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WORLD FEDERATION OF NEUROLOGY

WORLD NEUROLOGY

THE OFFICIAL NEWSLETTER OF THE WORLD FEDERATION OF NEUROLOGY

Simplifying the Diagnostic Criteria for ALS

New Criteria are Aimed to Facilitate Enrollment of Patients into Clinical Trials

BY MATTHEW KIERNAN, FOR THE ALS CONSENSUS COMMITTEE

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

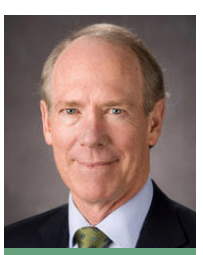
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Matthew Kiernan, Chair of the ALS/MND Specialty Group, World Federation of Neurology. ALS Consensus Committee: Ammar Al-Chalabi (London, UK), Mark Baker (Newcastle upon Tyne, UK), David Burke (Sydney, Australia), Li-Ying Cui (Beijing, China), Mamede de Carvalho (Lisbon, Portugal), Andrew Eisen (Vancouver, Canada), Julian Grosskreutz (Jena, Germany), Orla Hardiman (Dublin, Ireland), Robert Henderson (Brisbane, Australia), Ryuji Kaji (Tokushima, Japan), Matthew Kiernan (Sydney, Australia), Jose Manuel Matamala (Santiago, Chile), Hiroshi Mitsumoto (New York, USA), Waulter Paulus (Gottingen, Germany), Jeremy Shefner (Phoenix,USA), Neil Simon (Sydney, Australia), Michael Swash (London, UK), Kevin Talbot (Oxford, UK), Martin Turner (Oxford, UK), Leonard van den Berg (Utrecht, The Netherlands), Renato Verdugo (Santiago, Chile), Steve Vucic (Sydney, Australia) *Photo Legend: ALS Consensus Committee, Gold Coast, Australia.*

PRESIDENT'S COLUMN

Becoming Acquainted With the Pandemic



WILLIAM CARROLL, MD

By the time this edition of *World Neurology* is available, it will have been more than eight months since the world had to learn to deal with COVID-19. In that time, our lives and practices have changed dramatically. Social distancing, travel restrictions, and educational activities have forced us to adapt to what is effectively a new world. In some countries, the pandemic is flaring again, resulting in death, disability, and the consumption and diversion of resources. In others, populations are variably safer but still constrained. It is nevertheless heartening to see and experience the intent of many of our colleagues at local, national, and international levels collaborating to record quality data so as to better understand the short-, medium-, and long-term effects of COVID-19. Groups such as the European Academy of Neurology's "EAN NEuro-covid ReGistrY (ENERGY)," the World Health Organization's Neuro-COVID Global Forum, and the COVID-19 Neuro Research Coalition are all actively involved in developing platforms and directions to facilitate the capture of neurological involvement in the pandemic. In many countries, clinicians, public health

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WORLD FEDERATION OF NEUROLOGY

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WORLD NEUROLOGY

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FROM THE EDITORS

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

Online Education for Virtually Every Neurologist



STEVEN L. LEWIS, MD



WALTER STRUHAL, MD

We 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 recent 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. Fiolet and Ingrid M. Daey Ouwens describe the history of malaria fever therapy as a treatment for general paralysis of the insane from neurosyphilis, which they provide as a cautionary tale in the current pandemic era with regard to potential pitfalls in urgently developed treatments. Also in this issue, Gustavo Roman, who was recently appointed as editor-in-chief of Cerebral Circulation, issues a call for papers for this new publication.

This issue is distinguished by having a number of articles highlighting a sampling of some of our member societies' successes related to World Brain Day 2020, including the report from India from Chandrashkhar Meshram, Pramod Kumar Pal, Gagandeep Singh, Nirmal Surya, and Vinay Goyal; a report from Pakistan by Abdul Malik; a report from Man Mohan Mehndiratta and colleagues from New Delhi on his suggestions for a successful virtual advocacy effort; and finally, a report by Marcelle Smith and Patty Francis on the current status of Parkinson's Disease in Africa, particularly from their South African perspective.

Much of the remainder of this issue is devoted to the important new world of international virtual conferences related to the WFN, in addition to the recent very successful AFAN/WFN E-Learning Day, which was held on Oct. 10 and so skillfully led by Riadh Gouider, WFN Trustee, and discussed in the President's column. This issue features reports from Abderrahmane Chahidi, Zouhayr Souirti, Mohamed Chraa, Najib Kissani, and Reda Ouazzani from the Moroccan Society of Neurophysiology and Moroccan League Against Epilepsy on their highly attended and successful International Webinars of Experts in Clinical Neurophysiology, and the report by Chandrashkhar Meshram on the WFN Neuroinfection Series (cosponsored by the Forum for Indian Neurology Education [FINE]) that is now on its second set of highly attended and remarkable lectures and case presentations on neuroinfectious disease. These internationally presented and globally attended lecture series represent highly effective and (and in these cases, free) educational efforts; in fact, the creation of these remarkable online (live and archived) educational opportunities are the true silver linings of the current pandemic and we encourage neurologists worldwide to attend and learn from as many of these virtual lecture series as possible.

On a similar note, John England, Wolfgang Grisold, and Juan J. Vilchez report on the recent International Congress on Neuromuscular Diseases (ICNMD), which was both highly successful and well attended in its virtual format for 2020.

Finally, the issue concludes with a heartfelt report from Guillermo Delgado-García, who details his visit to "The Neuro" (the Montreal Neurological Institute) under the auspices of the WFN and the Canadian Neurological Society.

