



WORLD NEUROLOGY

THE OFFICIAL NEWSLETTER OF THE WORLD FEDERATION OF NEUROLOGY



Cerebral Venous Thrombosis After Vaccination Against SARS-CoV-2

With Information on the International Consortium on CVT Registry

BY JOSÉ M. FERRO, MD, PHD

The public and the global medical community have been exposed since early March 2021, both from the media, the official agencies, and the medical literature, to multiple and often contradictory information, concerning the risk of “uncommon” thrombosis occurring after vaccination against SARS-CoV-2. Most of the news concerned the vaccine manufactured by AstraZeneca and more recently the vaccine from Johnson and Johnson/Janssen. The uncommon thromboses were splanchnic and cerebral venous thrombosis (CVT), mostly the latter.

Mass vaccination is currently humanity’s great hope to control the

pandemic. Vaccines were developed, tested, and approved in an incredibly fast pace, about one year since the onset of the pandemic. Administration of a vaccine simultaneously to millions of persons in multiple locations of the world was never done before in human history. Not surprisingly, extremely uncommon side effects of the vaccine, which were not detected in randomized trials of hundreds or thousands of subjects, can emerge when a much larger sample of millions is exposed to the vaccine.

COVID-19 Infection and CVT

CVT was known to occur as a rare complication (0.08%) of COVID-19, accounting for 4.2% of all acute cerebrovascular disease occurring during

COVID-19 infection. Several case reports, case series, and systematic reviews of CVT associated with COVID-19 infection have been reported since the beginning of the pandemic^{1,2}. Both a systematic review² and a large study based on administrative data from a hospital network³ indicate that the incidence of CVT increased with COVID-19 infection.

CVT can be the initial clinical manifestation of the infection, but the majority of CVTs develop within 13 days of onset of COVID-19 symptoms. Recognized risk factors for CVT are present in only one third of the patients. The main pathophysiological mechanism is related to the hypercoagulable state seen in moderate/severe COVID-19 disease.

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PRESIDENT’S COLUMN

President Praises WFN Performance During the Pandemic

BY PROF. WILLIAM CARROLL, WFN PRESIDENT

Against the backdrop of what is without a doubt medical history – the vaccination of the world against SARS-Cov-2 virus (COVID-19) – it is appropriate to review our performance. That the vaccination rollout is bumpy is to be expected. That the world has developed a multitude of vaccines and that the process is under way in just over a year is outstanding.

What about the WFN? This assessment of the WFN is focused on the component parts of our organization rather than by overall achievement. In so doing, I hope to illustrate the effort and output of each.

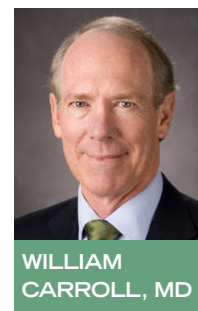
- Member Societies
- Regional Organizations
- Individuals
- Related Organizations
- London Office
- Trustees

It is my personal perspective, and any errors or omissions are mine.

Member Societies

The member societies are the neurological bodies representing neurologists in each jurisdiction and are the core of the WFN. All have had to deal with the impact of the pandemic on their organization, function, and educational activities. In most instances, they have been successful. Members have continued to serve and care for neurological disorders, be involved in educational activities and training, and in many cases supported the World Brain Day campaign of 2020 and the first electronic Annual General Meeting of the

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FROM THE EDITORS

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

Welcome to the April 2021 issue of *World Neurology*. This issue begins with the President's Column, where WFN President William M. Carroll thoroughly reviews the performance of the WFN during the pandemic. Next, Dr. Jose M. Ferro provides an extensive and authoritative update on the status of cerebral venous thrombosis (CVT) and vaccination against SARS-CoV-2, and provides important information on the International Consortium on CVT Registry.

Also in this issue, WFN Vice President Ryuji Kaji informs us of the decision and news that the WCN 2021 will be a fully virtual congress, and he updates us on the planning and fee structure for this important and exciting event, for which a tremendous number of abstracts have been received.

In this issue's column on the WFN Committees and Specialty Groups, WFN Secretary-General Wolfgang Grisold, James L. Bernat, and Tissa Wijeratne report on the many activities of the WFN Public Awareness & Advocacy Committee and the important activities of the newly reconvened Neuroethics Specialty Group



STEVEN L. LEWIS, MD



WALTER STRUHAL, MD

chaired by Dr. Bernat.

Tissa Wijeratne, Wolfgang Grisold, Rachel King, and William Carroll announce the topic of this year's World Brain Day (WBD 2021), devoted to the topic of multiple sclerosis and being held jointly with the Multiple Sclerosis International Federation (MSIF). In this issue's report from the *Journal of the Neurological Sciences*, Editor-in-Chief John D. England announces the publication of the Special Issue on Tropical Neurology, an issue of importance to neurologists worldwide.

In this issue's WFN Training Center report, Dr. Lawrence Tucker, head of the division of Neurology at the University of Cape Town, reports on the new WFN Training Center at Grote Schuur and Tygerberg Hospitals, and the arrival of the

first WFN sponsored trainee from Ghana. In the history column, Peter J. Koehler details the intriguing historical underpinnings of tabes dorsalis and the Romberg test. Dr. Stefan Oberndorfer provides a concise update on cancer therapy and neurotoxicity.

Drs. Chandrashekhar Meshram, JMK Murthy, Nirmal Surya, and U. Meenakshisundaram report on the successful public awareness event held in India in collaboration between the Tropical and Geographical Neurology Specialty Group of the WFN and the Indian Academy of Neurology (IAN) to celebrate the Brain Health initiative to raise awareness for the importance of brain health. Finally, in this issue's Department Visit Report, Dr. Ani-Oshkey Ifeyinwa from Nigeria reports on her pre-pandemic visit to the neurology department of the Selçuk University in Konya, Turkey.

Thanks again to all of our readers for your interest in *World Neurology*. We look forward to continued submissions from neurologists and neurological societies from around the world to inform all neurologists about the many activities, events, and opportunities you create to enhance the field of neurology and neurologic health. •

The Format of World Congress of Neurology 2021 in Rome Finalized

BY RYUJI KAJI, CHAIR CONGRESS COMMITTEE, FIRST VICE PRESIDENT OF THE WFN

The Congress Committee met on April 19, and the format of WCN2021 was finalized. Considering the global outlook of the COVID-19 pandemic and the decisions of other international meetings, we had to conclude that WCN2021 shall be held all online.



RYUJI KAJI

Despite being fully virtual, we will try our best for all of the participants to amply experience the atmosphere of Rome using state-of-the-art technology. The registration fee was revised and discounted to a large extent to facilitate attendance of many delegates, young neurologists, and medical students (see box at right), and the contents will be held available on the web for three months after the meeting for the registered participants.

The deadline of abstract submission was May 3, and we received over 2,000 abstracts. More bursaries than usual (200) will be provided to encourage young neurologists in the form of waiving registration fees. The early registration fees will apply until July 13, and we sincerely ask more

neurologists than ever to make our virtual meeting one of the best WCNs in the new style of holding an academic meeting during the pandemic.

We are also soliciting nominations of the names for WFN medals for 2021 (<https://wfneurology.org/activities/education-grants-and-awards/wfn-awards>).

See you all virtually in Rome! •



Registration Fees	Euros
Full Participants Int'l - Early	300
Full Participants Int'l - Late	350
Full Participants - Italians Early	200
Full Participants - Italians Late	250
Low/Lower Middle Income Countries - Early*	150
Low/Lower Middle Income Countries - Late*	200
Allied Health Professionals - Early + Late **	100
Undergraduate Medical Students - Early + Late **	Waived

*Low/Lower Middle Income countries are defined according to the World Bank Country Classification. Participants from Low/Low Middle Income Countries must submit a copy of their passport

**Allied Health Professionals include Residents, Fellows, Nurses, Physical Therapist, Occupational Therapist, and Speech Therapist. Status must be certified by an official letter from the institution signed by the head of the department

VACCINATION*continued from page 1*

In fact, CVT patients often have very high D-Dimers, low fibrinogen levels, and low platelet counts. The prognosis is less favorable; namely case fatality (40%) is higher than the non-COVID-19 CVT (5-10%). Management is similar, namely on what concerns the use of parenteral heparin in the acute phase of CVT.

Case Reports and Case Series of CVT Occurring After Vaccination Against SARS-CoV-2

The European Medicines Agency (EMA) approved four vaccines against SARS-CoV-2: two mRNA vaccines from Pfizer and Moderna and two adenovirus vector DAN vaccines from AstraZeneca (AZ) and Johnson & Johnson/Janssen (JJ). The AZ vaccine is not yet approved for use in the United States.

Shortly after the onset of mass vaccination with those vaccines in Europe and in several other countries around the world, there were signals and thereafter publications of case reports and small case series of severe CVT occurring in young women within days of vaccination with the AZ vaccine^{4,8}. The growing number of those events led several countries to contraindicate the AZ vaccine in young and middle-aged adults, despite the total number of signaled cases being low (<200) as well as the estimated absolute risk of CVT (5 per million vaccinated individuals). In April, a small number of similar cases were reported in the U.S. after the JJ vaccine⁹, leading the authorities to temporarily pause the use of that vaccine. A few individuals developed immune thrombocytopenia (ITP)¹⁰ without thrombosis after receiving the mRNA vaccines. There are a few CVTs also reported, but the percentage of CVT occurring after mRNA vaccination is much smaller than for the adenovirus

