

Health care innovation, notably in clinical neurology and neurophysiology, has been rapidly growing over the last few decades, both in terms of therapy and diagnosis. Hence, it is necessary to spread and share information along the various possible paths. In this time of confinement, and to keep abreast of current news, mainly in the developing regions of the world, the Moroccan Society of Neurophysiology IFCN Chapter and the Moroccan League Against Epilepsy ILAE Chapter organized a series of Expert Webinars over three months (May, June, and July 2020) and focused on topics of concern to the clinicians in their daily practice, particularly in the field of clinical neurology and neurophysiology (EEG, EMG, ERP, TMS, Epilepsy, Neuromuscular diseases, Sleep, Neurostimulation, etc.).

The webinar language can be English or French, and many renowned experts in the different fields of clinical neurology and neurophysiology kindly accepted our invitation.

This innovative initiative aims to animate the field of clinical neurology/neurophysiology in our context and boost synergies between the players in various medical and surgical disciplines involved in neurology. Highly supported by the scientific community, the Clinical Neurophysiology Expert Webinars discussed the daily challenges faced by practitioners in teaching clinical cases.

These webinars had the following objectives: ensuring the continuity of the teaching of young people and the continuing education of specialists and practitioners, substituting for the scientific days, meetings, congresses, and training courses usually organized at this time of the year, perpetuating solidarity and collaboration between national and international professionals, and reinforcing the relationships between the SMNPH, IFCN, and WFN. Finally, another objective is to unify the efforts of scientific societies to address the multiple global health challenges caused by the various pandemic threats to humanity, such as the COVID-19 pandemic.

This initiative was inaugurated with an EEG and epilepsy course led by Prof. Ron Lesser focusing on EEG interpretation, including normal EEG interpretation (techniques, artifacts, and normal aspects) and pathological EEG interpretation (epileptic abnormalities and non-epileptic abnormalities), and Prof. Gregory Krauss, who presented a lecture on nonepileptic events often misidentified as seizures (psychogenic seizures and syncope).

The second session of lectures, dedicated to EMG and neuromuscular diseases, took place the next day. Prof. Henry Kaminski from George Washington University talked about the diagnosis and treatment of ocular myasthenia gravis. In addition, we were gratified by the participation of Prof. Ryuji Kaji (First Vice President, WFN, Japan), as our special invited speaker, who provided an update on the electrodiagnosis of ALS and related disorders.

The Moroccan Neurophysiology Society (MNPS) has been excited to receive the feedback from the participants who have enormously appreciated these new ways of scientific meetings and who keep asking for more webinars.

The program, which concluded July 30, included more than 40 presentations that were presented by a variety of expert speakers and moderators.

Example of a full Q&A session after Prof. Kaji’s talk.

The Brain Health Initiative is close to presenting the first of a series of five videos aimed at the general population. We hope that it and its successors will promote improved awareness of the importance of brain health and the provision of quality neurological care.

While we all miss the pleasure of meeting and communicating face-to-face with our colleagues, the resumption of that personal interaction with the developments described above will significantly enhance the cohesion and success of the WFN. Meanwhile, I wish everyone a safe coexistence with the pandemic.

Prof. William M. Carroll
President, World Federation of Neurology
**Treatment Evaluation Takes Time**

**A Cautionary Tale From the History of Malaria Fever Therapy**

**BY AERNOUD T.L. FIOLET AND INGRID M. DAEV OUWENS**

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**Introduction**

History is the present seen through the eyes of the future. Now, more than ever, we are confronted with this aphorism, as one of the most impressive contemporary pandemics unrolls. As of mid-October 2020, according to the WHO (https://www.who.int/emergencies/diseases/novel-coronavirus-2019), more than 39 million cases have been confirmed worldwide, including more than 1 million deaths. The societal and economic sequelae of the virus management are felt on a global scale. Meanwhile, scientific research on the subject has surged. Fundamental research quickly provided insight on the virus genome and its systemic dissemination. Many institutions and pharmaceutical industries have reallocated resources on the development of therapeutic solutions. The focus is on effective vaccination, strategies to reduce the hyperinflammatory response, and support of the critically ill. While attempting to catalyze the process of resolving current unmet needs, the risks of compromising scientific integrity and validity may become apparent.

The history of medicine teaches us that the elusive nature of a disease and the urgency felt by the medical society to treat it may incite as well as impede scientific development. An example par excellence is the intentional inoculation with plasmodium, the causative agent of malaria, to induce fever in patients suffering from General Paralysis of the Insane. In the early 20th century General Paralysis of the Insane was a much feared and nearly always lethal presentation of syphilitic infection. Future Nobel prize laureate Julius Wagner-Jauregg evoked a paradigm shift for the treatment of this condition when he developed malaria fever therapy.

This paper on the introduction of malaria fever therapy for General Paralysis of the Insane aims to provide a meaningful insight into pitfalls that may arise during scientific developments in urgent times, then and now.