We look forward to receiving reports from the field as you care for your neurological patients throughout the world during this pandemic, and wish you all the best of health and safety. •

DIAGNOSIS CRITERIA FOR ALS

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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 neurone 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 neurone 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 adopting 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 early, and definitively. •

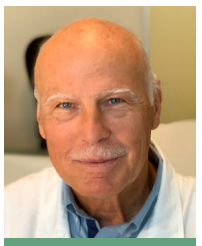
Reference:
Shefner JM, Al-Chalabi A, Baker MR, et al. A proposal for new diagnostic criteria for ALS. *Clin Neurophysiol* 2020;131:1975-1978.

THE WFN COMMITTEES AND SPECIALTY GROUPS

The WFN Congress Committee and Specialty Group on Rare Neurologic Diseases

BY WOLFGANG GRISOLD

This column is intended to explain the work of the WFN committees and specialty groups. All WFN committees and specialty groups are listed on the website for further information. The committees are essential parts of the WFN management and have specific duties to support activities of the WFN.


WOLFGANG GRISOLD

The specialty groups, previously known as Applied Research Groups, are focused on specific aspects of neurology, such as neuromuscular diseases or important general issues like ethics and history, among others.

The purpose of this column is to introduce one committee and one specialty group in each of the subsequent issues of *World Neurology*.

WFN Congress Committee

The Congress Committee is chaired by Prof. Ryuji Kaji. This is a busy and tireless committee, as once the World Congress of Neurology (WCN) is planned and comes to life, the preparations for the next congress have already begun. Presently the preparation for the WCN in Rome in 2021 is at full speed.



The role of this committee is to develop the WCN congresses, which are a joint cooperation of the Congress Committee, the local organizer (or host), and also the professional conference organizer (PCO) (Kenes).

The WCN is the biennial meeting of the WFN. Rotating from region to region, the destination of the WCN is voted on by the WFN Council of Delegates. Each WCN needs to include regional and local aspects, and this must be reflected within the content as well as the selection of speakers.

The Congress Committee helps the delegates decide which venue would be best suited for a successful meeting in the region by site-visiting and presenting reports to the Council of Delegates. The next WCN will be in Rome, followed by WCN 2023 in Montreal, Canada. For WCN 2025, candidates are bidding from the Asian-Oceanian region.

Specialty Group on Rare Neurologic Diseases

Our most recent specialty group is focused on rare neurologic diseases, an important topic for patients, research, and also drug development. Prof. Antonio Federico from Siena, Italy, is chairing this important new specialty group.

Rare neurologic diseases are one of the many inequalities of our health system. A patient with a rare disease is doubly unfortunate: he or she has a disease like many others but also has troubles in finding a doctor expert in that disease. Neurologic diseases represent a significant percentage of all rare diseases, giving neurologists an important role in their diagnosis and therapy.

The aims of the Rare Neurologic Diseases WFN Specialty Group are to improve diagnosis and treatment of rare neurologic diseases, to provide a forum for discussion and exchange of experience on all issues related to these disorders, and to advise and assist all the international organizations in promoting prevention of rare neurologic diseases.

The specific objectives are to stimulate the interest of world neurologists to rare neurologic diseases, facilitating their diagnosis and therapy when possible; to promote collection of epidemiological data across the world; to facilitate development of different models of cross-border health care; to promote the exchange of ideas



and information regarding quality of life issues; to develop and disseminate best practice guidelines; to collect data on the facilities for diagnosis of rare neurologic diseases in different countries; to analyze the attitude of world neurologists to rare neurologic diseases and to identify their care organization in the different countries; and to collaborate with European Networks and other organizations for rare neurologic diseases (NORD, Orphanet, Eurordis, ERNs, etc).

Other aims include to facilitate neurologists' education on the topic and to act as an information service on rare neurologic diseases that will be able, with the assistance of experts present in the Working Group, to answer questions from patients, families, and doctors, and, finally, to collaborate with family associations and disease-specific family groups.

Hoping that you will find these short explanations useful, we will continue with this column in the next and subsequent issues. Please also check our website for information and do not hesitate to contact us at info@wfneurology.org •

PRESIDENT'S COLUMN

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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 niggling 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

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.

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 canvasing, 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. Chandrashekhar Meshram and supported by the Indian

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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 SOUIRTI, MOHAMED CHRAA, 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, EP, IONM, PSG, 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.


ABDERRAHMANE CHAHIDI

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.

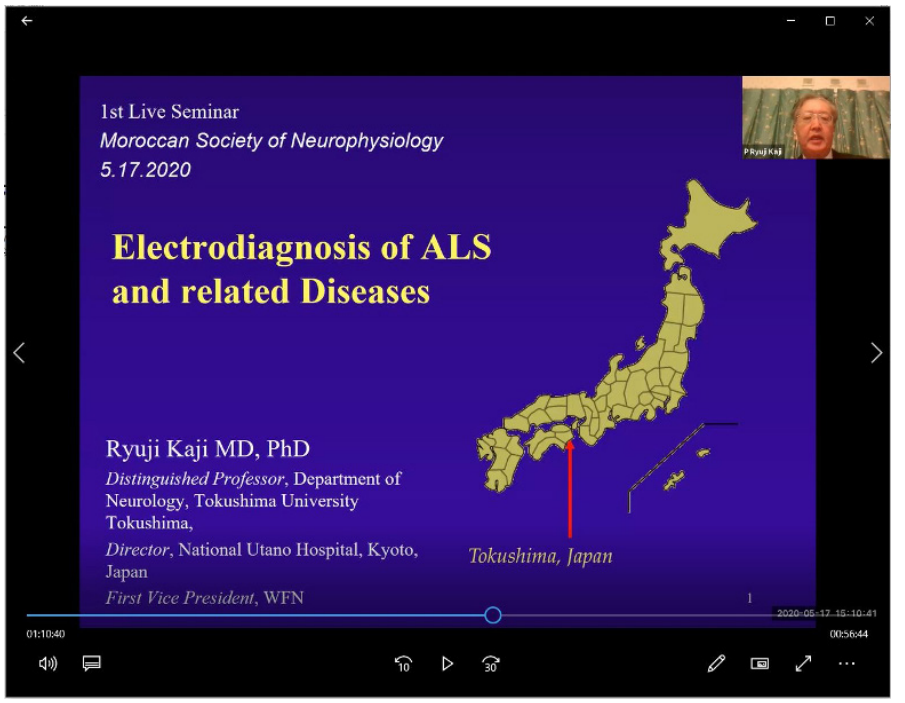
These webinars had the following objectives: ensuring the continuity of the teaching of young people and the continuing education of specialists and practitioners, substituting for the scientific days, meetings, congresses, and training courses usually organized at this time of the year, perpetuating 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).