vector DNA vaccines

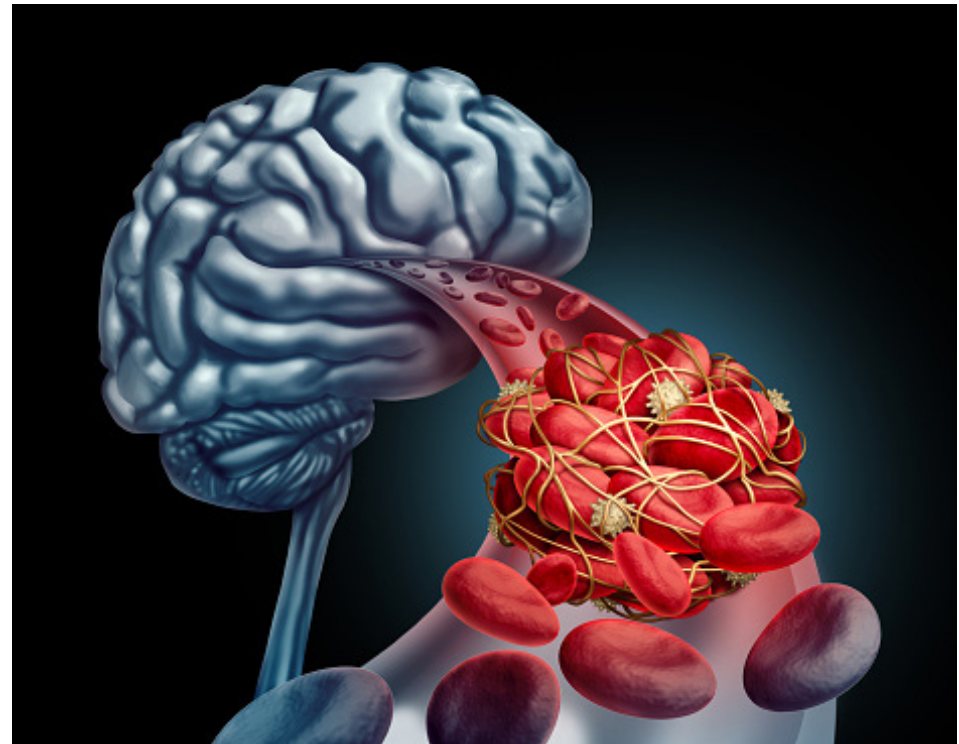
A striking feature of those cases was the high frequency of thrombocytopenia, which is uncommon in pre-COVID-19 CVT (<10% of the cases). Some other patients had only thrombocytopenia, splanchnic venous thrombosis, or hemorrhagic phenomena, or a combination of those, eventually with CVT. Although most of the emphasis has been placed in the thrombocytopenia, the most serious event, which may be fatal, is CVT. CVT is obviously also the most relevant event to the neurology community.

From the published cases and those signaled to the EMA's Pharmacovigilance Risk Assessment Committee (PRAC), a clinical profile of CVT associated with the AZ vaccine can be extracted:

- CVTs occur almost exclusively in women below age 60.
- Only about one third has traditional risk factors for CVT, such as thrombophilia or use of estrogenic contraceptives.
- CVT occurs up to 20 days after the administration of the first dose of the vaccine.
- A high percentage (up to two thirds) has thrombocytopenia; some have high D-Dimers and low fibrinogen.
- The clinical picture is often of a malignant CVT, with multiple sinus and veins thrombosis, cerebral hemorrhages and oedema, causing herniation, often requiring decompressive craniectomy, as a life-saving intervention.
- The mortality is high (~25%).
- Patients with traditional risk factors for CVT do not appear to have an increased risk of CVT after vaccination.

Possible Pathophysiological Mechanisms

Chance association or undetected recent COVID-19 infection are possible, but unlikely, explanations for CVT occurring after AZ and JJ vaccines. They cannot



account for the different risk of CVT after each type of vaccine, not for the distinct clinical laboratory profile, as described in the previous section. Moreover, SARS-CoV-2 PCR nasopharyngeal swabs were negative in all the patients, in whom that test was performed (or reported to be performed), and patients only displayed antibodies against the virus spike protein antigen (most probably a vaccine effect) and not against other antiviral antibodies, as expected if they were recently infected.

Shortly after the notice of the first cases of venous thromboses with thrombocytopenia, a group of researchers from Germany, Ontario, and Vienna under the leadership of Andreas Greinacher identified the mechanism of the thrombotic complications of AZ vaccine, which they called "thrombotic thrombocytopenia." Unfortunately, this label underscores the fact that the main feature of the syndrome is CVT, with the consequent risk of death and

disability. Their patients tested positive on a screening platelet factor 4 (PF4)-heparin immunoassay. None of the patients had received heparin before blood for the tests was drawn. Patients also tested positive on a platelet-activation assay in the presence of PF4 independent of heparin. Platelet activation was inhibited by high levels of heparin and immunoglobulin⁴. They concluded that the vaccine resulted in a rare thrombotic thrombocytopenia mediated by platelet-activating antibodies against PF4, which clinically mimics autoimmune heparin-induced thrombocytopenia (HIT). In recent years, it has been recognized that triggers other than heparin (polyanionic medications, infections, surgery) can also cause a HIT-like coagulopathy, which can also be spontaneous. The pivotal observations of Greinacher et al⁴ were confirmed by other researchers¹¹. This post-vaccinal entity is now named vaccine-induced prothrombotic immune thrombocytopenia (VIPIT) or vaccine immune thrombotic thrombocytopenia (VITT).

A similar laboratory observation was found in the cases reported after the JJ vaccine. This finding raises the suspicion that the adenovirus vector could be the initial trigger of antibody production. The adenovirus vector carries negatively charged DNA, which binds to the positively charged PF4. An alternative explanation is the strong inflammatory stimulus of the vaccination or cross-reaction of antibodies produced by the vaccine and PF4⁴. RNA is charged positively, so this immune response is unlikely to occur after mRNA vaccines.

Management of Cerebral Venous Thrombosis Occurring After Vaccination Against SARS-CoV-2

The risk of CVT following AZ vaccine being estimated as only five cases per million vaccinated people, it is evident that no randomized trials are possible to inform management decisions. Evidence comes from case series, analogy with

JOURNAL OF THE NEUROLOGICAL SCIENCES**Special Issue on Tropical Neurology**

BY JOHN D. ENGLAND, MD

During the World Congress of Neurology in 2017 in Kyoto, Japan, Profs. Marco Medina, Chandrashekar Meshram, Raad Shakir, and I proposed to publish a special issue on tropical neurology in the *Journal of the Neurological Sciences*.

The selection of topics and authors was coordinated with the Tropical and Geographical Specialty Group of the World Federation of Neurology (WFN). Because of the high incidence and prevalence of neglected tropical diseases (NTD) that affect the nervous system,



JOHN D. ENGLAND, MD

this project was given high priority by the journal's editorial board.

Almost half of the world's population (approximately 3.3 billion) resides in the tropics. Taken together, NTDs affect close to 1 billion people each year. At present, these diseases affect the majority of Latin America, Asia, and Africa. Due to global climate change, these diseases are predicted to affect an ever-increasing number of people. We hope this special issue will bring greater attention to these important and highly prevalent diseases.

Because the special issue is an online product, articles are added as they are accepted for publication. Currently,

nine articles covering the topics of CNS fungal infections, onchocerciasis, ebola, chikungunya, leprosy, tuberculosis, brucellosis, COVID-19, and environmental neurology are published; others covering neurocysticercosis, dengue, and zika will follow.

The articles in the special issue are available by accessing:

<https://www.sciencedirect.com/journal/journal-of-the-neurological-sciences/special-issue/10NG1VC7F2Z> •

John D. England, MD, is editor-in-chief of the *Journal of the Neurological Sciences*, the official journal of the WFN.

HISTORY

Tabes Dorsalis and the Romberg Test; Historical Aspects

BY PETER J. KOEHLER

Longue conversation avec Charcot. C'est bien ce que je pensais. J'en ai pour la vie. Cela ne m'a pas porté le coup que j'aurais dû attendre.

[Long conversation with Charcot. It is indeed what I thought. I will have it for life. It did not bring the blow that I would have expected.]

These are the words written in a notebook by French novelist Alphonse Daudet (1840-1897) and published posthumously in a book (*La Douleur*, 1930, p. 18) with short statements he had made during the 20 years he was suffering from *ataxie locomotrice progressive* (*tabes dorsalis*).

As probably most neurologists will know, general paralysis of the insane (GPI, also known as general paresis and dementia paralytica) and *tabes dorsalis* are the two main neurological manifestations of late neurosyphilis. The first condition was recently discussed by Fiolet and Daey Ouwens in an article on malaria fever therapy and has become relatively rare. (See *World Neurology* October/November 2020.) The latter disease became very rare during the past decades, and only few living neurologists will ever have observed it.

Shooting Pain

In a time that it was much more frequent, a neurological test became associated with it, notably the Romberg Test. It was introduced in a period that this eponymist will not have realized that it was a syphilitic disease. With a latency of between 15 and 30 years after the primary infection, the shooting pain in the legs and abdomen were the most characteristic symptoms, next to signs such as ataxic gait. In old neurological films, these patients are easily recognized by their wide-based gait with hypermetric lifting of the feet.

Another characteristic sign was the Argyll-Robertson pupil. These could be accompanied by absent muscle stretch reflexes of the lower limbs, a sign that was already believed to be of great importance, when the reflexes were described by Westphal and Erb (1875). As would be expected, pathology in these patients was found in the dorsal roots and posterior columns in the lower part of the spinal cord, while, of interest, the exact pathogenesis is unknown.

The Term

The term *tabes* is quite old, meaning consumption. In the past, the Greek term *phthisis* was used to indicate consumption, in particular when it was caused by tuberculosis of the lungs. The term *dorsalis*, as one would expect, does not refer to the dorsal columns, but rather to the affliction of the spinal cord. The neurologist and “neurohistorian” Francis Schiller (1909-2003) noted that it was already referred to in the Hippocratic corpus, where consumption of the spinal cord is mentioned (*phthisis notias*).

Romberg's Test

Probably most neurologists will be acquainted with this test, described in the early 1840s by the Berlin physician Moritz Heinrich Romberg (1795-1873) in his well-known *Lehrbuch der Nervenkrankheiten des Menschen*. He had observed the phenomenon in patients suffering from *tabes dorsalis* and wrote:

Isolirt, ohne Verlust des Hautgefühls, zeigt sich die Anaesthesia muscularis, nach meinen Beobachtung, als stete Begleiterin der Tabes dorsualis. Ein einfaches Experiment giebt davon die Ueberzeugung. Man lässt den Kranken in aufrechter Stellung die Augen schließen: sofort tritt ein Schwanken des Körpers ein, und nimmt dergestalt zu, dass derselbe, wenn man ihn nicht hält, umsinkt.^{2, p.228}

In the English edition of Romberg's second German edition, this was translated as:

I have observed that anaesthesia of the muscles alone without loss of tactile power, invariably accompanies tabes dorsalis. A simple experiment suffices to determine the fact. If the patient is told to shut his eyes while in the erect posture, he immediately begins to move from side to side, and the oscillations soon attain such a pitch that unless supported he falls to the ground.^{pp. 226-7}

Romberg believed the sign was pathognomonic:

Auf dieses pathognomonische Merkmal — denn es zeigt sich nach meiner Beobachtung weder bei andern Lähmungen noch in der von Complication freien Amaurose — habe ich schon vor zehn Jahren aufmerksam gemacht ...^{2, p.795}

[It is now 10 years since I pointed out this pathognomonic sign, and it is a symptom which I have not observed in other paralyzes, nor in uncomplicated amaurosis; since then I have found it in a considerable number of patients, from far and near, who have applied for my advice; in no case have I found it wanting].^{p.396}

It is interesting to note that Romberg wrote about “paralyzes” and inserted the chapter on *tabes dorsalis* in a section on spinal paralyzes.^{2, pp.794-801}

Muscle Sense

Romberg observed an autopsy at the Berlin Charité hospital, done by his colleague Robert Froriep (1804-1861) and was particularly interested in the atrophy of the caudal part of the spinal cord, including the dorsal columns and the dorsal roots. “Die Marksubstanz der erstern war fast ganz geschwunden, so dass sie wie durchsichtig von graugelber Farbe erschienen”.^{2, p. 799} [The medullary tissue of the former had almost entirely disappeared, so that they were translucent, and of a greyish-yellow colour].^{4, p. 399}

Years before, Romberg had translated English medical books into German, including Scottish surgeon and anatomist



Charles Bell (Colour mezzotint by H. Goffey after J. Stevens. Wellcome Collection).