**General Paralysis of the Insane and Malaria Fever Therapy**

General Paralysis of the Insane, also designated “General Paralysis” or “dementia paralytica,” caused a worldwide health care problem with a considerable social and economic impact during the turn of the 19th to 20th century. At its peak, one-fifth of admissions and one-third of deaths in asylums in western Europe and the United States were attributable to General Paralysis of the Insane. In this tertiary form of syphilis, progressive neurological and psychiatric symptoms occurred six months to several decades after the initial syphilitic infection. Most patients died within six years after diagnosis. Various applications of highly toxic heavy metals, e.g., mercury, sulphuric acid, and arsenic acid, were used to treat early stages of syphilis, mostly with some success. As with all manifestations of syphilis, long-term treatment was required, hence the expression, “One night in the arms of Venus leads to a life on Mercury.” However, these methods were of limited use in General Paralysis of the Insane.

Beneficial effects of fever due to an intercurrent disease in patients with somatic and psychiatric conditions have been reported since classical times. The Austrian psychiatrist Julius Wagner-Jauregg (1857-1940) took this approach one step further by intentionally inducing fever in psychotic patients. At the end of the 19th century, he started his experimental treatments using streptococci, tuberculosis, and typhoid vaccine. The results, however, were disappointing. He continued this line of research more than a decade later. In 1917, he induced fever by inoculation of blood containing plasmodium. The ensuing malarial fever spikes were terminated with quinine bisulphate. In addition, the patients received neosalvarsan, an arsenic, of limited use in General Paralysis of the Insane. Nine of these patients contracted malaria. Following this treatment, two of them further developed malarial fever therapy, was adopted as the standard treatment for General Paralysis of the Insane by the global scientific community within 10 years of Wagner-Jauregg’s first report.

**Contemporary Scientific Report on Malaria Fever Therapy**

Wagner-Jauregg’s first report comprised a case series of 10 malaria-inoculated patients with General Paralysis of the Insane. Nine of these patients contracted malaria. Following this treatment, two patients showed permanent considerable improvement with regard to General Paralysis of the Insane, four patients suffered relapses, two had to be sent to an asylum, and one patient died.

Gerstmann, at the time an assistant at Wagner-Jauregg’s clinic, reported that at the end of 1921 more than 200 patients had been treated with malaria fever therapy in their clinic, of whom 50 had been able to return to work. These results encouraged the introduction of malaria fever therapy not only in Europe, but also in South America and the USA. In 1926, an international review of 2,460 cases recorded in the literature found that 27.5% of the treated patients improved greatly and another 25.6% moderately in accordance with the findings of Gerstmann.

In 1927, Wagner-Jauregg was awarded the Nobel Prize in Physiology or Medicine for his discovery of the therapeutic value of anti-malaria vaccination in the treatment of dementia paralytica. This recognition undoubtedly contributed at an international level to an increase in the number of malaria fever treatments applied. Within 10 years of Wagner-Jauregg’s first report, malaria fever therapy was globally adopted as the standard treatment for General Paralysis of the Insane.

**Current Appraisal of Malaria Fever Therapy**

The reported treatment outcome appeared very favorable for a previously considered untreatable condition. However, the evidence to support the efficacy of malaria fever therapy was weak. It is remarkable that in 1933 malaria fever therapy was not yet subjected to a standardized set of regulatory research criteria, while at that time any drug used in the treatment of patients was controlled with formal standards including animal research, toxicity tests, histopathological studies, tests of therapeutic efficacy, and approval by a federal regulatory board. Only observational studies were available with many differences in often poorly described patient characteristics and diagnostic criteria. By 1924, malaria fever therapy was also used in asymptomatic individuals who had a positive Wassermann reaction (indicating syphilitic infection), in order to prevent the development of late stage General Paralysis of the Insane. The number of patients included is often not clarified. Differences in malarial strains used, the mode of infecting the patient (inoculation of malaria-infected blood versus the bite of infected mosquitoes), number of fever spikes left untreated, pharmacological treatments preceding or following malaria fever therapy, and outcome criteria will all have influenced the results. Moreover, differentiation between treatment outcome and spontaneous remission requires a long follow-up period of at least three years, much longer than the usual follow-up period reported in the studies.

Perhaps most importantly, it was not possible to isolate the effect of the induced fever in itself from the effect of concomitant heavy metal therapy and general hygiene strategies taken to improve the patient’s general health. Fresh air, good nutrition, massage, hydrotherapy, and the elimination of physical and mental stress were implemented in the hope of increasing the bodily defense against the syphilitic infection and to strengthen the condition of the patients prior to the exhausting effects of malaria fever therapy.

Lastly, reporting bias may have led to a distortion of the published results. Wagner-Jauregg and Gerstmann did not report the death of three out of four newly inoculated patients with General Paralysis of the Insane in 1917 or 1918. Due to Wagner-Jauregg’s omission to microscopically examine blood prior to inoculation, these patients had received blood containing plasmodium vivax. As he later documented in his memoirs,
We would like to walk you through the seven steps we recommend for conducting a virtual public awareness event. This has really helped us to get our message out to the community on World Brain Day 2020 with a live event held at Janakpuri Super Speciality Hospital Society in New Delhi (JSSHS), India.