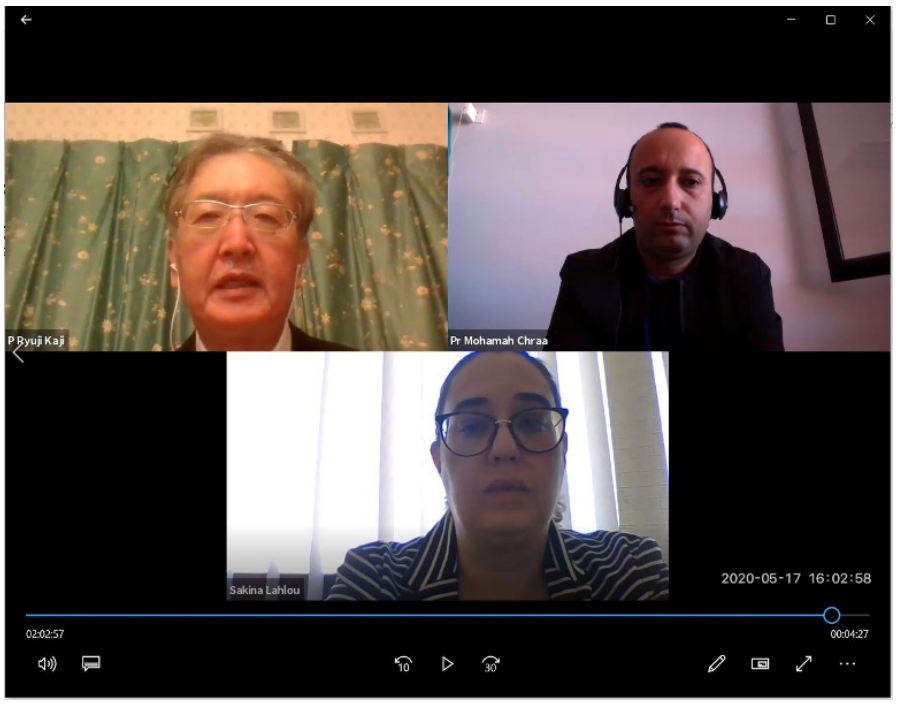
The second session of lectures, dedicated to EMG and neuromuscular diseases, took place the next day. Prof. Henry Kaminski from George Washington University talked about the diagnosis and treatment of ocular myasthenia gravis. In addition, we were gratified by the participation of Prof. Ryuji Kaji (First 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. •



Zoom session snapshot from Prof. Kaji's talk.



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

PRESIDENT'S COLUMN

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Academy of Neurology, the topics have updated many common and not-so-common neurological infections. This series will continue through to Dec. 12. The most recent WFN-related educational event was the AFAN/WFN E-Learning Day held on Oct. 10 and run out of Tunis. Eight lectures in four sessions dealing with stroke, with particular emphasis on Africa, were delivered by experts from the African, the European, and the American Academies of Neurology and from the World Stroke Organization. It was a great example of collaborative effort. Altogether there were approximately 1,100 registrants from 80 countries. Thanks go to all involved in the execution of this event and especially to Prof. Riadh Gouider, who was tireless in his efforts to ensure a rewarding e-learning experience. These meetings were all promoted by the WFN through the usual media sources and by direct communication with member societies.

World Brain Day 2020 also exemplified the value of improved communication in promotional terms. The WFN was greatly benefited by the partner organization, the International Parkinson and Movement Disorder Society (IPMDS), both around the July 22 commencement and at the final press conference held during the IPMDS virtual Congress in September. This year, the promotions and activities related to World Brain Day reached more than 50 million people globally, just outdistancing the numbers from the 2019 WBD. Other key social media parameters generated exceptional numbers for WBD. The WBD Committee, chaired by Prof. Tissa Wijeratne, was extremely successful in generating local and regional activities on and around July 22. Many of these are shown on the WFN website: www.wfneurology.org/wbd. The WBD Committee is already planning the 2021 program. The two promotional videos prepared earlier this year dealing with WFN activities and the upcoming 2021 World Congress of Neurology were shown during the inaugural AFAN/WFN E-Learning Day lunch and coffee breaks and will no doubt be employed through to the World Congress of Neurology. 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

HISTORY

Treatment Evaluation Takes Time

A Cautionary Tale From the History of Malaria Fever Therapy

BY AERNOUD T.L. FIOLET AND INGRID M. DAEY OUWENS

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.[1] 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.[2,3] While attempting to catalyze the process of resolving current unmet needs, the risks of compromising scientific integrity and validity may become apparent.[4]

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.[5]

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.