Charles Bell's (1774-1842) *The nervous system of the human body* (1830). Bell was the person, who gave an early description of proprioception (the sixth sense) in 1826: “between the brain and the muscles, there is a circle of nerves...”

As this subject had also been a part of Romberg's translations (1832), he was aware of muscle sense, as appears from his textbook: “Verlust des spezifischen Muskelgefühls, die Kehrseite des Schwindels, als dessen Grundzug Empfindung von Scheinbewegungen aufgestellt worden, kommt entweder in Verbindung mit Anaesthesia cutanea oder isoliert für sich vor. Von ersterem erzählt Bell ein Paar Beispiele”.^{2, p. 226} [A loss of the specific muscular sensation, the counterpart to vertigo, the fundamental character of which has been stated to be an impression of illusory movement, may occur in connection with anaesthesia cutanea or isolated. Bell relates a few instances of the former].^{3, p. 225}

The French physician Guillaume BA Duchenne (1806-1875) applied the term ataxia, mentioning the disease “ataxie locomotrice progressive” [progressive locomotor ataxia]. Moreover, he doubted the muscle weakness, as described by Romberg, and emphasized the disorder of balance and coordination that increased in the dark.

Wide-Based Gait and Shooting Pain

Romberg was not the first physician to describe *tabes dorsalis*. His teacher Ernst Horn (1774-1848) wrote about it in 1813, and some of Horn's pupils published dissertations on the disease in the early 19th century. *De Myelophthisi Chronica Vera et Notha* (1817), for instance, was written by Sigmund Eduard Loewenhard (1794-1875). Like Romberg, they also supposed weakness, but the wide-based gait was the most remarkable feature. They also noted the *genu recurvatum* or knee hyperextension and were aware of the shooting pain in the limbs, urinary



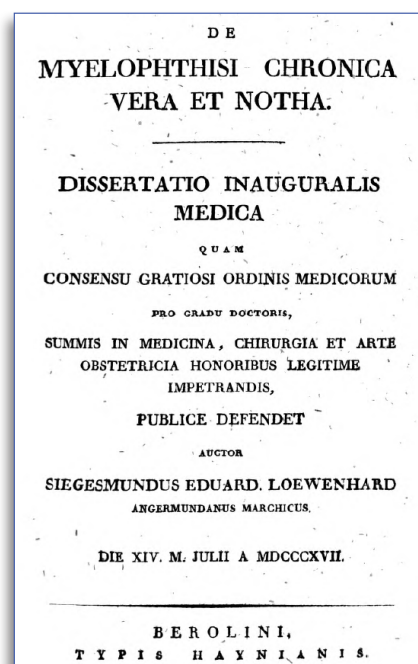
Early 19th-century patient showing wide based gait and hypermetric lifting of right leg. Note the spreading of the arms to keep balance.



Moritz Romberg (Humboldt-Universität zu Berlin, Universitätsbibliothek).

HISTORY

continued from page 4



Thesis of Sigmund Eduard Loewenhard (1817).

incontinence, and impotence.

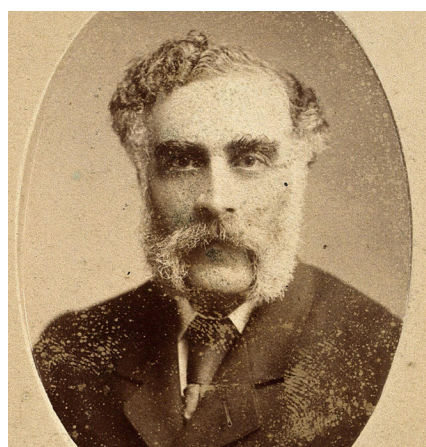
Argyll-Robertson Pupil

Romberg had already noted the peculiar disorder of the pupils. “in der Tabes dorsualis dagegen habe ich öfters die Pupille bis auf die Größe eines Stecknadelpnopfes contrahirt gefunden”^{2, p. 684} [in tabes dorsalis I have found the pupil contracted to the size of a pin’s head]^{4, p. 299} and “in beiden Augen oder nur in einem, und zwar eine Verengerung mit Unbeweglichkeit”^{2, p. 797} [one or both eyes, consisting in a contraction with loss of motion]^{4, p. 397}

Scottish surgeon and ophthalmologist Douglas MCL Argyll Robertson (1837-1909) later provided an accurate clinical description of the characteristic, narrow, not completely round pupil that reacted to convergence, but not to light (1869). His students are supposed to have said: “It’s better to be pupil of Argyll Robertson than to have them.”

Charcot’s Contributions

In his early career, Jean-Martin Charcot (1825-1893) in cooperation with Alfred Vulpian (1826-1887) published some cases (1862) and later he described the condition more extensively with his pupil Charles Bouchard (1837-1915), emphasizing the



Douglas Argyll Robertson (Wellcome Collection).

severe pain with the term “douleurs fulgurantes” [shooting pains]. Moreover, he described the arthropathy, later eponymized as Charcot joints, that could accompany the disease.

As for the treatment, he applied suspension therapy, applied 20 years later. He referred to “Dr. Motschutkovsky de l’Odessa,” who had observed a favorable effect on the pain. Charcot, with his pupil Georges Gilles de la Tourette (1857-1904), treated a number of patients by this method, including his rear neighbor the writer Alphonse Daudet. As mentioned in the introduction, book on his disease, in particular the pain, was published posthumously, notably *La Douleur* (La Douleur/The pain; 1930, English translation in 2002); This is what he noted on this particular treatment:

Je reste jusqu’à quatre minutes en l’air, dont deux soutenu seulement par la mâchoire. Douleur aux dents. Puis, en descendant, quand on me détache, horrible malaise dans la région dorsale et dans la nuque, comme si toute ma moelle se fondait. (*La Douleur*, 1930, p. 23)

[I stay in the air up to four minutes, two of which supported only by the jaw. Pain in the teeth. Then, descending, when they detach me, a horrible malaise in the dorsal region and in the neck, as if the whole cord is melting.]

Intemperance in Baccho et Venere

Interestingly, although the venereal origin of *tabes dorsalis* was not known in Greek antiquity and the centuries that followed, the association with (excessive) sexual activity and sin was supposed. A relation between sexual activity and the spinal marrow, also known as the encephalomyelogenic spermatology, was assumed. The association has been repeatedly mentioned by persons including Plato (c 427 -347 BCE; *Timaeus*), Leonardo da Vinci (1452-1519), and the Swiss physician Théophile Bonet (1620-1689).

Herman Boerhaave (1768-1838) wrote about excessive loss of sperm that could produce fatigue, debility, immobility, convulsions, wasting, and drying up, leading to dorsal consumption (*tabes dorsalis*). The spinal cord had traditionally



Hideyo Noguchi.

been linked to the production of semen, and therefore excessive sexual activity was associated with *tabes dorsalis* by physicians including the Leyden professors Boerhaave and Hiëronymus David Gaubius (1705-1780), to whom the Swiss Samuel-Auguste Tissot (1728-1797) referred in his well-known *L’Onanisme* (1764).¹ In Romberg’s time, it was considered an affliction of men, nearly one eighth of the patients being women. He wrote about physical exercise followed by “Excesse in Baccho et Venere.”

Uebermäßiger Aufwand motorischer Kraft durch anhaltendes Stehen in gebückter Stellung, durch forcirte Märsche bei gleich zeitiger Erkältung in feuchten Bivouacs etc. und darauffolgende Excesse in Baccho et Venere – wie es so häufig in Feldzügen der Fall ist – spielen in der Aetiologie eine wichtige Rolle, daher die Frequenz der Tabes dorsualis in den ersten Decennien nach den grossen Feldzügen neuerer Zeit.^{2, p. 800-1} [When the strength is much taxed by continued standing in a bent posture, by forced marches, and the catarrhal influences of wet bivouacs, followed by drunkenness and debauchery, as is so often the case in campaigns, the malady is rife; this is the reason why tabes dorsalis was so frequent during the first decennia following the great wars of the present century.^{4, p. 400}]

Therefore, long journeys to health resorts, to undergo hydrotherapy as a form of prevention for instance, was dissuaded. The prognosis was believed to be serious without prospect of recovery, although the course could be quite long.

Venereal Disease After All

Due to the long latency between infection and *tabes dorsalis* (or GPI), it took a long time before the association was proved. Jean-Alfred Fournier (1832-1914), the French dermatologist, who was specialized in venereal diseases, found statistical indications, categorizing both diseases under the term “parasyphilis” (1894). However, he continued the idea of hereditary transmission. Further proof for the association with syphilis was delivered by the German neurologist Wilhelm Heinrich Erb (1840-1921). Biological proof had to wait until 1906, when the Wasserman reaction was described, a year after the discovery by Fritz Schaudinn (1871-1906) and Erich Hoffmann (1868-1959) of the *Treponema pallidum*. Finally, the Japanese bacteriologist Hideyo Noguchi (1876-1926) demonstrated the spirochete in the brain of a patient suffering from GPI in 1913 and later in the spinal cord of a tabetic patient. •

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PRESIDENT'S COLUMN

continued from page 1

Council of Delegates. Collectively, these efforts have assisted the WFN's mission to foster brain health and quality neurology worldwide.

Member societies are the neurological bodies representing neurologists in each jurisdiction and are the core of the WFN.

117 of 122 member societies responded to the Needs Registry.

In addition, member societies have participated in the program to update communicability with the London Office, an essential element for our global organization. During this program, they

have engaged in Zoom conversations to communicate their views on WFN activities and how they might be further engaged.

A pleasing 117 societies responded to the Needs Registry, which will provide data for the development of targeted campaigns to improve services and resources in all socioeconomic strata. Member societies in Africa and Mexico have, where possible, maintained WFN Training Programs.