**Step 1: A Well-Thought-Out Theme With a Bird’s Eye View**

Prof. Man Mohan Mehndiratta, director, professor, and head of Neurology, JSSHS, decided to take the responsibility of sharing the efforts of the WFN on World Brain Day, following the theme of moving together to end Parkinson’s disease. Despite the constraints of the COVID-19 Pandemic and social distancing, a virtual public awareness and education series was planned and held July 22, 2020, at JSSHS with the above theme.

**Step 2: Choosing Speakers and Inviting Them**

Eminent international and national neurologists were invited as speakers. Telephonic and email correspondence occurred, requesting them to spare their time for their valuable input as panelists for this event.

**Step 3: Informing Patients and Their Caregivers**

Parkinson’s disease patients and caregivers who had visited the neurology outpatient department in the previous few months were registered with their contact details and were continuously informed regarding event plan updates.

**Step 4: Engaging the Administration for Telecommunication Setup and Creating Video Links**

High speed internet connectivity, audio visual setup, and virtual platform video links were tested, along with a pre-event dry run to ensure smooth functioning of the event.

**Step 5: Creating An Event Schedule Page, Informing the Speakers and Audience, and Cross-Promoting**

Dr. Amrita Tiwary Vyas, specialist of nuclear medicine at Janakpuri Superspeciality Hospital Society in Janakpuri, New Delhi

Dr. Natasha Singh Gulati, MD, specialist of cytology at Janakpuri Superspeciality Hospital Society in Janakpuri, New Delhi

Dr. Yogesh Sharma, MBBS, DNB, senior resident and associate research fellow in the department of neurology at Janakpuri Superspeciality Hospital Society in Ja

Durgesh Kumar Pathak, BOT, MOT, neurodevelopmental disorders fellow and occupational therapist at Janakpuri Superspeciality Hospital Society in Janakpuri, New Delhi

**Step 6: Encouraging Interaction and Participation And Keeping the Event Interesting**

All of the patients were given a chance to ask their queries. An e-poster competition was also held with e-certificates and cash prizes. The results were announced the very same day with the judges being the invited faculty speakers.

**Step 7: Finally, Evaluating the Event And Continuing to Engage In or Arrange Similar Events In Future Years**

We hope these seven steps are helpful to others as they plan future events promoting awareness of neurological disorders.

Prof. Man Mohan Mehndiratta, MD, DNB, DM, FAAN, FAMS, FMAM, FRCP, FICP, FIAN, professor and director of the department of neurology at Janakpuri Super Speciality Hospital Society in New Delhi, India.
World Brain Day Celebration in India

BY CHANDRASHEKHAR MEHRAH, PRAMOD KUMAR PAL, GAGANDEEP SINGH, NIRMAL SURYA, VINAY GOYAL

The theme of this year’s World Brain Day, “move together to end Parkinson’s disease,” is very relevant for patients, their caregivers, family physicians, and the general public, and therefore there was a lot of excitement about the event. World Brain Day was celebrated throughout India on July 22. Due to the COVID-19 pandemic, auditorium or field programs could not be organized, so the campaign was mainly through print and electronic media with virtual meetings in different cities of the country.

Mumbai
A World Brain Day awareness program was organized as a webinar by the Indian Academy of Neurology (IAN) and the Epilepsy Foundation and Movement Disorder Society of India (MDSI). The secretary of IAN, Dr. Gagandeep Singh, made introductory remarks and introduced the faculty for the event. Dr. Tissa Wijeratne, chair of World Brain Day, inaugurated the event by lighting a lamp. He also mentioned that though Parkinson’s disease was first described in modern literature by James Parkinson, ancient Indian physician Sushruta had mentioned it as Kampa Vata a few thousand years back and suggested treatment for it. He said there is a lack of awareness about this disease even in developed countries, so this theme was chosen.

Dr. Pramod Kumar Pal, president of IAN and a movement disorder specialist, mentioned that there are many young Parkinson’s patients in India and there is a need of epidemiological study of Parkinson’s disease. Dr. Vinay Goyal, president of MDSI, said that the major problem is delay in diagnosis due to lack of awareness about this disease. Dr. U Meenakshi Sundaram, secretary of MDSI, presented interesting statistics about Parkinson’s disease. Dr. Chandra Shekhar Meshram, convener of National Brain Day, stressed the importance and ways of celebrating WBD. Dr. Nirmal Surya, chairman of the Neurological Society of India, Dr. Meshram explained clinical manifestations of Parkinson’s disease through videos. Neurologist Dr. Dhruv Batra explained available treatment options for better day-to-day activities. Psychiatrist Dr. Sudhir Bhave highlighted various psychological problems in patients with Parkinson’s disease and how to cope with them. Jayashree Pendharkar explained the role of proper diet in these patients. Dr. Sheetal Mundhada showed various exercises for these patients through a video demonstration and emphasized the role of yoga, physiotherapy, and various exercises for a better life. Dr. Nitin Chandak answered questions from the audience. Dr. Kajal Mitra, dean of NKP Salve Institute of Medical Sciences, announced that the chairperson of the Institute, Ranjeet Deshmukh, will sponsor one deserving patient every year for deep brain stimulation (DBS). About 150 people attended the webinar.

