COVID-19: A Neurologist’s Perspective

The crisis we are currently facing is unprecedented in every way. Just a few months ago, we were talking about developing targeted gene therapies for a spectrum of diseases, including ultra-rare diseases. Only a few weeks later, the health care system finds itself overburdened and undersupplied to the point where we are talking about rationing health care1. Maintenance care has been pushed to telemedicine clinics and elective procedures have ground to a halt. Many patients sick with respiratory symptoms are being sent home to isolate themselves, and some are dying at home. There is an acute shortage of ventilators to the point that in some hospitals one ventilator is being shared by multiple patients2. Several basic medicines are in limited supply. Although many hospitals and institutions recognized the need to stockpile personal protective equipment, several hospitals have run out of masks and gowns due to a limited supply chain. This crisis has tested community-based ingenuity, and in some hospitals, personal protective equipment is being fashioned by staff and community volunteers out of plastic visors and trash bags. Many doctors on the front line have succumbed to the infection, and many others are quarantined, a sobering reminder of these dire circumstances. The words here just a few months prior would read as a work of fiction, but this is the unfortunate reality of the crisis we face – COVID-19. Nearly every country and every major city in the world has been affected by the infection. On April 12 alone, there were over 10,000 new infections and nearly 1,000 deaths in a single day in New York. What started in Wuhan in November 2019 has become a global pandemic necessitating drastic changes in our way of life.

About COVID-19
COVID-19 is caused by the virus SARS-CoV2, a single-stranded RNA virus. Merely 60 nm in size, the virus that can only be visualized by an electron microscope has caused massive devastation. Although many pandemics have occurred in the past several decades, SARS-CoV2 has an array of features that have made it incredibly effective in spreading through the population. Perhaps the most important among these features is that asymptomatic and pre-symptomatic hosts can spread it.

Figure 1. Distribution of comorbidities in patients requiring inpatient care due to COVID-19.
We would like to welcome all neurologists from around the globe to this issue of World Neurology, and at the start would like to again wish you, your families, and your patients all the best of health and safety at this time.

Much of this issue is devoted to an update on COVID-19. We are honored that the cover story on this issue is written by Drs. Avindra Nath and B. Jeanne Billious from the Section of Infections of the Nervous System at the United States National Institute of Neurological Disorders and Stroke (NINDS). They provide an up-to-the-moment summary of the evolving knowledge about the interface of COVID-19 on neurology and our patients. In the President’s column, Dr. William Carroll reminds us of the importance of the pandemic on our patients and the role the WFN plays in, among other important aspects, advocating for maintaining the highest standard of care for neurological patients worldwide. Dr. Carroll also updates us on the enhancements to the WFN website as a clearancehouse for accurate and up-to-date information about neurological involvement in COVID-19 as well as its effects on neurological societies and neurological patients and services worldwide.

Dr. John England, editor-in-chief of the Journal of Neurological Sciences (JNS), provides his Editor’s Update on the journal, informing us of the efforts to invite and expeditiously publish the accepted papers in JNS relating to the neurological aspects of COVID-19. This issue also features an obituary, reprinted from JNS, of Prof. Alberto Portera-Sánchez, a pioneer of Spanish neurology and former vice president of the WFN, along with additional heartfelt words from Vladimir Hachinski, former president of the WFN.

Drs. Tissa Wijeratne, Claudia Trenkwalder, president of the International Parkinson and Movement Disorders Society (IPMDS), Wolfgang Grisold, and Dr. Carroll, announce and update us on the efforts and ongoing plans for this year’s World Brain Day. This year’s World Brain Day focuses on ending Parkinson’s disease as a collaborative effort between the WFN and the IPMDS. Drs. Dafin Muresanu, Seleman Ovidiu, Cristian Andriescu, and Stefan Stilicici, describe the history of neurological meetings in Transylvania, particularly the annual international events organized by the Society for the Study of Neuroprotection and Neuroplasticity (SSNN).

With this issue, we are also pleased to introduce a new column, written by WFN Secretary-General Wolfgang Grisold, who will update us with each issue about the many Committees of the WFN and their critical roles, beginning with the Standards and Evaluation Committee.