Some member societies have seized the opportunity presented by the pandemic to upgrade their electronic educational program. Especially notable has been the efforts of the Indian Academy of Neurology in its highly regarded neuroinfections series of 2020, where it partnered with the Tropical and Geographical Neurology Specialty Group.

More recently, the IAN has begun a series highlighting the contribution made by inspiring leaders in neurology. (Please see WFN website.)

Regional Organizations

These six organizations through their presidents have attended the biennial WFN Strategy Meeting in 2020 at the time of the onset of the pandemic. Most of the six have continued their regular congresses.

Most of the six regional organizations have continued their regular congresses.

The EAN and AAN held successful virtual congresses in 2020 and plan to do so again in 2021. Both have also maintained close organizational ties through regular leadership meetings with the WFN.

The AOAN had to defer its 17th Congress from August 2020. It held a successful, highly regarded meeting in early April 2021, which was the first regional

hybrid meeting. AFAN has deferred its scheduled biennial meeting from 2021 to October 2022 to be held in Cameroon.

With the WFN, AFAN held a valuable e-Learning Day on stroke in 2020, which included two parallel sessions in French. A similar e-Learning Day will be held in November 2021 on epilepsy.

PAUNS held its biennial Congress in February 2020 (at the onset of the pandemic) and will do the same in 2022.

PAFNS held its Congress in conjunction with the Brazilian Academy of Neurology in 2019 and plans its next congress for 2023.

Regional organizations are supporting efforts by a subgroup of trustees and office staff to improve communications.

Individuals

Neurologists are the core of each member society and the advocates and supporters for them and the WFN. They continue

see PRESIDENT'S COLUMN page 9

World Brain Day 2021: Stop Multiple Sclerosis

A collaboration between the World Federation of Neurology and Multiple Sclerosis International Federation



TISSA WIJERATNE



WOLFGANG GRISOLD



RACHEL KING



WILLIAM CARROLL, MD

BY TISSA WIJERATNE, WOLFGANG GRISOLD, RACHEL KING, WILLIAM CARROLL

World Brain Day (WBD) was launched in 2014. Since then, the WFN, jointly with other international societies, such as International League Against Epilepsy, World Stroke Organization, the International Headache Society, and the Movement Disorders Society chooses a topic with a view to drive home the importance of brain health and promoting better neurological care globally.

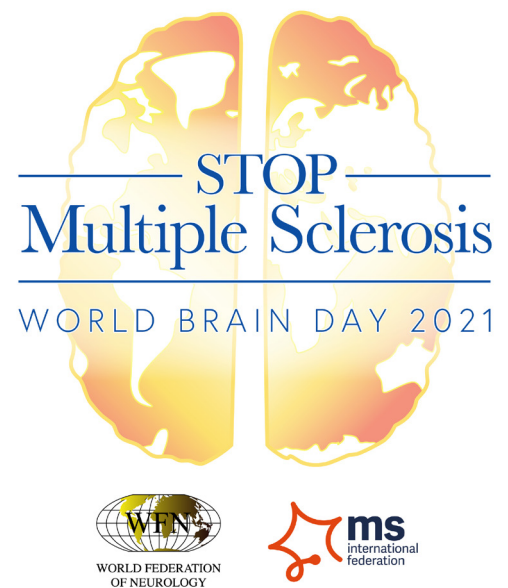
Based on this background, the WFN chose the topic of multiple sclerosis jointly with the Multiple Sclerosis International Federation (MSIF) as the topic for WBD 2021. As in preceding WBDs (<https://wfneurology.org/world-brain-day-past-years>), the aim of WBD 2021 is to alert not only its member societies but also the public on critical neurological issues. The member societies of the WFN will receive a "tool kit," templates for press releases and also educational PowerPoint presentation sets to assist in their

local activity to promote WBD and advocate for patients with MS and their caregivers.

Local press conferences, press coverages (including print, electronic, radio, TV, YouTube channels) are strongly encouraged to reach the public.

Let us spread the key messages from WBD 2021: Stop Multiple Sclerosis through mainstream media, social media platforms, and local, regional, national and international meetings throughout the year. Please see and share our new logo, the web banners, social media images, and other educational material in your country. We invite our readers to rally around WBD 2021 with the aim to stop multiple sclerosis.

Please make the World Brain day 2021 campaign Stop Multiple Sclerosis an important priority. The educational and promotional material from the WFN-MSIF collaboration will help you to be the best advocates for your patients with multiple sclerosis and their caregivers. •



KEY MESSAGE

World Brain Day (WBD) 2021, jointly with the Multiple Sclerosis International Federation (MSIF).

Get on board now; let's spread the news through mainstream media, social media platforms, national and international meetings throughout the year.

Arrange virtual educational, advocacy activities concerning "STOP Multiple Sclerosis (MS),"

World Brain Day 2021 campaign in your community, hospital, village, city-region throughout the year.

Contact the World Brain Day team through the WFN website for ongoing support.

The educational and promotional material from the WFN-MSIF collaboration will help you advocate for your patients with MS.

FIVE KEY FACTS

Disability: Multiple sclerosis can be a debilitating neurological disease that impacts every aspect of a person's life, with effects ranging from cognitive impairment to significant physical disability.

Prevalence: 2.8 million people of all ages globally are affected by MS, and someone receives this life-altering diagnosis every five minutes.

Education: We must work with health care professionals to recognize the signs and symptoms of MS so people can be diagnosed early and effectively treated.

Access to Treatment: Disease-modifying treatments slow disease progression, dramatically improving the quality of life for those living with MS, yet access to these medications is unavailable in many parts of the world.

Advocacy: We can stop MS by diagnosing earlier, providing better access to life-changing treatments, and advocating for improving the quality of life for those living with MS and their caregivers.

WFN COMMITTEES AND SPECIALTY GROUPS

The WFN Public Awareness & Advocacy Committee and the Neuroethics Specialty Group

BY WOLFGANG GRISOLD,
JAMES L. BERNAT, AND TISSA
WIJERATNE

In this edition of World Neurology, we will continue to present one committee and one specialty group, to explain the various activities of the WFN. In short, and as a wrap-up from the previous articles, the WFN has committees, which are dedicated to specific tasks, and 16 specialty groups, formerly known as Applied Research Groups, which are working groups dedicated either to specific health issues and diseases or to other relevant topics.

In this issue, we introduce the WFN Public Awareness & Advocacy Committee, which has the important agenda to organize World Brain Day, among others, and from the Specialty Groups, the Neuroethics specialty group, which has been newly activated and composed.

For details, please see Committees at <https://wfneurology.org/about-us/committees> and Special Groups (SG) at <https://wfneurology.org/about-us/global-networks/wfn-specialty-groups>.

WFN Public Awareness & Advocacy Committee

Prof. Tissa Wijeratne chairs this committee and the complete list of members is on the website. Prof. Wijeratne is the chair of the Department of Neurology, Sunshine Hospital, Western Health, Faculty of Medicine, Melbourne Medical School, Sunshine Campus, St Albans, Victoria, Australia (<https://whcda.wh.org.au/research/neurology-research/>). He has recently been appointed as the editor in chief of



WOLFGANG
GRISOLD

neurology international, MDPI with a special collection on advocacy in neurology and brain health.

The important task of advocacy and public awareness is to raise public awareness of neurological disorders. The World Federation of Neurology was established on July 22, 1957. The Public Awareness and Advocacy Committee suggested that July 22, 2014, should be celebrated as World Brain Day (WBD). This proposal was announced at the World Congress of Neurology Council of Delegates meeting in Vienna on Sept. 22, 2013, and the proposal was received with a warm welcome by delegates. The Board of Trustees meeting in February 2014 endorsed this proposal as an annual and ongoing activity.

The main objective of WBD is to increase public awareness and promote advocacy related to brain health. The theme for the 2014 WBD campaign was "Our Brain, Our Future." The WBD 2015 campaign was dedicated to epilepsy (with the International League Against Epilepsy). The 2016 WBD campaign was "Brain Health and the Aging Population," and the 2017 WBD campaign was dedicated to stroke (with the World Stroke Organization). The WBD 2018 topic was "Clean Air for Brain Health" (with the Specialty Group on Environmental Neurology). WBD 2019 was dedicated to migraine (with the International Headache Society), and WBD 2020 was devoted to ending Parkinson's disease (with the Movement Disorders Society). WBD 2021 will be "Halt Multiple Sclerosis."

The committee is responsible for the WBD campaign under the leadership of the trustees, the secretary-general, and the WFN president. The committee collaborates

with the regional associations, including the African Academy of Neurology, the American Academy of Neurology, the Asian and Oceanian Association of Neurology, the European Academy of Neurology, the Pan-American Federation of Neurological Societies (PAFNS), the Pan Arab Union of Neurological Societies, and national neurology member societies, to raise awareness among neurological disorders with a successful WBD campaign year after year.

The committee is keen to promote the brain health initiative and public awareness campaigns to promote better awareness and advocacy for neurological disorders globally.

Neuroethics Specialty Group

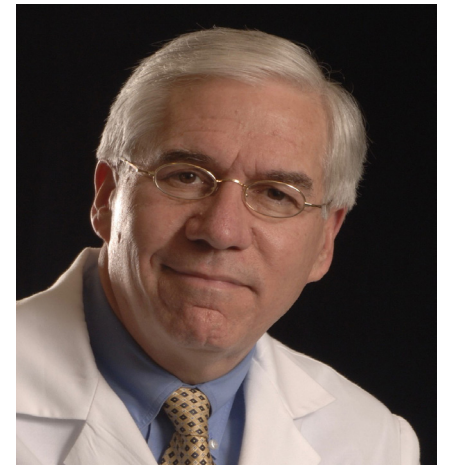
This group is chaired by Prof. James L. Bernat. He is professor of neurology, active emeritus and former Louis and Ruth Frank Professor of Neuroscience at the Dartmouth Geisel School of Medicine in Hanover, New Hampshire. He is the author of *Ethical Issues in Neurology*, 3rd edition (Philadelphia: Lippincott Williams & Wilkins, 2008).

Neuroethics Specialty Group Resumes Work

In November 2019, the former WFN Ethics Specialty Group was reborn as the Neuroethics Specialty Group. Under the leadership of James Bernat, members include Ralf Jox (Switzerland), Adam Zeman (U.K.), and Alejandro Serani Merlo (Chile). The WFN Ethics Specialty Group previously had operated under the leadership of Prof. Franz Gerstenbrand (Austria) until his death in 2017.