Trichy
Neurologist Dr. M. A. Alem’s interview on Parkinson’s disease was published in the newspaper.

Delhi
A World Brain Day event was organized by the neurology departments at Lady Harding Medical College and SK Hospital. Prof. Rajinder K. Dhamija, head of the neurology department, published an op-ed piece, titled “Mind the Brain: It Is High Time to Act Now” on the editorial page of Daily World. He was also interviewed about World Brain Day and Parkinson’s disease by Pioneer. Dr. Rajinder K. Dhamija also appeared on national television (DD News) in addition to All India Radio’s special program, Surkhyon Mein, to discuss World Brain Day.

At Agrim Institute of Neurosciences, Dr. Manish Mahajan gave a talk on Parkinson’s disease and its management.

Chennai
Dr. E. S. Krishnamoorthy was interviewed by Sunalini Mathew for the paper The Hindu.

Nellore
On the occasion of World Brain Day, Dr. Bindu Menon, head of the neurology department at Apollos hospitals in Nellore, and Andhra Pradesh delivered a lecture titled “Know About Parkinson’s Disease,” followed by a question-and-answer session. The Parkinson Disease Movement Disorder Society (PDMS), which has 60-plus centers in India with 40,000-plus beneficiaries, conducted this event. Dr. Bindu Menon thanked Prof. B. S. Singhal, the founder and honorary secretary of PDMS, and their team on behalf of the Nellore branch of the PDMS support group. The meeting was held in the Telugu language to both Andhra and Telangana state participants. Dr. Bindu Menon spoke about symptoms and signs, diagnostic approaches, and different treatment modalities of Parkinson’s. There was excellent interaction. The session concluded with a note of thanks by Dr. M. Barretto.
Move Together to End Parkinson’s Disease: World Brain Day 2020 in Pakistan

BY DR. ABDUL MALIK - MD

The World Federation of Neurology (WFN) promotes brain health through its education, skills development, and advocacy activities. Since 2014, the WFN has organized dedicated awareness drives in all the WFN member countries around the globe.

The WFN, in collaboration with the International Parkinson’s and Movement Disorder Society, declared the sixth World Brain Day this year, dedicated to the awareness for Parkinson’s disease, which is a neurodegenerative brain disease that affects the mind, movement, and almost all aspects of brain function.

We in Pakistan, along with numerous other global organizations, joined again this year with this campaign to support the WFN in advocating for improved patient care, education, and additional advocacy activities. Since 2014, the WFN has organized and advocacy activities. Since 2014, the WFN has organized

The Neurology Awareness and Research Foundation (NARF) organized countrywide activities to mark the sixth World Brain Day, with the theme of moving together to end Parkinson’s disease. Parkinson’s disease affects people of all ages, including one in 100 people over the age of 60. The prevalence of this disease is on the rise, making our actions today vital to improving the lives of those who have been and will be diagnosed, particularly during this global health crisis.

Keeping in view the COVID-19 pandemic, our organized activities in Pakistan (online through Zoom and Facebook) became regional and even global activities as our participants were just not from Pakistan; they were from India, Bangladesh, the UAE, the US, the UK, Canada, and different parts of the Europe.

These awareness activities were more focused on social media like Twitter, Facebook, and WhatsApp. We also organized patient welfare activities by organizing two free Parkinson’s clinics on July 19 and July 24, adopting all standard operating procedures regarding the patients’ and medical staff’s safety. The services provided during these free clinics included not only free consultation from a neurologist, but also free services from a physiotherapist, speech therapist, and neuropsychiatrist.

We prepared awareness flyers in the Urdu language about Parkinson's for the general public; this material was in simple, local language. World Brain Day posters were placed in almost all of the major institutes and departments of neurology in Pakistan.

We prepared a NARF Exercise Diary in the Urdu language with illustrative pictures to inform Parkinson’s patients about the importance of exercise as well as to motivate them to do these exercises at home. The diary comprises exercises involving all four limbs and trunk, including standing and sitting positions with facial exercises; speech exercises and speech therapy are also briefly described. This diary was launched in collaboration with the Pakistan Parkinson’s Society and was distributed among all neurology centers throughout Pakistan.

On July 14, NARF organized a Facebook Live public awareness session on Parkinson’s disease in the context of WBD 2020. This session was held at Agha Khan University in Karachi and was organized with the leading media group of Pakistan, Dunya. The complete proceedings of this session were published in the Daily Dunya newspaper. In this session, we had the top neurologists of the country. Prof. M. Wasay, Prof. Naila Shabbaz, and Dr. Bashir Soomro, as the participants.