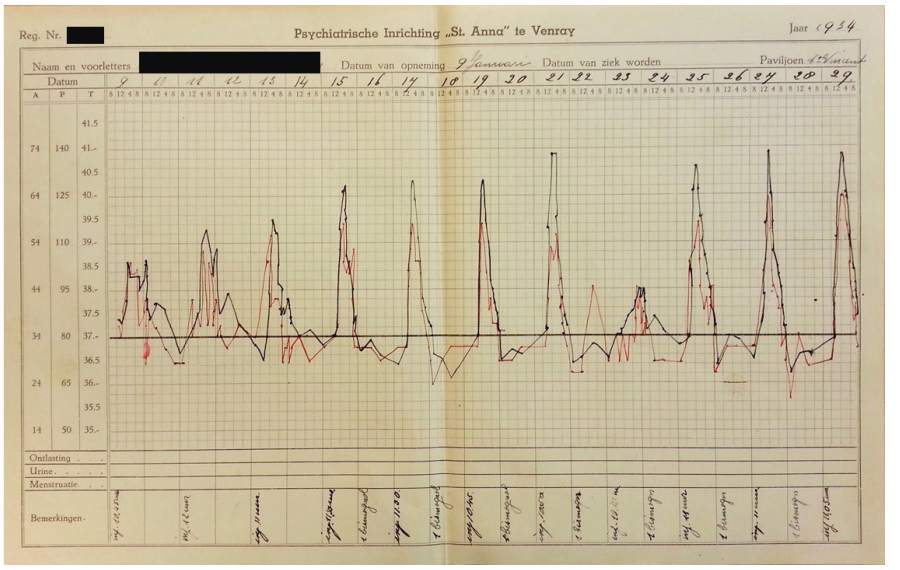
General Paralysis of the Insane and Malaria Fever Therapy

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.[6] 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.[7]

Beneficial effects of fever due to an intercurrent disease in patients with somatic and psychiatric conditions have been reported since classical times.[8] The Austrian psychiatrist Julius Wagner-Jauregg (1857-1940) took this approach one step further by intentionally inducing fever in psychiatric patients.[8,5] At the end of the 19th century, he started his experimental treatments using streptococci, tuberculin, 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, to treat their syphilitic infection. This treatment, referred to as malaria 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.[9]

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.[5] 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.[10] 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.[9]



A chart of a patient with General Paralysis of the Insane, dated 1954. The points and connecting curves depict the three-day cycle of recurrent fever after inoculation with *Plasmodium vivax*, paralleled by an increase in heart rate.

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.[9] 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.[8,9] 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.[9] 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.[7,9]

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,

see **EVALUATION**, *page 10*

WORLD BRAIN DAY 2020



Online participants - National and International Neurologists and patients and their caregivers interacting



Offline participants – faculty and nursing and technical staff of JSSHS

7 Steps to Creating a Virtual Public Awareness Event for Neurological Diseases in an Era of Social Distancing

Lessons Learned From Janakpuri Super Speciality Hospital Society in New Delhi, India

BY DR. MAN MOHAN MEHNDIRATTA, DR. AMRITA TIWARY VYAS, DR. NATASHA SINGH GULATI, DR. YOGESH SHARMA, AND DURGESH KUMAR PATHAK

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

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, FANA, FAMS, MNAMS, FRCP, FICP, FIAN, professor and director of the department of neurology at Janakpuri Superspecialty Hospital Society in Janakpuri, New Delhi

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

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

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

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



Step 5: An event schedule page.

WORLD BRAIN DAY 2020

World Brain Day Celebration in India

BY CHANDRASHEKHAR MESHRAM, 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 cerebrated 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. Chandrashekhar Meshram, convener of National Brain Week and World Brain Day, stressed the importance and ways of celebrating WBD. Dr. Nirmal Surya, chairman of the Epilepsy Foundation and treasurer of IAN, who took initiative to organize this event, made the closing remarks and answered questions. Dr. Nirmal Surya also posted a video on the WFN website.

Nagpur

Dr. Chandrashekhar Meshram issued the press release. Information about Parkinson's disease appeared in nine newspapers. The awareness program was organized by Indian Academy of Neurology, Nagpur Neuro Society, Nagpur Psychiatry Society, Orange City Cultural Foundation, and Saptak as a webinar on July 22. The event was inaugurated by Dr. Lokendra Singh, president 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 500 people attended the webinar.

Trichy

Neurologist Dr M. A. Aleem'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 Hardinge 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 Poineer. Dr. Rajinder K. Dhamija also appeared on national television (DD News) in addition to All India Radio's special program, Surkhiyon 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 Apollo 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 (PDMDS), 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 PDMDS, and their team on behalf of the Nellore branch of the PDMDS 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. •



पार्किन्सन आजाराचे सात लाख रुग्ण

डॉ. चंद्रशेखर मेश्राम : गावखेड्यातील जनतेमध्ये जास्त प्रमाण

नागपूर, ता. २१ : पार्किन्सन (कंपवात) हा मेंदूशी निगडीत दीर्घकालीन चालणारा रोग. यात मेंदूतील न्युरो ट्रान्समिटर डोपेमाईन सतत कमी होत जातो. चोर पावलांनी येणारा आजार म्हणून पार्किन्सनची ओळख आहे. वयाची साठी ओलांडलेल्या शंभर व्यक्तींमध्ये एक जण सापडतो. देशात सद्या सहा ते सात लाख लोकांमध्ये प्रामुख्याने हा आजार आहे. महिलांच्या तुलनेत पुरुषांमध्ये दीड पटीने जास्त आहे, तर गावखेड्यातील जनतेमध्ये हा रोग जास्त प्रमाणात दिसून येतो अशी माहीती वर्ल्ड फेडरेशन ऑफ न्यूरोलॉजीच्या ट्रॉपिकल न्यूरोलॉजी ग्रुपचे अध्यक्ष डॉ. चंद्रशेखर मेश्राम यांनी दिली.