The Neuroethics Specialty Group has identified several activities. They created a neuroethics teaching course for the WCN 2021 meeting in October that will be offered on the first day. Dr. Eelco Wijdicks (USA) will speak on the ethical issues in brain death, and Dr. James Bernat will speak on the ethical issues of physician-assisted death and active euthanasia. Dr. Bernat is also working with Dr. Sabahat Wasti (UAE), the chair of the Neuroethics Special Interest Group of the World Federation of Neurorehabilitation, to develop a teaching conference on neuroethics for the meeting.

The Neuroethics Specialty Group supported the World Brain Death Project, a 5-year effort to generate international consensus on brain death, composed of dozens of investigators, led by Gene Sung (USA), David Greer (USA), and a steering committee. Although the project did not originate in the WFN, it had been a longstanding idea of Prof. Franz Gerstenbrand that he had discussed with



James L. Bernat

Dr. Bernat in Vienna at the WCN 2013.

The World Brain Death Project report was endorsed by the WFN and 30 other neurological, neurosurgical, and critical care societies around the world [see Greer DM, Shemie SD, Lewis A, et al. Determination of brain death/death by neurological criteria: The World Brain Death Project. *JAMA* 2020;324:1078-1097, plus 17 supplements accessible on-line.]

The worldwide consensus developed in the World Brain Death Project represented an international group of leading neurologists, neurosurgeons, and intensivists but acknowledged that a minority of professionals in different countries oppose brain death for scientific, conceptual, ethical, religious, or cultural reasons.

The Neuroethics Specialty Group is considering initiating projects. Given their small size, they feel that the best use of their expertise will be collaborative: to offer ethical guidance to other specialty groups as they pursue their endeavors.

Some ideas raised by members at the February 2021 Specialty Group meeting included:

- the ethical issues in incorporating personalized medicine into neurological practice
- the inherent ethical limitations on protecting patient privacy and confidentiality in genomic medicine
- the ethical issues raised in global access to neurological care the evolving global changes in assisted dying practices for neurological patients
- the role of individual differences in humans as a source of interpersonal conflict.

Presently, the Neuroethics Specialty Group is recruiting additional members, particularly from Asia and Africa. If WFN members have suggestions for new specialty group members or topics for the Neuroethics Specialty Group to address, please contact Dr. James Bernat at bernat@dartmouth.edu.



Tissa Wijeratne

VACCINATION

continued from page 3

HIT management, and expert consensus statements, and therefore is of low quality. Strong recommendations are not possible and the most sensible option is to produce guidance documents that will be periodically updated, as new evidence is produced.

Vaccinated persons should be informed that they may experience a transient headache a few days after vaccination. If the headache persists or is unusually severe, or they have any other neurological symptom, they should seek urgent medical advice. These patients should be examined by a neurologist.

If the clinical picture is suspicious of CVT, cerebral CT with venography or MR with MR venography should be performed to confirm, or not, the diagnosis of CVT. Meanwhile, a complete blood cell count and film, coagulation tests (INR, APTT, fibrinogen, D-Dimers) and COVID antibodies are obtained.

If CVT is confirmed and platelet count is below $150 \times 10^9/L$, VITT is a possibility. However, if the results of coagulation tests, fibrinogen, and D-Dimers are normal, VITT is unlikely, and the patient can be managed accordingly to the current CVT Guidelines¹², namely be treated with low molecular or unfractionated heparin in the acute phase.

On the contrary, if any of those tests is abnormal, VITT is suspected and a HIT Elisa test (capable of detecting PF4 antibodies) should be performed. Consultation with a hematologist is advisable to guide on further testing (e.g., functional HIT assays) and discuss management. Meanwhile, platelet transfusions should be avoided, IV immunoglobulin (e.g., 1 mg/kg for 2 days) be administered, and a non-heparin anticoagulant (argatroban, danaparoid, or direct oral anticoagulants) be used instead of heparin^{4,11}. Endovascular treatment of CVT can also be an option.

The International Consortium on CVT Initiative

From the available evidence so far, it is apparent that CVT after SARS-CoV-2 vaccines can be a heterogeneous group of patients. While most appear to have an immune mechanism (VITT), a few other cases may be coincidental, related to the usual CVT risk factors or even to recent COVID-19 infection. Therefore, a detailed analysis of non-selected CVT cases who developed after any COVID-19 vaccination needs to be performed.

The International Cerebral Venous Thrombosis Consortium (ICVTC) is an existing, global collaboration by academic researchers with the primary aim to perform investigator-initiated research on the epidemiology, manifestations, and outcome of patients with CVT.

Currently, 32 hospitals are participating in the consortium and have already collected data of 1,308 patients with CVT, prior to the COVID pandemic. ICVTC recently launched a prospective registry to report clinical manifestations, laboratory findings, management and outcome of patients with CVT after any COVID-19 vaccination. The registry will include CVT patients with radiologically confirmed CVT, with onset of CVT symptoms within four weeks of COVID-19 vaccination, and informed consent. Principal investigator is Jonathan Coutinho from the Amsterdam University Medical Centers (j.coutinho@amsterdamumc.nl).

Conclusion

Medicine should follow the ethical principle of “*Primum non nocere*” (first do not harm). However, ethics should also be applied with justice. We must consider that the individual risk of CVT following COVID infection is much higher (6x) than that following any anti-SARS-CoV-2 vaccine³, even without considering the indirect effect of the infection through contagium. Therefore, the fundamental message for the public should focus on

the urgent need, safety, and confidence on vaccines.

Epidemiological, clinical, and laboratory research will unveil the multiple remaining unanswered questions on the occurrence of CVT after anti-SARS-CoV-2 vaccines. Meanwhile, neurologists and other health care workers must be aware of this very rare complication of the AZ and JJ vaccines. Management of the occasional CVT patient occurring after those vaccines should follow the most recent guidance statements from national¹³ and international official agencies and from scientific societies¹⁴, which are likely to be updated as evidence grows. Inclusion of those cases in the ongoing International Consortium on Cerebral Vein Thrombosis registry is welcome. •

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Inclusion Criteria for the International Consortium on CVT Registry

Patients with cerebral venous thrombosis with:

- Radiologically confirmed CVT
- Onset of CVT symptoms within 4 weeks of any COVID-19 vaccination
- Informed consent, according to local law

For more information, contact Dr. Jonathan Coutinho at j.coutinho@amsterdamumc.nl.



PRESIDENT'S COLUMN

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to participate in all regular activities of diagnosis, treatment, and care. In a number of instances, neurologists and neurological infrastructure have been drafted to COVID duties.

Many individuals have made, and are continuing to make, important contributions to national, regional, global, and disease-specific COVID-19 data collection efforts on topics ranging from the impact of COVID-19 on the provision of neurological services generally, the documentation of neuro-COVID phenotypes, and contributed to the development of the WHO Case Report Form to provide more uniform data collection. Many have also participated in activities overseen by the WHO Neuro-COVID Global Forum, the COVID-19 Neuroresearch Coalition, the EAN ENERGY Registry, the NINDS NeuroCOVID project, and the WFN Environmental Neurology Specialty Group's list of registries.

Many neurologists continue to make important contributions to COVID-19 data collection and maintain neurological services.

Related Organizations

Members of the Global Neurology Alliance (GNA) have supported the WFN World Brain Day campaigns, especially the International Parkinson's Disease and Movement Disorder Society (2020) and the Multiple Sclerosis International Federation (2021). Recently, GNA members have played a major role in the constructive assessment and advice to the WHO on its discussion plan for the preparation of the Intersectoral Global Action Plan for Epilepsy and Neurological Disorders. Notable here were the International League Against Epilepsy (ILAE), International Bureau for Epilepsy (IBE), International Child Neurology Association (ICNA), World Stroke Organization (WSO), International Headache Society (IHS), the International Parkinson's Disease and Movement Disorder Society (IPD&MDS), Alzheimer's Disease International (ADI), the World Federation of Neuro-Rehabilitation (WFNR), World Psychiatry

Association (WPA), and Multiple Sclerosis International Federation (MSIF).

A number of WFN Specialty Groups have also made valuable contributions to the WFN goals. I have already mentioned the Tropical and Geographical Neurology Specialty Group's series on neuroinfections where they partnered with the Indian Academy of Neurology. The Migrant Neurology Specialty Group has produced an excellent comprehensive reference book on "Neurology for Migrants."

The Rare Neurological Diseases Specialty Group is conducting a survey on these and their resourcing around the world. The new ALS/MND Diagnostic Criteria were published by the ALS/MND Specialty Group, and the Neuromuscular Disease Specialty Group held its 2020 Congress virtually.

London Office

If member societies are the core of the WFN, the London office is the heart. The WFN employed a second senior manager, Kimberly Karlshoej, in February 2020 with the primary role of overseeing new WFN initiatives, such as the Needs Registry and enhancing the relationship between the WFN and the WHO.

Within weeks, she joined the other London staff in lockdown. Despite the tribulations of the pandemic on London residents, the office staff have exceeded everyone's expectations, including their own. They have maintained the routine day-to-day management of the federation, such as receiving and responding to email from member societies, calendar organization, financial, and membership records.

Where necessary, they have joined conference calls and provided audio recording for the production of accurate minutes despite an array of different time zones through countless Zoom, GoTo, Teams, and Webex meetings.

They guided a flawless Council of Delegates Annual General Meeting, including the inaugural electronic trustee election. They have orchestrated improved electronic communicability with member societies, specialty groups, WFN committees, and the Global Neurology Alliance, increased the social media posts, and assisted the regular website updates, including the COVID-19 and World Neurology page. These tasks, and there are many that I may have omitted, have all been performed with a cheerful professional disposition which has facilitated business operations in this unprecedented environment. I am sure I

speak for all the trustees when I say that we are indebted to our office.

The London Office guided a flawless 2020 Council of Delegates Annual General Meeting, including the inaugural electronic trustee election.

The most important initiative they have been engaged in is the updating of member society contacts and the development of its enduring continuity.

Trustees

The pandemic began one month after the 2020 Trustees and Regional Presidents' Strategy Meeting. At this time, Jean Marc Leger stepped down as co-opted trustee, and his place was taken soon after by Marianne de Visser. Both Leger and de Visser added invaluable depth to trustee discussions and decisions.

The expiration of Riadh Gouider's stellar term as trustee at the 2020 AGM was also marked by the election of Morris Freedman. Freedman has begun to develop a WFN e-learning pilot program. Gouider continues to oversee the WFN/AFAN e-learning Day. Throughout 2020 and to date, each and every one of the trustees have combined energetically in the collective effort of the WFN. All have recognized the importance that they represent all member societies, and that decisions made by them, as trustees, are all gauged by their worth for the whole federation.