Besides these we had the director of the Institute of Psychology, Prof. Dr. Uzma Ali, an assistant professor and physiatrist from the Institute of Physical Medicine and Rehabilitation of DUHS, Dr. Syed Saeed Qaiser; and the editor of the Daily Dunya Karachi, Ahmed Hassan, as the panelists.

Dr. Abdul Malik and Mustafa Habib Siddiqui were the moderators of this extensive awareness session, which was seen live in almost two dozen countries.

On July 22, NARF organized a Zoom webinar which was CME-credited by the Jinnah Sindh Medical University. Principal Liaquat College of Medicine and Dentistry Prof. Dr. Rashid Naseem Khan gave opening remarks. The educational talk in context of the theme of World Brain Day was given by Dr. Abdul Malik, the rehabilitative talk was given by Dr. Farooq Rathore, and the keynote speech on the review of non-motor symptoms with recent advances in Parkinson’s management was given by Canada by the Dr. Abdul Qayyum Rana. A large number of undergraduate students, postgraduate trainees, and faculty members attended this interactive academic session.

The awareness activities were not only covered in national and local newspapers but also in the electronic media. Almost a half dozen leading newspapers and magazines published articles on Parkinson’s disease.

In short, keeping in view the COVID-19 pandemic, a comprehensive advocacy campaign for Parkinson’s disease awareness was executed on the occasion of this year’s World Brain Day 2020 from Pakistan as a member of the WFN.
WFN Neuroinfection Series: A Success Story Continues

BY DR. CHANDRASHEKHAR MESHRAM

The Tropical and Geographical Neurology Specialty Group of the World Federation of Neurology, in collaboration with the Forum for Indian Neurology Education (FINE), organized a neuroinfection webinar series held every Saturday from July 18 to Sept. 5. It was first educational activity of its kind by a WFN specialty group. The event was formally inaugurated by Prof. Raad Shakir, immediate past president of the WFN and chair of the WFN specialty groups, in the presence of WFN Secretary General Prof. Wolfgang Grisold. The series was dedicated to Prof. Jagjit Singh Chopra. In the last session, tribute was paid to the late Prof. Amilton Barreira, who was secretary general of the specialty group. Dr. Chandrashhekhar Meshram, president of the Tropical and Geographical Neurology Specialty Group of the WFN, was the course director.


Reports of the sessions were published in Indian newspapers as part of public education activities. Those who missed live attendance at the sessions can watch the videos on YouTube, the links to which are available on the WFN website. https://wfneurology.org/2020-09-10-wfn-fine

Second Neuroinfection Series Happening Now

Encouraged by the success of this series, the Tropical and Geographical Neurology Specialty Group, in collaboration with Indian Academy of Neurology and FINE, planned the second WFN Neuroinfection series with eight sessions that began on Sept. 26. WFN President Prof. William Carroll inaugurated this second series. Organization of the sessions rotated between Asia-Oceania, PAFNS, the AAN ID group, Europe-EAN ID group, and the Pan Africa and Pan Arab regions. Those interested in presenting cases should contact the respective moderator for the session.

Registration is free. Link for registration can be found at: https://forms.gle/BX3syKcztAWL Gyu6

Registered delegates will be informed about the details of the session by email before each session. Link to join the program: https://us02web.zoom.us/j/87248087732?

Password: wfnmi

Each session takes place at 1 p.m. GMT/UTC and can also be watched on YouTube.

We encourage delegates from different countries to participate and present their cases.

TENTATIVE PROGRAM

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<th>Number</th>
<th>Date</th>
<th>Topic</th>
<th>Speaker/Moderator</th>
<th>Organizing Region</th>
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<tbody>
<tr>
<td>1</td>
<td>09/26</td>
<td>Rabies</td>
<td>Thiravat Hemachudha</td>
<td>Asia-Oceania</td>
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<tr>
<td>2</td>
<td>10/10</td>
<td>CNS Tuberculosis</td>
<td>Suzaan Maraiz</td>
<td>Pan Africa/Pan Arab</td>
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<tr>
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<td>10/17</td>
<td>Movement Disorders and Infection/Neurophilis</td>
<td>Fransisco Cordoso/ Marco Medina</td>
<td>PAFNS</td>
</tr>
<tr>
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<td>10/24</td>
<td>Chronic Meningitis/Infection and Stroke</td>
<td>Pille Taba/ Laura Benjamin</td>
<td>Europe/EAN ID Group</td>
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<td>5</td>
<td>11/07</td>
<td>Neurology of COVID 19</td>
<td>David Garcia Azorin</td>
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<td>6</td>
<td>11/21</td>
<td>Imaging in Neuroinfections</td>
<td>Aashish Atre</td>
<td>Asia-Oceania</td>
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<td>7</td>
<td>11/28</td>
<td>Neurology of HIV</td>
<td>Augusta Charway-Felli</td>
<td>Pan Africa/Pan Arab</td>
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<tr>
<td>8</td>
<td>12/12</td>
<td>Acute Bacterial Meningitis/ Brain Abscess</td>
<td>Kiran Thakur/ Deanna Saylor</td>
<td>AAN-ID Group</td>
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The challenge was to organize and dedicate speakers who could present time-sensitive information on myopathies, neuropathies, neuromuscular transmission, and motor neuron disease, as well as satisfy the requirements of an EACCME-accredited meeting. Time also was dedicated for excellent industry-sponsored presentations, similar to satellite symposia in face-to-face meetings.