This issue also features a number of reports from the recipients of Junior Traveling Fellowships (JTFs) to attend the World Congress of Neurology (WCN) in October 2019 in Dubai, United Arab Emirates. These heartfelt reports are reminders of the wonderful “in person” congress that so recently occurred (and yet now seems so distant for many reasons).

Equally importantly, these reports serve as a reminder of the upcoming WCN 2021 we are so actively planning and looking forward to attending in Rome, Italy in October 2021.

Finally, as Dr. Carroll reminds us in his column, the Annual General Meeting (AGM) of the WFN Council of Delegates (COD) remains scheduled for Sept. 9, 2020 during the ECTRIMS/ACTRIMS meeting in Washington. We look forward to seeing all of the delegates at this meeting, whether it is virtual or in person.

We hope you enjoy this issue of World Neurology, and look forward to receiving your contributions, especially updating all of our colleagues on how the current pandemic has (or has not) affected neurologists, our societies, and our patients around the globe.

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Message From the WFN President About World Brain Day 2020

World Brain Day is July 22, 2020. This year, we are excited to announce that the World Federation of Neurology is partnering with the International Parkinson and Movement Disorder Society to raise awareness for Parkinson’s disease.

There are more than 7 million people of all age groups with Parkinson’s disease worldwide, and the illness affects many more than this number through its impact on families and caregivers.

Parkinson’s is a chronic, neurodegenerative whole-body disease that affects movement and almost all aspects of brain function. Its prevalence continues to rise at an alarming rate, making the actions of today vital to improving the lives of those who have been and will be diagnosed.

In order to meet our goal to diagnose earlier, treat more efficiently, and improve the lives of those living with this disease and of their caregivers, additional resources are needed to help better understand and treat Parkinson’s.

COVID-19 is a dramatic reminder that health care is a global issue. Let us remember that Parkinson’s disease is also a daily challenge faced by all ages and people, mainly by the elderly.

We hope you’ll join us and help spread the word by following the World Federation of Neurology on Twitter and Facebook.
The Annual General meeting of the WFN Council of Delegates remains scheduled for 9 a.m. to Noon, Sept. 9, during the ECTRIMS/ACTRIMS meeting in Washington. But it may well be changed to a virtual meeting.
and diabetes are also major risk factors which account for nearly 50% of the comorbidities in hospitalized patients\(^1\). The reasons for this are not entirely clear. One hypothesis suggests that since angiotensin converting enzyme 2 (ACE2) is the receptor for SARS-CoV-2, the use of ACE inhibitors to treat hypertension or diabetes can induce the expression of the receptor making the cells more vulnerable to infection with the virus. Clinical studies are underway to test this hypothesis. Current recommendations are to keep patients who are already on ACE inhibitors and ACE receptor blockers on their medications, as the risk of adverse events of discontinuing these medications may outweigh the minimization of risk for COVID-19.

As neurologists, we worry about our patients who have a chronic neurological illness. Can the illness itself or the medications that they are on put our patients at greater risk of severe illness? These questions are particularly important in the context of nursing homes, where neurologic comorbidities are common, and the virus has displayed rapid spread. Most certainly, patients with diseases such as Parkinson’s disease, stroke, myasthenia gravis, or other diseases that can impair mobility may also impair lung function. Patients with immune-mediated disorders such as multiple sclerosis, neuromyelitis optica, and myasthenia gravis who are on immunosuppressant drugs may be at risk for more severe complications of the illness. Various organizations such as the National Multiple Sclerosis Society are collecting data on patients who develop COVID-19. These data repositories are going to be helpful in determining what medications pose greater risk of complications from the infection. In the meantime, recommendations and guidelines are emerging from various societies based on our current knowledge for the management of patients with stroke\(^2\), multiple sclerosis (nationalmssociety.org), epilepsy (ilae.org) and myasthenia gravis\(^3\).