It has been a pleasure to witness the careful consideration given by all in discussing a matter of weight before arriving at the most optimal decision. I have no doubt that the present composition of four officers, three elected trustees, and two co-opted trustees is the most efficient for a number of reasons.

Trustees all recognize that they represent all member societies and that decisions made by them are gauged by their worth for the whole federation

First, a nine-person group is simply workable. Each can contribute readily both in discussion and in the preparation of papers for specific proposals. Second, the ability to co-opt two trustees provides flexibility for particular skillsets and

diversity. Third, the staggered rotation of the elected trustees provides additional corporate memory to that of the executive officers. Fourth, a board of nine persons is a number that the London office can support efficiently. An increased number would likely require an increase in staff. Leanness and flexibility are two desirable virtues on which the WFN depends.

Current trustee structure is fit for purpose.

- A nine-person group is simply workable. Each can contribute readily both in discussion and in the preparation of papers for specific proposals.
- The ability to co-opt two trustees provides flexibility for particular skillsets and diversity.
- The staggered rotation of the elected trustees provides additional corporate memory to that of the executive officers.
- A board of nine persons is a number that the London office can support efficiently.

Conclusion

I am then unashamedly proud of the WFN and its robust advancement on all fronts despite the COVID-19 pandemic. As I have tried to illustrate above, every part of the organization, its governance, and the processes have performed admirably. I, as the president, and we all as the WFN, know that from individual neurologists, who have continued to function as neurologists in the care of people with neurological illness, through to the London office should share a sense of achievement for what has been done.

There is still some way to go to a post-COVID normal but we can appreciate that we will continue to prosecute our mission to foster brain health and quality neurology through and beyond the end of this pandemic. •



WORLD FEDERATION
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<https://wfneurology.org/>



Brief Update on Cancer and Neurotoxicity

BY STEFAN OBERNDORFER, MD, PROF, FEAN

Cancer is one of the most important conditions in human health, and due to longer life expectation and improved therapies, survival in cancer patients is also increasing. This has several implications in the management of cancer patients as the longer survival changes the “natural” course of many tumors.

The nervous system, consisting of the brain, spinal cord, the peripheral, and autonomic system is exposed to direct and indirect damage by cancer, which are not only metastatic, but also metabolic, endocrine, inflammatory, and paraneoplastic. In the past decades, besides hematotoxicity, neurotoxicity (for instance, chemotherapy-induced polyneuropathy) was one of the most frequent side effects of anticancer treatment. In recent years, the profile of side effects from cancer therapy is changing from the classical, often dose-related toxicity toward side effects predominantly based on immune mechanisms.

Side effects from these new therapies, including molecular and immunological mechanisms, induce neurological phenomena affecting the brain, spinal cord, and the peripheral nervous system. In clinical practice, the distinction between direct cancer effects, side effects of

classical and “newer” therapies, or other cancer effects need to be thoroughly discriminated. This discrimination has a major impact on the therapeutic and diagnostic management of cancer patients.

Conversely to the classic concept of direct damage (e.g. surgery), or toxicity (and chemotherapy), targeted and immune therapies present with an entirely new spectrum of side effects. In clinical practice, where the patient may be affected with tumor progression, concomitant diseases, infections, and side effects of conventional therapies, these emerging therapies pose an additional factor and need to be classified as distinct neurological syndromes.

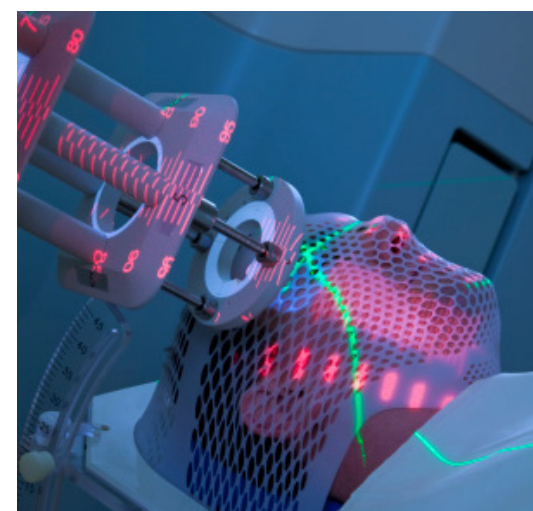
For the clinical neurologist and neuro-oncologist, it seems sometimes challenging to catch up with all the new anticancer treatments, even with a focus on neurological side effects. Each year, an amazing number of new drugs appear that have been evaluated for toxicity in early phase 1 and 2 trials, and during the registration process. However, their effect in the medium- and long-terms is uncertain, and clinicians are challenged by monitoring these patients.

Recent developments in medical oncology, for example, the therapeutic “revolution” in many cancer types induced by checkpoint inhibitors, show a completely new spectrum of neurological

complications such as autoimmune encephalitis, Guillain-Barre syndrome, and myasthenic syndromes. A complete summary of “classical” and “newer” neurotoxicity of anticancer treatment can be found in the book “Side Effects of Anticancer Treatment”, co-edited by this author, with many international contributors, focusing on therapy related effects, and providing pragmatic guidance for the differential diagnosis from neoplastic and other causes.

Adequate and immediate response to autoimmune phenomena caused by checkpoint inhibitors (dose reduction, immunosuppression) is crucial for oncologic and neurological outcome. At the same time, symptomatic therapies of neurological side effects have to be applied. Another example is neuropathic pain, which may be caused by direct or indirect effects of cancer and also as a side effect of therapy. Other examples for the need of symptomatic therapies are disorders of coordination, cognitive disorders, seizures, weakness, which need the expertise of neuro-oncology.

Due to the rapid progress in molecular pathology and genetics, the borders of tumor entities blur and the spectrum of anticancer treatment will become more colourful and personalized in the future. The conventional approach based on



surgery, radiotherapy, and chemotherapy will be increasingly complemented by the concepts of targeted therapies and immune therapies, which will increasingly result in a new spectrum of side effects. •

Prof. Oberndorfer is head of the department of neurology at the University Clinic St. Pölten in Austria.

Reference

Grisold W, Soffietti R, Oberndorfer S, Guido Cavaletti (eds): Effects of cancer treatment on the nervous system. Cambridge Scholars Publishing, 2020–2021, Volumes 1 and 2

WFN TRAINING CENTERS

Cape Town WFN Training Center: The First Two Years

BY LAWRENCE TUCKER, MB CHB

In 2019, Groote Schuur and Tygerberg Hospitals in Cape Town, South Africa, were jointly recognized as the only WFN-accredited, anglophone Regional Training Center (RTC) in sub-Saharan Africa; and one of only four such WFN RTCs on the African continent. It comprises the divisions of neurology of the universities of Cape Town (UCT) and Stellenbosch as well as the Neurology Research Group at the newly established UCT Neuroscience Institute (<http://www.neuroscience.uct.ac.za>).



LAWRENCE TUCKER

The Cape Town RTC is widely recognized for the quality of its clinical training, commitment to clinical excellence, and meaningful neuroscience research in the African context. This month, Dr. Desmond Koffie, a Ghanaian physician, will become the first WFN-sponsored resident to enroll for the four-year career

neurology training program in Cape Town. He will join 14 fellow neurology residents from South Africa, Uganda, Libya, Mauritius, and Tanzania on the rotation. Recent graduates from Namibia, Zambia, Kenya, Zimbabwe, and Mozambique have returned to practice neurology in their home countries, resulting in an active network of neurologists across sub-Saharan Africa centered on this RTC.

The Cape Town RTC training program is uniquely placed to provide trainees with an opportunity to diagnose and manage, under expert supervision, a broad spectrum of communicable and non-communicable neurological pathology, while providing comprehensive training in EEG, NCS, and EMG, which includes both “over the shoulder” and Web-based instruction. Over the past two years, more than 500 neurologists, neurology residents, and

neurotechnologists from across Africa and beyond have enrolled for the intensive, six-month, EEGonline distance learning program developed at Cape Town’s RTC with seed funding from the WFN (<http://studyeeonline.com>).

As from this year, in addition to career neurology resident training, Cape Town will offer one-year, self-funded or independently sponsored clinical fellowships in epilepsy (including epilepsy surgery), infectious neurology, stroke, and neuromuscular disease. These fellowships are primarily aimed at recently qualified neurologists from sub-Saharan Africa (<http://www.neuroscience.uct.ac.za/noticeboard/opportunities>).

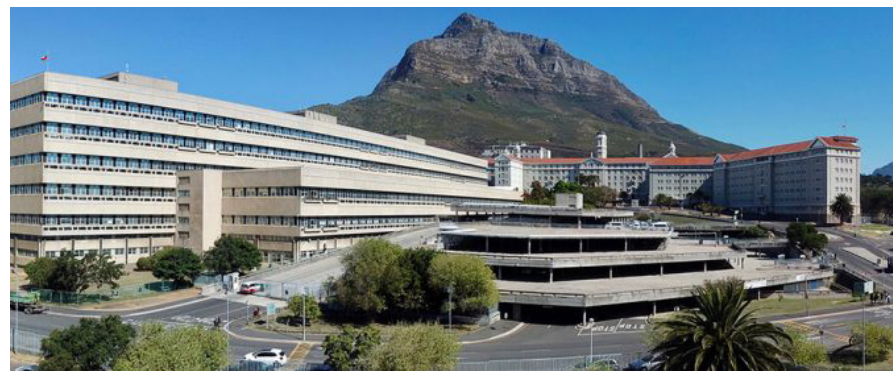
Lawrence Tucker is head of the division of neurology at the University of Cape Town. Dr. Tucker has had three terms as President of the Neurological Association of South Africa and two terms as President of the College of Neurologists of South Africa.



Neurology residents



Dr. Desmond Koffie



Groote Schuur Hospital

Brain Health Initiative in India

BY DRS. CHANDRASHEKHAR MESHAM, JMK MURTHY, NIRMAL SURYA AND U. MEENAKSHISUNDARAM.

The Tropical and Geographical Neurology Specialty Group of the WFN joined hands with the Indian Academy of Neurology (IAN) to celebrate the Brain Health initiative on Jan. 11, 2021, to raise awareness for the importance of brain health.

A public education and awareness activity in the form of a panel discussion was planned through virtual meeting. The theme of the session was brain health and what happens if brains are not healthy. Dr. Chandrashekhhar Meshram, chief coordinator of the program, released the press note.

Dr. JMK Murthy, president of Indian Academy of Neurology and clinical director and chair of the Department of Neurology, CARE Hospitals Hyderabad, inaugurated the event.