With the help of professionals from International Conference Services Ltd, the development and fulfillment of ICNMDigital 2020 went extremely well. ICNMDigital achieved an impressive attendance of over 796 delegates from more than 38 countries. The program featured 27 speakers in 12 scientific sessions across four thematic days. In addition, several Industry-Supported Symposia were presented. Feedback from attendees was very positive, and most participants suggested that some form of virtual presentations remain a part of future meetings.

As validation of the success of the conference, we offer the following comments from participants: “We hope that 2021 will give us the possibility to organize the live congress again in Valencia, and definitely we have learned that virtual sessions and hybrid constructions will be useful and necessary in the future.”

“ICNMDigital met the challenge to organize in a very short time frame an exciting congress with outstanding content. The technical staff was incredibly helpful to make it a successful and smooth experience. Two thumbs up for organizers and all people with hands on!” – Laurent Servais

“I was fortunate to be able to give a talk alongside Mary Reilly, one of the best inherited neuropathy researchers in the world. Her talk brought a great crowd and set us on the right track. Davide Pareysen was a wonderful moderator, and we had incredible questions from the audience. The virtual format worked well, and I think encouraged even more thoughtful questions, which is what helps everyone learn. The ICNMD conference pulled off a great conference given very difficult circumstances.” – Brian Callaghan

As a reminder, the live ICNMD 2021 meeting is scheduled for May 28-June 1, 2021 in Valencia, Spain. Faculty from ICNMDigital 2020 will again join with the addition of new experts/sessions addressing updates and breakthroughs in research. A special session on COVID-19 is planned. All previously accepted abstracts remain on the schedule for ICNMD 2021. In addition, the ICNMD 2021 website will reopen for new or updated abstract submissions. See www.icnmd.org for details.
Parkinson’s Disease in Africa: A South African Perspective
A Report in Relation to World Brain Day 2020

BY DR. MARCELLE SMITH and DR. PATTY FRANCIS

The African continent has been experiencing rapid changes in recent decades, with increases in life expectancy. The average healthy life expectancy increased from 46.1 years in 1990 to 55.2 in 2017. This is still far below the average life expectancy in high-income countries of over 70 years. However, this has been sufficient to increase the burden of age-related and neurodegenerative conditions such as Parkinson’s Disease (PD).

There is a belief that PD is less prevalent in African countries, but incidence or prevalence studies for Africa are lacking. Most of the available studies are specific to individual countries. Williams et al. reviewed all the literature on PD in Sub-Saharan Africa published up to May 2016. The authors observed a prevalence of PD ranging from 7/100,000 in Ethiopia to 67/100,000 in Nigeria.

African countries experience unique challenges when it comes to diagnosis and treatment of PD. Firstly, there are far fewer neurologists in African countries compared to high-income countries, 0.03/100,000 in Africa versus 4.84/100,000 in Europe as per the WHIO Neurology Atlas. The WHO recommends at least one neurologist per 100,000 people. Approximately 270 million Africans live in countries where there are less than five neurologists per country.

Less than 50% of Sub-Saharan African countries have a neurological society. This limited access to neurologists leads to underdiagnosis and treatment of patients with neurological disorders such as PD.

The Neurology Association of South Africa comprises 87 neurologists in full-time private practice, 28 in full-time public sector practice and six members in limited practice. 27 registrars are currently in training. This gives a crude estimate of one neurology service provider per 400,000 population in South Africa.

Many African countries are also overburdened by malaria, TB, HIV, and other infectious outbreaks, e.g. Ebola. Hence very few facilities and resources are dedicated to non-communicable illnesses. Medication is only available to 12.5% of Africans with PD compared to 79% in Europe. 60% of Africans live off less than $2 a day and are unable to afford the necessary treatment themselves.

South Africa’s population was estimated at 59,308,690 people at mid-year 2020, according to UN data. Between 16-17% of these have private medical insurance, while the rest are dependent on state facilities for health care. Only three PD medications are available in state hospitals at present: levodopa, amantadine, and dopamine agonists. South Africa’s largest private medical funder’s formula includes l-dopa, pramipexole, amantadine, levedopa / decarboxylase inhibitor, and rasagline.

It is estimated that over 160,000 patients with PD have had deep brain stimulation (DBS) surgery worldwide. This is increasing at a rate of approximately 12,000 per year. Three tertiary state neurological centers in South Africa are equipped to perform DBS but still struggle with funding for devices. Four private sector practices offer DBS, although these are general neurology practices with a special interest in movement disorders. No singular movement disorders center exists due to the absolute necessity to cover the entire spectrum of neurology given the ratio of neurologists to patients.