Neurological complications are rare but are being increasingly recognized\(^4\). These complications can involve the entire neuro-axis. They may occur during acute viral infection and as a post-viral syndrome (See Table 1). Some patients may present with altered mental status in the absence of respiratory or other typical COVID 19 symptoms as their sole initial presenting feature of SARS-CoV2 infection\(^5\). Anemia is a common symptom of any upper respiratory tract infection. But anemia with COVID-19 has received special attention. It seems to be one of the most common symptoms and often occurs in the absence of rhinorrhea. This suggests involvement of the olfactory nerve or pathway by the virus. As the majority of patients with anemia recover their sense of smell and taste after the acute phase of the illness, the nerve endings or the cells surrounding the nerves may be affected, allowing for regeneration to occur. In a case report of a patient with sudden anemia due to COVID-19, it was found that the olfactory clefts were inflamed, with relative sparing of the olfactory bulb\(^6\). In a mouse model of coronavirus infection, the virus can be transmitted via olfactory pathways trans-synaptically to the brain and to the brainstem\(^7\). This has raised concern about the potential long term consequences of anemia in COVID-19. However, the mouse coronavirus uses a different receptor and hence may not replicate the human disease. Nevertheless, it is important to prospectively monitor the patients to make sure they do not develop any long-term sequelae since we know that anemia is a recognized early symptom of neurodegenerative diseases such as Parkinson’s disease and Alzheimer’s disease.

Myalgia frequently accompanies the illness. Most viral illnesses can cause body aches and pains. However, in some patients with COVID-19, the muscle aches can be quite severe. Muscle tenderness may last for several days after all other symptoms have resolved. They can involve the back muscles. A case of rhabdomyolysis\(^8\) was reported similar to what was also seen with the SARS\(^9\); although this patient was also on losartan (angiotensin receptor blocker) which may have contributed to the myolysis. Since the onset of these symptoms is early in the course of the illness, it is possible that the virus invades the muscle to cause myositis, however, pathological findings have not yet been described. Importantly, these patients need proper hydration to prevent kidney damage. Also, it should be noted that potential medications used in the treatment of COVID-19 (including some protease inhibitors) may cause patients to be predisposed to muscle damage.

Meningitis and encephalitis are rare. Dull headaches are common and typically occur at the onset of the illness and resolve within a few days. They are not accompanied by any signs of meningeal irritation. However, a classical presentation of a viral meningoitis has been described with COVID-19 and virus can be detected in the CSF. Encephalitis is harder to diagnose. Most patients who become comatose do so after development of ARDS and multi-organ failure, hence the CNS symptoms are attributed to hypoxia and metabolic abnormalities. Fever itself can cause delirium. However, a few cases of encephalitis where patients developed generalized seizure and coma are now being described. In one such patient from Japan, the patient had mild pleocytosis and detectable virus in the CSF. An MRI showed lesions in the temporal lobe and adjacent ventriculitis\(^10\). Few neuropathological findings have been published, but one study found low levels of SARS-CoV-2 RNA in the brain by PCR of 4 different COVID-19 patients at autopsy\(^11\). Another case study found evidence of betacoronaviral infection of the brain with postmortem electron microscopic evaluation\(^12\).

From the earlier SARS epidemic in 2003, autopsy findings showed that the virus could be detected in the brain by multiple techniques in all patients evaluated (n=8)\(^13\). Spread of SARS-CoV-2 into the brain could involve an array of mechanisms. The virus can spread via the vasculature and enter the brain carried by infected leukocytes. Transneuronal spread has been hypothesized to also occur from the lung via the vagal nerve or from the nasal passages via the olfactory nerve. Strokes are being increasingly recognized in this population and occur as the presenting symptom of the infection or any time during the illness. (See Table 2): In a study from China, 1.9% (n=11) of 211 patients admitted with COVID-19 had acute ischemic strokes, 0.5% (n=1) had cerebral venous thrombosis, and 0.5% (n=1) had cerebral hemorrhage\(^14\). While most often these patients have underlying vascular risk factors, there are several patients where nothing other than the SARS-CoV-2 infection can be identified as a cause of the stroke. The virus is known to invade endothelial cells and can also cause a coagulopathy. Elevated D-dimer levels and increased PT and activated PTT have been described. Antiphospholipid antibodies have also been detected\(^15\). Some may develop disseminated intravascular coagulation. The virus can also cause a cardiac myositis\(^16\) which could also cause a stroke by hypertension or embolism. Some patients may simultaneously develop deep vein thrombosis or vascular occlusions in other organs.