» आज जागतिक मेंदू दिन

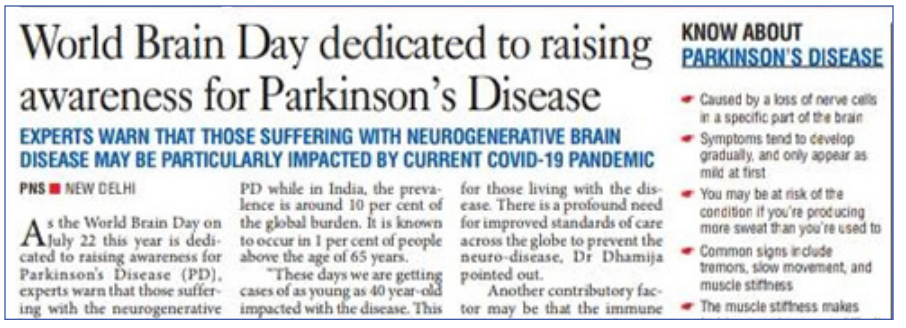
डॉ. मेश्राम डॉ. विजरतने डॉ. ग्रिसोल्ड डॉ. कॅरोल

ही आहेत लक्षणे
- शरीरात कंपन सुटणे
- सर्वच हालचाली मंदावणे
- लिहिण्यात अडचणी येणे
- बोलण्यात फरक पडणे
- चालताना तोल जाणे,
- हातापायाला कडकपणा

वर्ल्ड फेडेरेशन ऑफ न्यूरोलॉजी व इंडियन अकॅडमी ऑफ न्यूरोलॉजीच्या वतीने २२ जुलै हा दिवस जागतिक मेंदू दिवस म्हणून साजरा केला जातो. या दिनाच्या पूर्वसंध्येला पार्किन्सन आजाराबाबत चर्चेचे आयोजन करण्यात आले. प्रोफेसर टिसा विजरतने म्हणाले, पार्किन्सन आजाराने जगभरातील ७ दशलक्षाहूनही अधिक लोकांना प्रभावित केले आहे. पार्किन्सनच्या आजाराबद्दल आणि त्याच्या समाजावर होणाऱ्या परिणामांबद्दल जागरूकता वाढविणे हे संघटनेचे लक्ष्य आहे. पार्किन्सन आजाराचे विशिष्ट लक्षण म्हणजे कंपन आणि शरीराच्या हालचाल येणारा संथपणा. याशिवाय झोप आणि संज्ञानात्मक क्षमतेमध्ये व्यत्यय येतो.

वेदना आणि पोटाचे विकार, बद्धकोष्टपणा. चिंता आणि नैराश्य तसेच जीवनाची गुणवत्ता कमी होते. डब्ल्यूएफएनचे सरचिटणीस प्रा. वोल्फगँग ग्रिसोल्ड म्हणाले, पार्किन्सन आजाराची सुरुवातीला लक्षणे ओळखता येत नाही. हा आजार चोर पावलांनी येतो. यामुळे २५ टक्के रुग्णांचे निदान चुकीचे होते. डब्ल्यूएफएनचे अध्यक्ष प्रा. विल्यम कॅरोल म्हणाले, आरोग्य यापूर्वी कधीही इतके महत्वाचे नव्हते जेवढे आज आहे. जागतिक मेंदू दिनाच्या दिवशी या विकाराविरूद्ध जेव्हा जागतिक एकजूटीची गरज असून संशोधन करणे आवश्यक आहे.





World Brain Day dedicated to raising awareness for Parkinson's Disease

EXPERTS WARN THAT THOSE SUFFERING WITH NEUROGENERATIVE BRAIN DISEASE MAY BE PARTICULARLY IMPACTED BY CURRENT COVID-19 PANDEMIC

PNS ■ NEW DELHI

As the World Brain Day on July 22 this year is dedicated to raising awareness for Parkinson's Disease (PD), experts warn that those suffering with the neurogenerative PD while in India, the prevalence is around 10 per cent of the global burden. It is known to occur in 1 per cent of people above the age of 65 years.

"These days we are getting cases of as young as 40 year-old impacted with the disease. This for those living with the disease. There is a profound need for improved standards of care across the globe to prevent the neuro-disease, Dr Dhamija pointed out.

Another contributory factor may be that the immune

KNOW ABOUT PARKINSON'S DISEASE
- Caused by a loss of nerve cells in a specific part of the brain
- Symptoms tend to develop gradually, and only appear as mild at first
- You may be at risk of the condition if you're producing more sweat than you're used to
- Common signs include tremors, slow movement, and muscle stiffness
- The muscle stiffness makes



प्रासंगिक

आज जागतिक मेंदू दिन

'पार्किन्सन' आजाराचा ज्येष्ठांमध्ये धोका बळावतोय !

नागपूर ■ प्रतिनिधी

हात आणि पायांना कंपन येत ेल, किंवा कडकपणा येत ेल इतकेच नाही तर तुम्ही हून चालत असाल किंवा पायात क जागवत असेल तर तुम्ही र्किन्सन' या आजाराने ग्रस्त ल्याची शक्यता आहे. कारण, ी लक्षणे 'पार्किन्सन' या जारात जागवतात. हा मेंदूशी थित आजार असून ६० ीच्या वरील व्यक्तींमध्ये ती ्याचा धोका आहे. दर १ लाख कांमध्ये ५० रुग्ण या र्किन्सन' आजाराने ग्रस्त ल्याचे आढळून आले आहे.