In a recent survey, 74% of South African neurologists report they have referred patients for DBS for the management of a movement disorder. Roughly, only one in four (27.37%) neurologists felt they had enough knowledge of, and experience with, the indications for referral for DBS. Most PD suffers present with the tremor predominant phenotype, which is most common in high-income countries as well. There are, however, certain clinical characteristics unique to African cohorts.

In 2016, Mahne et al. from South Africa demonstrated that the kinetico-rigid variant is encountered more frequently in Black patients compared to white patients and can be found in up to a third of all patients. This result was replicated by Smith and Modi in a larger cohort. The authors further demonstrated that Black patients appear to develop PD symptoms at an earlier age and develop cognitive impairment more frequently than their American and European counterparts.

A recent study out of Ethiopia by Meke et al. has also demonstrated a higher prevalence of Parkinson’s disease-related sleep disorders compared to high-income countries. African populations have greater levels of genetic diversity and population substructure compared to non-African populations. Africans have also developed many genetic adaptations that have evolved in response to factors such as diverse climates and exposure to infectious diseases. This makes Africa a prime place to study genetic diversity and its impact on different diseases. In the last two decades, research of PD genetics in Sub-Saharan Africa has gained momentum. In 2009, Banden et al. concluded that mutations in the Parkin gene, a common cause of genetic PD worldwide, were not an important cause of PD in South Africa. The G2019S mutation in the LRRK2 gene is the most common mutation associated with PD. However, a 2019 study from Du Toit et al. revealed that none of the 91 Black South African participants in their study had this mutation. This shows that some of the most common PD-associated genetic mutations globally are not truly relevant in Sub-Saharan African populations. The mutations specific to PD in these populations may have yet to be discovered and hold much potential for further research.

The dearth of genetic studies in African countries can, like many other problems on the continent, be attributed to a scarcity of resources. An in-depth look into PD genetics may provide answers to whether characteristics specific to PD in African countries does in fact have a genetic and ethnic foundation, or if it is related to poverty and other challenges experienced by low-income and under-resourced populations.

The amount of PD research in African countries has increased significantly in the last two decades; however, the studies have not been directly comparable because of inconsistence among study designs. As African neurologists we need to strive for collaboration between different countries across the continent to find solutions to our continent’s unique challenges.

GBA mutations have emerged as the most common risk factor in PD. Some of the clinical features including early age of onset and cognitive impairment are also more common in patients of African origin compared to Caucasians. A genetic study investigating the prevalence of the GBA mutation in PD patients in Africa may yield interesting results.

Academic centers across Africa are collaborating more and more with one another as well as overseas centers through shared congresses and research. An example of this is the combined annual meeting of the Neurological Association of South Africa and the African Academy of Neurology in 2019. Collaboration is the key to improving care for our continent’s Parkinson’s disease population and to better understand the unique aspects of Parkinson’s disease in Africa.

References:
1. Wypong, C. S. People in Africa live longer. But their health is poor in those extra years.
A snowy Montréal received me on a Saturday in mid-November; the previous morning I sat my annual examination and then I was there—3,700 kilometers from Mexico City. After touring Montréal’s museums, Monday arrived and I visited Dr. Anne-Louise Lafontaine, chief of the Department of Neurology of the McGill University Health Centre at the Montreal General Hospital. Dr. Lafontaine was extremely kind, welcomed me warmly, and asked me about my plans for the observation and also for the future.

Back at The Neuro, I looked for Dr. Eliane Kobayashi (Fig. 1) and found her at the weekly epilepsy rounds, held at the EEG lab, where cases are presented and discussed by a world-renowned multidisciplinary epilepsy team, including epileptologists, neurosurgeons, and neuropsychologists, among other highly trained professionals. At the end of the rounds, I introduced myself to Dr. Kobayashi, and she received me with open arms from the beginning. I then joined her team at the Epilepsy Monitoring Unit (EMU). This team was awesome, very friendly, and included Dr. Ghada Abbas (epilepsy/EEG fellow), Dr. Austin Zaloum (neurology resident), and Dr. Rafael Batista João (visiting epileptologist from Unicamp). The EMU is a place specially designed and equipped to care for adult patients undergoing long-term video EEG and is currently considered the gold standard for the diagnosis of epilepsy and seizure-like spells (Epilepsia. 2018;59:27-36).

On Wednesday mornings, I attended McGill’s neurology grand rounds in the de Grandpré Communications Centre, and also attended the Aluminium Lab. The Aluminium Lab is a neurology residents for the academic half-day activities. One afternoon that first week, I joined Dr. Kobayashi at the outpatient clinic, and there I also met Dr. Giovanni Pellegrino (epilepsy/EEG fellow), with whom Dr. João and I discussed the differences in neurological and epilepsy training in different parts of the world.