Atypical Acute Respiratory Distress Syndrome is the major cause of death in patients with COVID-19. What is atypical is that these patients have severe hypoxemia even when the lung capacity and mechanics are well preserved\(^17\). Even when the pCO2 is rising the patients are not hyperventilating and lose their respiratory drive. They develop what seems like an Ondine’s Curse. However, these patients do not have any other brainstem signs so the pathophysiology of this condition remains unclear at the present time. However, it is critical that these patients be treated with oxygen, and prone positioning also seems to help. Early ventilatory support should also be considered.

Post-viral syndromes occur when the patient is seemingly improving from the viral syndrome at about a week to three weeks after the onset of the viral products. An isolated case of acute necrotizing hemorrhagic encephalopathy has been described\(^18\). This patient had bilateral thalamic lesions and other lesions in the temporal lobes which are typical of the syndrome. It is thought to be mediated by cytokine storm. A patient with transverse myelitis with quadriparesis, a sensory level and bowel and bladder indolent deficits has been described\(^19\). However, MRI or CSF evaluation was not reported. A single case of Guillain Barre Syndrome (GBS) has been published in a patient from China\(^20\). A case series from Italy of five COVID-19 patients who developed GBS...
Antiviral agents being considered for treatment of COVID-19

Favipiravir
Selective and potent inhibitor of the RNA-dependent RNA polymerase of RNA viruses.

Remdesivir
A nucleotide analog inhibitor of RdRp. Inhibits SARS-CoV-2 in vitro. Multicenter placebo controlled study underway

Chloroquine or hydroxychloroquine

Saquinavir
HIV protease inhibitor

Nelfinavir
HIV-1 protease inhibitor

Carfizomib
An irreversible proteasome inhibitor

Zanamivir
An influenza viral neuraminidase inhibitor

Ribavirin
An antiviral agent against a broad spectrum of viruses including hepatitis C, HIV, and respiratory syncytial virus

Ivermectin
A parasitic agent with broad antiviral effects of an unknown mechanism

Antisense oligonucleotides
Specifically targets the virus and degrades the viral RNA

Convalescent serum
Blocks viral entry into susceptible cells

Table 3.

COVID-19 continued from page 4

Described three patients with an axonal form of GBS and two with a demyelinating process. We recently communicated with a patient who had a sensory variant of GBS. The illness was self-limiting and did not require intervention. Acute disseminated encephalomyelitis has been recently described in an adult patient with SARSCoV-2; similarly, several cases have been described with the human coronavirus-OC43 and with MERS.

However, multiple challenges in the evaluation of patients with neurological complications exist. It is difficult to get neuroimaging when patients are acutely infected for fear of contamination of the scanners. Performing surgery or autopsies are also challenging due to the production of aerosols and lack of proper safety measures.

Therapeutic Debate
Antivirals: Even though currently there is no proven antiviral therapy for the human coronavirus, several drugs are being considered for clinical trials and empirical treatment of patients. (See Table 3) There are 287 studies on coronavirus registered on www.clinicaltrials.gov. In vitro studies have shown some efficacy with chloroquine and hydroxychloroquine. These drugs cause acidification of the endosome-lysosomes and prevent viral replication. They have an anti-inflammatory effect. However, it requires pretreatment of cells prior to infection and has only a minimal effect post-infection. While clinical trials result remain unpublished, these drugs have been utilized in clinical trial in COVID-19 patients at several institutions. Well-controlled studies are necessary to know whether these drugs are efficacious against the virus. There is now a scarcity of the drug, and some countries have banned its export. Several HIV protease inhibitors have been shown to bind to the SARS-CoV-2 protease but clinical experience in small numbers of humans infected with the virus has failed to show clinical efficacy with lopinavir/ritonavir combination. Many clinical trials are currently underway that include nucleoside analogs such as remdesivir, and convalescent serum or intravenous immunoglobulin. Although the ability of most of these agents to enter the CNS is unknown, animal studies of remdesivir (GS-734) have shown evidence of CNS penetration, albeit at lower levels than other tissues. Interestingly, a few drugs used to treat patients with multiple sclerosis such as teriflunomide and beta-interferons are considered to have anti-viral effects. But their effect on SARS-CoV-2 is still unknown.