दरवर्षी २२ जुलैला वर्ल्ड साजरा केला जातो. या वर्षी हा दिवस 'पार्किन्सन' आजाराच्या आणि त्यातील बाधित लोकांचे जीवन सुधारण्यासाठी याबाबत जागरूकता वाढविण्यासाठी समर्पित आहे. या आजाराच्या जागरूकतेसाठी १२६ पेक्षा अधिक जागतिक संघटना सहभागी झाल्या आहेत. 'पार्किन्सन' हा मेंदूचा आजार आहे. यात मन, शरीराच्या हालचाली आणि मेंदूतील कार्याच्या

पुरुषांमध्ये आजाराचे प्रमाण जास्त

'पार्किन्सन' आजाराचा परिणाम सर्व वयोगटातील लोकांना होतो. यात ६० वर्षांवरील १०० लोकांपैकी एकाचा समावेश आहे. या आजाराचे प्रमाण वाढत आहे. आपल्या देशात या रोगाचे ६ ते ७ लाख रुग्ण आहेत. पुढील १० वर्षानंतर हे प्रमाण दुप्पट होईल. पुरुषांमध्ये याचे प्रमाण दीड पटीने जास्त आहे. यात गावातील लोकांमध्ये हा रोग जास्त प्रमाणात दिसून येतो.

- डॉ. चंद्रशेखर मेश्राम (अध्यक्ष, जागतिक ट्रॉपिकल न्युरॉलॉजी)

जगभरात ७ दशलक्षावर रुग्ण

हालचालीत संथपणा. याशिवाय लवकर झोप न येणे, वेदना आणि पोटाचे विकार, बद्धकोष्टपणा, चिंता आणि नैराश्य, जीवनाची गुणवत्ता कमी होणे ही लक्षणे 'पार्किन्सन' आजाराची आहे.

नागपूर न्युरो सोसायटी, ऑरेंज सिटी कल्चरल फॉउंडेशन, रुग्ण व जनसामान्यासाठी आज, बुधवारी सायंकाळी ६ ते ७.३० वाजताच्या सुमारास एका वेबिनारचे आयोजन करण्यात आले आहे.

मेंदू रोगतज्ज्ञ डॉ. चंद्रशेखर मेश्राम, डॉ. ध्रुव धवा, डॉ. सुधीर भाले, जयश्री पेंढारकर, डॉ. शीतल मुंदडा, डॉ. लोकेंद्र सिंह, डॉ.

जगाला एकत्रित करणे गरजेचे

मेंदूचे आरोग्य यापूर्वी कधीही इतके महत्वाचे नव्हते जेवढे आज आहे. जागतिक मेंदू दिनाच्या दिवशी या विकाराविरुद्ध जेव्हा जागतिक एकजूटीची गरज असून संशोधन करणे आवश्यक आहे.

बनावट हडप

नागपूर

WORLD BRAIN DAY 2020

Move Together to End Parkinson's Disease: World Brain Day 2020 in Pakistan

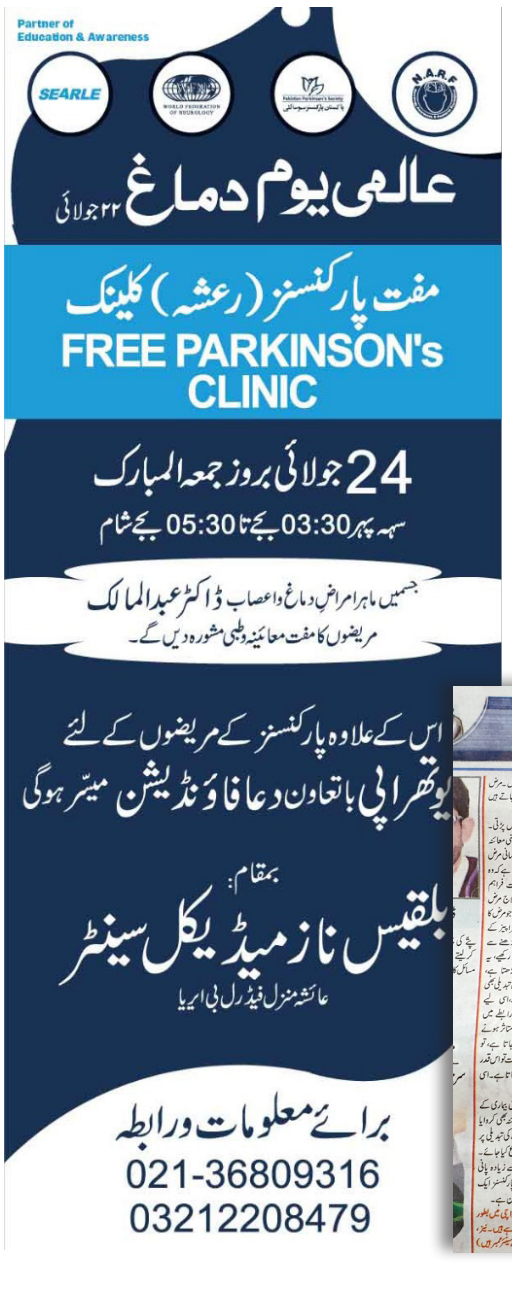
BY DR. ABDUL MALIK- MD

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 research for those living with Parkinson's disease and their caregivers.

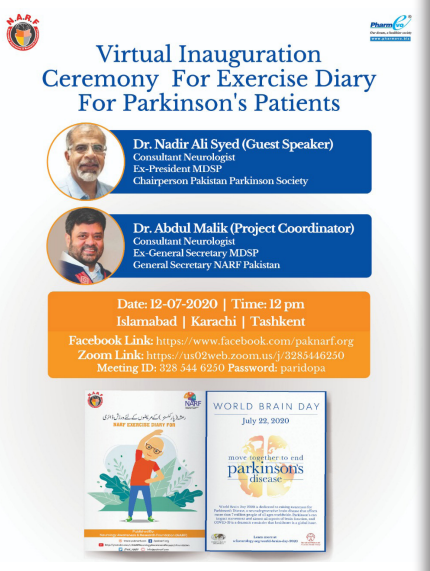


The Neurology Awareness and Research Foundation (NARF) organized countrywide activities to mark the sixth World Brain Day, with the theme of moving together to end Parkinson's disease. Parkinson's disease affects people of all ages, including one in 100 people over the age of 60. The prevalence of this 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 U.S., the U.K., Canada, and different other 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 neuropsychologist.