Dr. Meshram, in his introductory remarks, emphasized the relevance of this initiative by the World Federation of Neurology. Dr. Sarosh Katrak, past president of IAN, explained the importance of the brain, explained its functions and discussed why brain health is the priority.

IAN Secretary Dr. U. Meenakshisundaram spoke about various brain diseases and when people should consult a neurologist. Dr. Subhash Kaul, past president of IAN, mentioned various risk factors for brain diseases and how a change in lifestyle is important for prevention of neurological disorders.

Marathon runner and neurologist Dr. Anuradha explained how regular physical exercises improve brain health. Dr. Meshram highlighted the misconceptions about diet and stressed the need to shift to a low carbohydrate diet. He said that wrong diet is responsible for the pandemic of metabolic syndrome all over the world.

Dr. Gagandeep Singh, past secretary of IAN, informed about the current status of COVID vaccine. Dr. Sudhir Kothari said that developing hobbies is a good idea to maintain brain health and suggested that there is no age bar to learning new things. Dr. Sudhir Shah explained the positive effects of meditation and yoga on brain health. Dr. Sumit Singh stressed the effects of air pollution on brain health and discussed the sources of air pollution. Dr. Sudhir Bhavne explained the need for sleep hygiene and the role of positive thinking.

The emphasis was on maintaining brain health and prevention of brain diseases.

Dr. Nirmal Surya, IAN president-elect, was the moderator, and he interacted with the panelists. Participants enjoyed the session and the opportunity to interact with the experts during the question-and-answer session. •

Lokmat Times

Our personality is shaped by brain: Dr Meshram

LOKMAT NEWS NETWORK
NAGPUR, JAN 10

BRAIN HEALTH DAY TODAY

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After the panel discussion, participant will get the chance to ask questions and interact with the experts.

Tropical and Geographical Neurology Specialty Group of WFN has joined hands with Indian Academy of Neurology to celebrate Brain Health Day on January 11

'We are known by our brain. Our personality, thinking, creativity, intelligence, memory, acting, executive functions, emotions and everything is due to brain.'

The brain is the most important organ in the body and therefore you have to take care of it' said president of Tropical and Geographical Neurology Dr Chandrashekhhar Meshram, Past President of Indian Academy of Neurology and Emeritus Professor from Mumbai Dr Sarosh Katrak informed that the brain contains 80 billion brain cells called neurons. There are about ten trillion connections between these neurons which help us read, write, speak, see, think, remember, plan, learn, feel, move and perform various daily activities, he added.

Initially it was thought that brain grows only up to the age of around 20 years and then remains static. New research however has shown that the brain has a lot of plasticity, the brain changes itself structurally and the actual size of the brain can be increased even late in life. Brain is constantly changing and adapting to new experiences and information said president elect of IAN Dr Nirmal Surya, Diseases affecting the brain are the single most important cause of disability in the world, said IAN secretary Dr U Meenakshisundaram from Chennai.

Nagpur First
Page No. 3 Jan 11, 2021
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मेंदू आरोग्य दिन आज

मानवी 'मेंदू'त ८० अब्ज पेशी - डॉ. मेश्राम

लोकसत्ता खास प्रतिनिधी

नागपूर : मेंदू हा एक सुपर संगणकासारखा अवयव आहे. मानवाच्या हृदय, फुफुस, यकृत, मूत्रपिंडासह संपूर्ण शरीरातील अवयवांवर तो नियंत्रण ठेवतो. मेंदूत ८० अब्ज पेशी असतात, अशी माहिती वर्ल्ड फेडरेशन ऑफ न्युरोलॉजीच्या ट्राॅपिकल अँड जिओग्राफीकल न्युरोलॉजी ग्रुपचे अध्यक्ष डॉ. चंद्रशेखर मेश्राम यांनी सांगितले. ११ जानेवारीला मेंदू आरोग्य दिन असून त्यानिमित्त चेन्नईला या आठवडा. मेंदूचा महत्त्वात, हे नेटवर्कद्वारे

असात. त्यातील सुमारे दहा ट्रिलियन न्यूरॉन मानवाला रोजच्या विविध क्रियांसाठी वाचण्यास, लिहिण्यास, बोलण्यास, पाहण्यास, विचार करण्यास, लक्षात देण्यास, योजना करण्यास, शिकण्यास, मदत करतात. एका दिवसात मेंदूत न्युरॉन्सद्वारे पाठवलेले संदेश जगातील सर्व

डेलिफोनद्वारे पाठविलेल्या संदेशाहून अधिक असतात. मेंदूत अक्षीय म्हणून ओळखल्या जाणाऱ्या लाखो तारा आहेत. या सर्व अक्षीयनीची लांबी पृथ्वीला चार फेऱ्यांमार्त वेईल इतकी लांब असते. आपला मेंदू २० वर्षे वयापर्यंत वाढतो, त्यानंतर स्थिर राहतो.

डॉ. सरोश कतरक म्हणाले, नवीन संशोधनात मेंदूत बरीचशी प्लॅस्टिसिटी असल्याचे निदर्शनात आले आहे. मेंदू स्वतःच रचनात्मक बदल करतो. त्याचा वास्तविक आकार आयुष्यात आगदी उतरा देखील वाढू शकतो.

डॉ. निर्मल सूर्य म्हणाले, मेंदू सतत बदलत असतो. यात नवीन अंतुष्व आणि माहितीचे योगदान असते. डॉ. यू. मीनाक्षीसुंदरम म्हणाले, स्ट्रोक, अल्झायमर, स्मिथिंग्ग, पार्किंसन्सचा आजार, चक्र, खेकेंदुखी, ट्युमर, संसर्ग हे मेंदूचे सामान्य रोग आहे. मेंदूत परिणाम करणाऱ्या आजारांमध्ये

सर्वजनिक शिक्षण आणि जनजागृतीवर आज ऑनलाईन चर्चा

मेंदू आरोग्य दिनानिमित्त मेंदूची संरक्षित विविध विषयावर ११ जानेवारीला सायंकाळी ६ वाजता ऑनलाईन आगामी बैठकीचे आयोजन करण्यात आले आहे. त्याचे उद्घाटन भारतीय तंत्रज्ञानशास्त्र अकादमीचे अध्यक्ष डॉ. जे. एम.

डॉ. सरोश कतरक म्हणाले, नवीन संशोधनात मेंदूत बरीचशी प्लॅस्टिसिटी असल्याचे निदर्शनात आले आहे. मेंदू स्वतःच रचनात्मक बदल करतो. त्याचा वास्तविक आकार आयुष्यात आगदी उतरा देखील वाढू शकतो.

डॉ. निर्मल सूर्य म्हणाले, मेंदू सतत बदलत असतो. यात नवीन अंतुष्व आणि माहितीचे योगदान असते. डॉ. यू. मीनाक्षीसुंदरम म्हणाले, स्ट्रोक, अल्झायमर, स्मिथिंग्ग, पार्किंसन्सचा आजार, चक्र, खेकेंदुखी, ट्युमर, संसर्ग हे मेंदूचे सामान्य रोग आहे. मेंदूत परिणाम करणाऱ्या आजारांमध्ये

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मेंदू आरोग्य दिनानिमित्त सार्वजनिक शिक्षण आणि जनजागृती कार्यक्रम

आज मेंदू आरोग्य दिन

देशोत्तरी वृत्तसंकलन...

नागपूर : वर्ल्ड फेडरेशन ऑफ न्युरोलॉजीतर्फे ब्रेन हेल्थ डे अर्थात मेंदू आरोग्य दिनानिमित्त सार्वजनिक शिक्षण व जनजागृती उपक्रम राबविला जात आहे. मेंदूच्या आरोग्याचे महत्त्व दर्शविण्यासाठी रविवारी ११ जानेवारीला सायंकाळी ६ वाजता पॅनल चर्चेचे आयोजन करण्यात आले आहे. भारतीय

कतरील. मुंबईचे ज्येष्ठ न्युरोलॉजिस्ट डॉ. सरोश कतरक, चेन्नईचे आयएएन सेक्रेटरी डॉ. यू. मीनाक्षीसुंदरम, हैदराबादचे ज्येष्ठ न्युरोलॉजिस्ट आणि स्ट्रोक विशेषज्ञ डॉ. सुभाष कौल, लुधियानाचे डॉ. गगनदीप सिंह, पुण्याचे डॉ. सुधीर कोठारी, अहमदाबादचे डॉ. सुधीर शाह, नवी दिल्ली येथील डॉ. सुमित सिंग, बंगळूर येथील डॉ. अनुराधा, डॉ. सुधीर भावे आणि डॉक्टर चंद्रशेखर मेश्राम हे तज्ज्ञ समितीचे सदस्य आहेत.

वर्ल्ड फेडरेशन ऑफ न्युरोलॉजीचे केंद्राचे अध्यक्ष डॉ. चंद्रशेखर मेश्राम हे तज्ज्ञ समितीचे सदस्य आहेत. मेंदूचा महत्त्व, हे नेटवर्कद्वारे

मेंदूच्या आरोग्याच्या महत्त्वासाठी जागरूकता वाढविण्याच्या दृष्टीने ब्रेन हेल्थ उपक्रम म्हणून जागतिक सार्वजनिक शिक्षण अभियान सुरू करण्यात येणार आहे. आपले व्यक्तिमत्त्व, विचार, सर्वनशीलता, बुद्धिमत्ता, स्मरणशक्ती, अभिनय, कार्य, भावना आणि सर्व काही आपल्या शरीरातील महत्त्वाचा अवयव आहे आणि म्हणूनच मेंदूची काळजी घेणे आवश्यक आहे, असे वर्ल्ड फेडरेशन ऑफ न्युरोलॉजीच्या ट्राॅपिकल अँड जिओग्राफीकल न्युरोलॉजी ग्रुपचे अध्यक्ष डॉ. चंद्रशेखर मेश्राम यांनी स्पष्ट केले.

tion.in/c/5765651

Diseases affecting brain are major causes of disability: Experts

Today's programme

A PUBLIC education and awareness activity in form of panel discussion is planned through virtual meeting at 6 pm on Monday. Dr JMK Murthy, President of Indian Academy of Neurology and clinical Director and Chair department of Neurology, CARE hospitals Hyderabad will inaugurate the event. Dr Sarosh Katrak, a senior neurologist from Mumbai, Ian Secretary Dr U. Meenakshisundaram from Chennai, Dr Subhash Kaul, senior Neurologist and Stroke Specialist from Hyderabad, Dr Gagandeep Singh from Ludhiana, Dr Sudhir Kothari from Pune, Dr Sudhir Shah from Ahmedabad, Dr Sumit Singh from New Delhi, Dr Anuradha from Bangalore, Dr Sudhir Bhavne and Dr Chandrashekhhar Meshram are the expert panelists. President elect of Indian Academy of Neurology Dr Nirmal Surya is the moderator and Dr Sudhir Bhavne is the anchor of the event.