Anti-inflamatory drugs: The most common cause of death is the massive immune response in the lungs leading to consolidation of the lungs with inflammatory infiltrates. Several immune suppressive medications are being used empirically. These include corticosteroids and IL-6 blockers. A case for the use of methotrexate has been made due to its broad anti-inflammatory properties and good CNS penetration.

What the Future Holds
As we continue to face the ongoing crisis, early results show reasons for optimism.

In several states in the U.S., exponential growth trends have tapered. Distancing and preventive measures seem to be effective in flattening of the curve and helping institutions lower concomitant caseloads. The number of new infections and deaths are not rising as rapidly. Optimistically, we will soon face a new challenge of when and how to reopen our clinics and operating rooms. But what will this clinical environment look like? Social distancing is likely to play a role, and providers may see each patient and enter any public spaces with masks on and maintain a distance of six feet from each other. Telemedicine will likely continue to play a much larger role in routine health care. A safe and effective vaccine could solve many of these issues, though development and testing of such a vaccine prior to administration to the general populace will take significant time. Another possibility is host adaptation. Most viruses are cyclical in nature. Mutations may occur that make the virus less virulent. Early signals suggest this might be the case with SARS-CoV-2. A 382 nucleotide deletion reading frame 8 has been identified in some circulating strains. A similar deletion also emerged in the SARS virus in 2003 that was associated with poor replication fitness. However, until then, we will continue to see patients with COVID-19, and as neurologists we need to be vigilant for potential complications that require our attention and intervention. It is our duty to protect and advocate for the most vulnerable.

References
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J. Beyalas-Billiotte, MD, is staff clinician and head of the program in International Neuroinfectious Diseases within NINDS. Her research focus is on emerging infectious diseases and conducting research on the neurological consequences of infections in an International setting.

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Alberto Portera-Sánchez, Pioneer of Modern Spanish Neurology

PORTEÑA-SÁNCHEZ: LEADER, HUMANIST, FRIEND

Early in the 20th century, Spanish neuroscience had a high international profile, personified by Santiago Ramón y Cajal. He was a winner of the Nobel Prize in Physiology and Medicine and last year his publications were cited 1,559 times, 85 years after his death. The Spanish Civil War (1936-1939) proved disastrous for neuroscience because of the exile of some of the most eminent and many promising scientists. Pío Rio Hortega, discoverer of microglia, ended up in Argentina, and the physiologist August Pi Sunyer in Venezuela and then Mexico. There are but two of the many exiles. Neuroscience and neurology entered a long penumbra under the shadow of  war.

Portera-Sanchez easily. He was the person with the most people gathered around him. Portera-Sanchez will continue to live in our memories and through his deeds and teachings, multiplied by his many pupils. •

Vladimir Hachinski
Past President, World Federation of Neurology

Spanish neurology began to have services all over Spain, academic posts, and the number of neurologists increased greatly with young neurologists. Neurological care is now present in all medium-sized and large hospitals, and it works as an outpatient specialty because the Spanish National Health Service would like to include the main medical specialties near the population. This is the only point that Portera-Sánchez did not like. He thought that neurology should be practiced mainly in hospitals and probably for the progress of  scientific practice it would be true. Many young Spanish neurologists (now more than 3,500) do not know the precarious beginning of  Spanish neurology in the third part of  the last century.

Portera-Sánchez was not only an organizer of  the neurological service of  the UH12O; he was a brilliant clinical neurologist and an unifying “neurological business man” who made contacts all over the neurology world. He invited to his department many prestigious neurologists to give lectures, such as Carleton Gajdusek, when he was Nobel laureate, Vladimir Hachinski, Luigi Amaducci, David Marsden, and many others. It is worth remembering that Bruce Schoenberg, when he was chief of  the Neuroepidemiology Branch in the NINDS of  the National Institutes of  Health, visited our neurology department at UH12O and gave a course on neuroepidemiology, and then designed a community study of  the main neurological diseases in Madrid. This interest for Neuroepidemiology continued in his department. At the end of  the 1980s, Portera-Sánchez and his team formed part of  the Age-Associated Dementia Project of  the World Health Organization consortium (AAD SPRA-WHO) that would implement a dementia study in six countries (Canada, Chile, Malta, Spain, and in black populations of  the U.S. and Nigeria). Luigi Amaducci, standing neuroepidemiologist, directed the Coordinating Center of  this WHO study in Florence, Italy, and took as advisors leaders of  the dementia field such as Z. Khachaturian, R. Katzman, and others. The study did a panel concordance in the diagnosis of dementia3 and a validation of  the main screening...
World Brain Day 2020 Moves to End Parkinson’s Disease

A World Federation of Neurology and International Parkinson and Movement Disorders Society Collaboration

Please make the World Brain Day 2020 campaign an important priority. The educational and promotional material from the WFN and IPMDS collaboration will help you to be the best advocates for your patients with Parkinson’s disease and their caregivers.