On Thursday morning, I met my supervisor, Dr. Birgit Frauscher, at the EEG lab. She was extraordinarily kind, generous, and inclusive all along. From that moment on, I started interpreting routine and prolonged EEGs with her at the reading room. That very day, I introduced her to wonderful and diverse team from the Analytical Neurophysiology (ANPHY) Lab. Dr. Veronique Latrelle, Dr. Petr Klimes, Dr. Laure Peter-Derex, and Tamir Avigdor. This lab seeks to employ a variety of quantifiable tools in order to shed light on neurophysiological and pathological processes (mainly sleep and epilepsy). In the ANPHY lab, I was also introduced to high density EEG and other advanced source localization techniques.

That weekend Dr. Frauscher invited me to the First National Training Course on Sleep Medicine, which she organized and chaired. This two-day program was designed to provide a basic working knowledge of sleep medicine for Canadian neurology residents, and included a range of internationally renowned speakers and hands-on practical training on case interpretations of polysomnography. This course allowed me to interact with neurology residents from different universities, as well as with Canadian sleep experts.

The next week, I joined Dr. Frauscher at the outpatient clinic, where she introduced me to the very practical basics of vagal nerve stimulation in epilepsy. Furthermore, she let me get involved in preparing the next stereo EEG planning meeting and this was, in fact, my first real-life exposure to stereo EEG. Meanwhile on the scientific side, Friday afternoons we all attended Dr. Jean Gotman’s lab meetings, which were both challenging and appealing.

From that week on, I started attending The Neuro’s Killam Lectures, held on Tuesday afternoons, and also the weekly epilepsy conferences, held on Thursday afternoons. The Killam Lectures are supported by the Killam Trusts and are given by outstanding guest speakers whose research is of interest to the scientific community at The Neuro and McGill University. On the other hand, the epilepsy conferences included a case presentation, EEG review, and roundtable discussions.

In my third week, I worked with Dr. Frauscher and Dr. Zaloum at the EMU. It was an intense but also very rewarding week. In addition, I had the opportunity to attend the tribute to Dr. Frederick Andermann (1930-2019), where an international panel of renowned epileptologists gathered to present the latest advances in the field in an homage to Dr. Andermann, director of the epilepsy unit at The Neuro for 35 years and one of the world’s most distinguished epileptologists. This special event was both intellectually stimulating and moving. During the second half of my observership, I also had the honor to work under the supervision of Dr. Martin Veilleux at the EMU.

In addition to the impact of this observership on me in terms of clinical and scientific experience, I really want to highlight another aspect of my visit: the kindness and openness of all the people I met at The Neuro, as so perfectly exemplified by daily lab lunch with Dr. Frauscher and her team. Among those whom I have not mentioned by name above, Natalia Zazubovits and Abdullah Azeem from Dr. Gotman’s lab were eager to help all the time and their assistance was invaluable to me.

One morning there was an exception to my normal work week at The Neuro. On this occasion, I visited the Osler Library of the History of Medicine, a branch of the McGill University Library. This visit was only possible thanks to the immense generosity of Dr. Mary Yeal, the Osler librarian, since the Osler Library was temporarily closed due to a fire at the McIntyre Medical Sciences Building. Rare materials were rehoused in the McLennan Library Building and that was where Dr. Yeal patiently showed me the treasures and rarities of the Osler Library. She later took me to the Osler Room in the McIntyre Building and, even though it was empty, it was evident what Michael Bliss wrote in his book: the Osler Room was “a shrine, architecturally a cross between a church and a mausoleum.” (William Osler: A Life in Medicine, 1999)

Sir William Osler (1849-1919) has been one of my medical and intellectual role models for more than a decade, so this visit had a great impression on me. Although less and less read, many of his insights are still true for general neurology and even for epilepsy. The following passage is an example of this: “It is well always to be suspicious of epilepsy developing in the adult, for in a majority of such cases the convulsions are due to a local lesion.” (The Principles and Practice of Medicine, 1892)

When I said goodbye, Dr. Yeal told me that I could not leave Montréal without visiting Mont-Royal. Therefore, on my last day before returning to Mexico City, I walked down the Promenade Sir William Osler to the foot of Mont Royal. It was a misty morning and a few drizzle drops fell from time to time. While there, the main staircase seemed endless to me but, 30 minutes later, I reached the Chalet du Mont-Royal. This trip was physically demanding but also unique, especially for my weakness for misty (and thus cryptic) landscapes.

My experience at The Neuro made me wonder about the unmet needs in my home country regarding the care of persons with epilepsy. I’m sure they are multiple and at different levels. Since my center is a public tertiary referral hospital, I think many of our most complex patients could benefit from long-term video EEG in an elective admission to a specialized inpatient setting (i.e., EMU). Therefore, a first step might be to start an EMU here and, if successful, to extend this program to other strategic tertiary neurological services nationwide.

I finally want to acknowledge the World Federation of Neurology, The Neuro, and the Canadian Neurological Society for this great initiative that allowed me to experience the Canadian neurological system in an international environment, meet new colleagues, and foster future cooperation. I also want to thank Dr. F. Gonzalez-Crussi (Northwestern University), my long distance mentor, for his insightful comments on an earlier version of this report.

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