We prepared awareness flyers in the Urdu language about Parkinson's for the general public; this material was in simple, pictorial form about the signs, symptoms, treatment, and rehabilitative awareness of Parkinson's disease and was distributed in 500 clinics across the country. Month-long Facebook as well as Twitter activities were executed with key messages given by the WFN and translated into the 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 postures with facial exercises; speech exercise 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 Aga Khan University in Karachi and was organized with the leading media group of Pakistan, Duniya. The complete proceedings of this session were published in the *Daily Duniya* newspaper. In this session, we had the top neurologists of the country, Prof. M. Wasay, Prof. Naila Shahbaz, 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 Duniya Karachi*, Ahmed Hasan, 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-accredited 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 from 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.

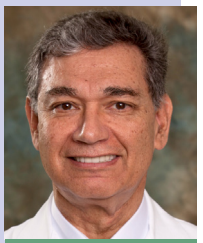
In short, keeping in view the COVID-19 pandemic, a comprehensive advocacy campaign for Parkinson's disease awareness was executed on the occasion of this year's World Brain Day 2020 from Pakistan as a member of the WFN. •



Dr. Abdul Malik- MD, MHD (Denmark), DCN, PGDN,MBA, General Secretary of NARF Pakistan, Associate Professor of Neurology, Liaquat College of Medicine & Dentistry, Karachi, Pakistan

CALL FOR PAPERS

BY GUSTAVO ROMAN, MD


GUSTAVO ROMAN

I have recently been appointed editor-in-chief of a new ELSEVIER online publication, *Cerebral Circulation - Cognition and Behavior.* The goal is to publish papers dealing with the arterial, venous, CSF, and glymphatic circulation and cognitive or behavioral aspects. Areas such as the vasculopathy of COVID-19 and the frontal arterial spin labeling (ASL) changes induced by the coronavirus as well as papers related to sleep and normal-pressure hydrocephalus are welcome and can range from case reports to comprehensive reviews.

Peer review is fast and there are no publication charges. Please contact me at GCRoman@houstonmethodist.org for further details. •

Gustavo C. Roman, MD, FANA, FAAN, FACP, FRSM, Jack S. Blanton Presidential Distinguished Chair for the Study of Neurological Disease at Methodist Neurological Institute in Houston, TX, and professor of neurology at Cornell University in New York, NY, and Texas A&M College of Medicine in Bryan, TX

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. Chandrashekhar Meshram, president of the Tropical and Geographical Neurology Specialty Group of the WFN, was the course director.


CHANDRASHEKHAR MESHRAM

Talks were given by Hector Garcia on neurocysticercosis, by Erich Schmutzhard on cerebral malaria, by Marco Tulio Medina on Zika and other arbovirus infections, by Riadh Gouider on neurobrucelloisis, by Serefnur Ozturk on encephalitis, by Jeremy Day on cryptococcal meningitis, by Prof. Avindra Nath on the approach to neurologic infections, and by Prof. Joseph Berger on fungal meningitis.

Interesting and challenging cases of dengue, rabies, Japanese encephalitis, leprosy, tuberculous myelitis, CJD, neurocysticercosis, amoebic encephalitis, HIV, SSPE, neurobrucellosis, strongyloidosis, JC virus granule cell neuronopathy, cryptococcal infection in the immunocompromised host, histoplasmosis, antiphospholipid antibody syndrome, cerebral venous sinus thrombosis, aspergillosis, scrub typhus myositis, neurosyphilis, listeria encephalitis, mucormycosis, and H1N1 encephalitis were presented and discussed during the series. The complexities in manifestations, course, and treatment in different cases were the highlights of the series. There were analytical interactions from the faculty and audience.

Sarosh Katrak, S.Prabhakar, John England, Gustavo Roman, Chris Kennard, Wolfgang Grisold, Hadi Manji, Deanna Saylor, Steven Lewis, Kiran Thakur, Davis Garcia-Azorin, B. S. Singhal, Augustina Charway-Felli, JMK Murthy, Marianna de Visser, and Jacques Reis chaired the sessions.

Participants were from different countries across the globe, and more than 1,400 delegates registered for the series. Regular participants were from India, Sri Lanka, Bangladesh, Pakistan, Brazil, Peru, Honduras, South Africa, Ghana, Kuwait, UAE, Sudan, Zambia, and the United States. Participants interacted with the faculty through question and answer sessions.

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/BX3xyKcztAWzLGyu6

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: wfnni

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

We encourage delegates from different countries participate and present the cases.•

WFN

WORLD FEDERATION OF NEUROLOGY

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TENTATIVE PROGRAM

Number	Date	Topic	Speaker/Moderator	Organizing Region
1	09/26	Rabies	Thiravat Hemachudha	Asia-Oceania
2	10/10	CNS Tuberculosis	Suzaan Marais	Pan Africa/Pan Arab
3	10/17	Movement Disorders and Infection/ Neurosyphilis	Fransisco Cordoso/ Marco Medina	PAFNS
4	10/24	Chronic Meningitis/Infection and Stroke	Pille Taba/ Laura Benjamin	Europe/EAN ID Group
5	11/07	Neurology of COVID 19	David Garcia Azorin	Europe/EAN ID
6	11/21	Imaging in Neuroinfections	Aashish Atre	Asia-Oceania
7	11/28	Neurology of HIV	Augustina Charway-Felli	Pan Africa/Pan Arab
8	12 /12	Acute Bacterial Meningitis/ Brain Abscess	Kiran Thakur/ Deanna Saylor	AAN-ID Group

INTERNATIONAL CONFERENCE REPORT

International Congress on Neuromuscular Diseases (ICNMD) Went Digital for 2020

BY JOHN D. ENGLAND, WOLFGANG GRISOLD AND JUAN J. VILCHEZ

The COVID-19 pandemic has disrupted almost everything, including international meetings. ICNMD 2020, which was scheduled to take place in Valencia, Spain, in July 2020, was cancelled because of global travel restrictions.