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मेंदू आरोग्य दिनानिमित्त सार्वजनिक शिक्षण, जनजागृती अभियान

◆ नागपूर, १० जानेवारी

वर्ल्ड फेडरेशन ऑफ न्युरोलॉजीतर्फे ब्रेन हेल्थ डे अर्थात मेंदू आरोग्य दिनानिमित्त सार्वजनिक शिक्षण व जनजागृती उपक्रम राबविला जाईल. मेंदूच्या आरोग्याचे महत्त्व दर्शविण्यासाठी आज आभासी बैठकीद्वारे नियोजन करण्यात आले आहे.

वर्ल्ड फेडरेशन ऑफ न्युरोलॉजीचे ध्येय जागरूक दर्जेदार न्युरोलॉजी सेवा आणि मेंदूचे आरोग्य वाढविण्याला चालना देणे हे आहे. या अनुषंगाने, ११ जानेवारी रोजी, डब्ल्यूएफएनतर्फे मेंदूच्या आरोग्यासाठी जागरूकता वाढविण्याच्या दृष्टीने ब्रेन हेल्थ उपक्रम म्हणून जागतिक सार्वजनिक शिक्षण अभियान सुरू करण्यात येणार आहे. डब्ल्यूएफएनच्या ट्राॅपिकल अँड जिओग्राफीकल न्युरोलॉजी स्पेशलिटी ग्रुपने ११ जानेवारी ब्रेन हेल्थ डे साजरा करण्यासाठी इंडियन अँकेडमी ऑफ न्युरोलॉजीशी सहकार्य केले आहे. आपण आपल्या मेंदूच्या कार्यपद्धतीमुळे ओळखले जातो. आपले व्यक्तिमत्त्व, विचार, सर्वनशीलता, बुद्धिमत्ता, स्मरणशक्ती, अभिनय, कार्य, भावना आणि सर्व काही आपल्या मेंदूमुळे आहे. मेंदू हा आपल्या शरीरातील सर्वात महत्त्वाचा अवयव आहे आणि म्हणूनच याची काळजी घेणे आवश्यक आहे, असे वर्ल्ड फेडरेशन ऑफ न्युरोलॉजीच्या ट्राॅपिकल अँड जिओग्राफीकल न्युरोलॉजी ग्रुपचे अध्यक्ष डॉ. चंद्रशेखर मेश्राम यांनी सांगितले. या बैठकीत मुंबईचे डॉ. सरोश कतरक, आयएएनचे निवृत्त अध्यक्ष डॉ. निर्मल सूर्य, सचिव डॉ. यू. मीनाक्षीसुंदरम, भारतीय तंत्रज्ञानशास्त्र अकादमीचे अध्यक्ष डॉ. जेएमके मूर्ती या कार्यक्रमाचे उद्घाटन करतील. मुंबईचे ज्येष्ठ न्युरोलॉजिस्ट डॉ. सरोश कतरक, चेन्नईचे आयएएन सेक्रेटरी स्ट्रोक विशेषज्ञ डॉ. सुभाष कौल, लुधियानाचे डॉ. गगनदीप सिंह, पुण्याचे डॉ. सुधीर कोठारी, अहमदाबादचे डॉ. सुधीर शाह, दिल्ली येथील डॉ. सुमित सिंग, बंगळूर येथील डॉ. अनुराधा, डॉ. सुधीर भावे आणि डॉ. चंद्रशेखर मेश्राम हे तज्ज्ञ समितीचे सदस्य आहेत. मेंदूचे महत्त्व, हे नेटवर्कद्वारे

मेंदूच्या आरोग्याच्या महत्त्वासाठी जागरूकता वाढविण्याच्या दृष्टीने ब्रेन हेल्थ उपक्रम म्हणून जागतिक सार्वजनिक शिक्षण अभियान सुरू करण्यात येणार आहे. डब्ल्यूएफएनच्या ट्राॅपिकल अँड जिओग्राफीकल न्युरोलॉजी स्पेशलिटी ग्रुपने ११ जानेवारी ब्रेन हेल्थ डे साजरा करण्यासाठी इंडियन अँकेडमी ऑफ न्युरोलॉजीशी सहकार्य केले आहे. आपण आपल्या मेंदूच्या कार्यपद्धतीमुळे ओळखले जातो. आपले व्यक्तिमत्त्व, विचार, सर्वनशीलता, बुद्धिमत्ता, स्मरणशक्ती, अभिनय, कार्य, भावना आणि सर्व काही आपल्या मेंदूमुळे आहे. मेंदू हा आपल्या शरीरातील सर्वात महत्त्वाचा अवयव आहे आणि म्हणूनच याची काळजी घेणे आवश्यक आहे, असे वर्ल्ड फेडरेशन ऑफ न्युरोलॉजीच्या ट्राॅपिकल अँड जिओग्राफीकल न्युरोलॉजी ग्रुपचे अध्यक्ष डॉ. चंद्रशेखर मेश्राम यांनी सांगितले. या बैठकीत मुंबईचे डॉ. सरोश कतरक, आयएएनचे निवृत्त अध्यक्ष डॉ. निर्मल सूर्य, सचिव डॉ. यू. मीनाक्षीसुंदरम, भारतीय तंत्रज्ञानशास्त्र अकादमीचे अध्यक्ष डॉ. जेएमके मूर्ती या कार्यक्रमाचे उद्घाटन करतील. मुंबईचे ज्येष्ठ न्युरोलॉजिस्ट डॉ. सरोश कतरक, चेन्नईचे आयएएन सेक्रेटरी स्ट्रोक विशेषज्ञ डॉ. सुभाष कौल, लुधियानाचे डॉ. गगनदीप सिंह, पुण्याचे डॉ. सुधीर कोठारी, अहमदाबादचे डॉ. सुधीर शाह, दिल्ली येथील डॉ. सुमित सिंग, बंगळूर येथील डॉ. अनुराधा, डॉ. सुधीर भावे आणि डॉ. चंद्रशेखर मेश्राम हे तज्ज्ञ समितीचे सदस्य आहेत. मेंदूचे महत्त्व, हे नेटवर्कद्वारे

(तमा वृत्तसेवा)

WFN DEPARTMENT VISIT REPORT

Selçuk University Hospital: One Year Later

BY ANI-OSHEKU IFEYINWA, NIGERIA

In December 2019, I had the utmost privilege to spend four weeks at the neurology department of the Selçuk University in Konya, Turkey. It remains one of the most gratifying moments in my career as a young neurologist.

It has been over a year, yet the memories are ever so fresh. I clearly remember the feeling of excitement as I walked into the massive Selçuk University Hospital and made my way to the “nöroloji poliklinik” where I was greeted with so much warmth by the entire neurology staff. I met Prof. Şerefnur Öztürk, my supervisor, who provided me with the itinerary and a road map of what I was to expect in the coming weeks.

Indeed, it was a four-week period of intense learning in a relaxed and friendly environment. I had the privilege of exploring the world of the practice of neurology by the Turks under the able guidance and excellent mentorship of the neurology team of the Selçuk University Hospital.

Case after case, I witnessed the translational art of the pathological basis of neurologic diseases from therapeutic theorem to practical strategies using cut-edge technology and evidence-based medicine in the management of various neurologic conditions, including stroke, movement disorders, demyelinating disease (especially multiple sclerosis), neuromuscular diseases, and seizure disorders.

Prof. Öztürk shared with me priceless clinical pearls especially in the area of vascular neurology during the daily morning rounds in the neuro-intensive service as well as in the outpatient service. Her depth of knowledge combined with her wealth of experience has inspired me to push the limits of my career.

It was intriguing watching Prof. Gökhan Özdemir navigate stenosed and occluded vessels inserting stents and retrieving clots and ultimately achieving revascularization.

My experience with the neurophysiology laboratories left quite an impression on me that instinctively I knew I would pursue a fellowship in this area. I participated in carrying out and interpreting several EEGs, needle EMGs, and nerve conduction studies under the supervision of Profs. Gökhan Özdemir, Haluk Gümüş, and Dr. Hakan Ekmekçi.

I learned the techniques of peripheral nerve blockade in the management of headaches and this service is one of the treatment modalities currently offered to patients with headache disorders in our neurology clinic. The ease of application coupled with the dramatic improvement has been a rewarding experience.

I joined the neurosurgical team in the collaborative management of patients especially those with movement disorders, where I witnessed the usefulness of deep brain stimulation in advanced Parkinson’s disease.

One of the highlights of my stay was the opportunity to speak on “Nigeria, Its People, and Its Health Care System: A Focus on Neurological Diseases.” This lecture was delivered on Dec. 25, 2019, in the Dekanlik Donem 2 Amfisi, and I tagged it “A Christmas to Remember!”

The rich cultural heritage of the Turks makes the city a tourist’s delight. I savored the tastebud tantalizing Turkish foods and enjoyed the sceneries of some of the city’s famous sites, like the famous Mevlâna Museum and Alaaddin Cami.

Despite the numerous challenges the novel Covid-19 pandemic brought, redefining interactions in the health care sector along with restrictions in movements that put a hold on dreams for the physical quest in knowledge acquisition, I have continued to cascade the knowledge so acquired in my time in Selçuk in order to positively impact the lives of patients with neurological needs in Nigeria. I am currently working on various projects that include the transfer of skills acquired, especially relating to headache management and protocols for managing various neurology conditions.

My profound gratitude to the WFN/TNS for this wonderful and innovative collaboration to give young neurologists like me the opportunity to experience the practice of neurology in an advanced society and a chance to improve our skills and broaden our horizons. Plenty of thanks to Mrs. Jade Levy and Mr. Burak for the seamless facilitation of my trip and stay in Konya. My deep appreciation to Selçuk University and the dean of the College of Medicine for providing the enabling environment for my visit. To



Neurology Grand Rounds



Certificate presentation and the new year celebration.



Lunch with neurology residents

Prof. Şerefnur Öztürk, you inspire me in numerous ways to be the best version of myself. Finally, to the exceptional team at the Selçuk neurology department that showed me true friendship, generosity, and ensured I was well integrated, I say thank you!

I had the most amazing time in Konya and established alliances that I believe will go a long way. The lessons learned from my four weeks to Selçuk University will always be a reference point in my career development. •



Dr. Ani-Osheku Ifeyinwa giving a lecture



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