The unprecedented situation necessitated the development of new strategies for holding the meeting. The ICNMD team decided to provide a virtual (digital), brief, topic-focused update on neuromuscular diseases for 2020. Since many new diagnostic and therapeutic options are increasingly available, an interim update was deemed to be important. Specific examples for which new therapies are available include spinal muscular atrophy (SMA), hereditary ATTR (hATTR), amyloidosis, and myasthenia gravis. Many additional therapies are in various stages of development.

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 58 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 sucess of the conference, we offer the following comments from participants:

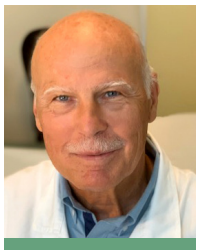
"We hope that 2021 will give us the possibility to organize the live congress again in Valencia, and definitely we have learned that virtual sessions and hybrid constructions will be useful and necessary in the future."

"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 Pareyson 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



JOHN D. ENGLAND, MD



WOLFGANG GRISOLD

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. •

EVALUATION

continued from page 5

these patients consequently had contracted malaria tropica, a malignant form of malaria.[5 p136] When he resumed his "vaccination" trials later in 1920, Wagner-Jauregg only used blood taken from cases of confirmed tertian malaria. Risks associated with malaria fever treatment were considerable, with reported mortality rates varying from 4% to 20%.[7] The relatively high morbidity and mortality rates concomitant with this severe form of treatment seem to have received initially a mostly perfunctory discussion, probably as a result of the general feeling of hopelessness in patients and physicians with regard to General Paralysis of the Insane. As Moore, professor of Medicine at The Johns Hopkins University, whose whole professional career was devoted to the study and treatment of syphilis, put it: "desperate situations usually justify desperate risks".[9]

In conclusion: the history of malaria fever therapy teaches us that a compelling need to contribute to the solution of a global health problem may compromise critical appraisal; in this example the situation led to the introduction of a globally applied and Nobel Prize-awarded treatment of uncertain benefit. Therefore, even in the midst of a pandemic, it is necessary to find the right balance between the rapid availability of therapeutic and preventive measures on the one hand, and careful research and ethical considerations on the other. •

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WORLD BRAIN DAY 2020

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.[1] This is still far below the average life expectancy in high-income countries of over 70 years.[2] 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.[3]

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 WHO Neurology Atlas. The WHO recommends at least one neurologist per 100,000 people.[4] 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.[5] 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.[5] 60% of Africans live off less than $2 a day and are unable to afford the necessary treatment themselves.[6]

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 formulary includes biperiden, pramipexole, amantadine, levodopa/decarboxylase inhibitor, and rasagiline.

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.[7] 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 neurologist 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.[8] Roughly, only one in four (27.37%) neurologists felt they had enough knowledge of, and experience with, the indications for referral for DBS.[8] Most South African neurologists refer to the few available DBS centers for Parkinson's Disease (61.05%).[8] However, one of these centers reported performing only five procedures over the last five years. Adequate treatment may allow PD sufferers to continue working and providing for their families for longer.

Most PD sufferers 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 akinetic-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.[9] 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.[10] A recent study out of Ethiopia by Melke et al. has also demonstrated a higher prevalence of Parkinson's disease-related sleep disorders compared to high-income countries.[11]

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 infective diseases.[12] 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, Bardien 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.[13] 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.[14] 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 this populations 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.[15] 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.[16] 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.

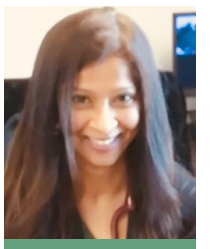
Academic centers across Africa are collaborating more and more with one another as well as overseas centers through shared congresses and research. An example of this is the combined annual meeting of the Neurological Association of South Africa and the African Academy of Neurology in 2019. Collaboration 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. •

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WFN DEPARTMENT VISIT REPORT

A Great Time at The Neuro

My Report of the Canadian Department Visit Program (2019)

BY GUILLERMO DELGADO-GARCÍA, MD

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 observership 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 afterward I stayed there with the 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, she introduced me to her wonderful and diverse team from the Analytical Neurophysiology (ANPHY) Lab: Dr. Véronique Latreille, Dr. Petr Klimeš, 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, on 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 discussion.

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 in 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, Natalja 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 Yearl, 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. Yearl 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 epileptology. 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 we said goodbye, Dr. Yearl 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., an 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. •



From left to right: The author, Dr. Eliane Kobayashi, program director of the Frederick Andermann Clinical & Research Fellowship in Epileptology & EEG, and Dr. Dina Namiranian, a senior neurology resident, at the EEG lab.



After one of Dr. Gotman's lab meetings. In the background, the evocative mural *The Advance of Neurology* **(1955) by Mary (Filer) Spence-Sales can be seen (room 124). From left to right: Abdullah Azeem, Natalja Zazubovits, Tamir Avigdor, Dr. Petr Klimeš, Dr. Birgit Frauscher, the author, Dr. Jean Gotman, Dr. Véronique Latreille, Dr. Willemiek Zweiphenning, Dr. Andreas Koupparis and Dr. Nicolás von Ellenrieder.**

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