ABOUT PARKINSON’S DISEASE

- **Prevalence:** Parkinson’s disease is a chronic neurodegenerative brain disease that affects more than 7 million people of all ages worldwide, and its prevalence continues to increase.
- **Disability:** Parkinson’s disease is a whole-body disease that affects the mind, movement, and almost all aspects of brain function, with symptoms worsening over time.
- **Standard of Care:** Access to quality neurological care, life-changing treatments, and essential medication is unavailable in many parts of the world.
- **Research:** Additional resources are needed to help unlock the cause, onset, progression, and treatment of this disease across all ages.
- **Advocacy:** It’s important to work together to diagnose earlier, treat more effectively, and improve the lives of those living with Parkinson’s disease and their caregivers.

The 2016 Global Burden of Disease of Parkinson’s disease studied its global burden between 1996 and 2016 to identify trends and to enable necessary public health, scientific, and medical responses in 2018. Over the past generation, the global burden of Parkinson’s disease has more than doubled with potential longer disease duration and environmental factors. We can expect that the trend will continue in the next few decades with the possibility of 12 million patients with Parkinson’s disease worldwide by about 2050.

The comorbid diagnosis itself has not emerged as a specific risk factor for poor outcomes of COVID-19. The hidden sorrows (potential medication supply issues, disruption to research, and clinical trials), and emerging opportunities (telemedicine, how the pandemic influences the course of Parkinson’s disease, and taking advantages of technology, such as wearable technology) have been visible during the COVID-19 pandemic.

Parkinson’s disease is a complex disease process of the human brain that results in a broad spectrum of clinical features encompassing all aspects of human function. These primarily motor dysfunctions as well as non-motor symptoms can significantly limit the patient’s ability to take part in typical day-to-day activities with poor quality of life.

It is indeed essential to understand the caregiving aspects and burden in Parkinson’s disease. Findings from a published meta-analysis indicate that motor symptoms and dependence in activities of daily living have a moderate relationship with caregiver distress. Non-motor symptoms such as impaired cognitive function, including hallucinations, confusion, and affective disorders such as depression and anxiety, have a significant effect on caregiver strain. It is the hours spent on caregiving activities and sleepless nights that are strongly associated with caregiver burden.

References:
Committees of the WFN

WOLFGANG GRISOLD
SECRETARY GENERAL, WFN

The committees of the WFN contribute greatly to the work of the WFN. The chairs are appointed by the trustees, and the committee is composed of members of the regions.

The present composition and membership can be seen on the WFN website and are listed in Table 1.

The task of the committees is to work on specific issues, and within their defined terms, they are of great value not only for the leadership of the WFN, but to the whole organization. This new column will introduce the WFN, but to the whole organization.

This year’s World Brain Day is jointly organized with the International Parkinson and Movement Disorder Society. The motto is “Move Together to End Parkinson’s Disease” and will highlight the importance of treating patients with movement disorders and also support careers. See the associated article in this issue.

COVID-19 and the WFN

The WFN has set up event website space for the present COVID-19 crisis. We are all concerned about the neurological effects as well as recommendations to handle this crisis.

As guidelines vary in subdisciplines and regions and countries, we have inserted a list of the websites of the global neurology alliance (GNA) as well as the WFN specialty groups. Some of them have specific guidelines and advice on their website, or could be directly asked.

Portera-Sánchez

continued from page 6

tools” for the future study. However, the Canadian team had advanced its own study (Canadian Study of Health and Aging) and declined to participate in the new study as well as the Nigeria-U.S. (African Americans and Yoruba Nigerians) study, which had designed a complex investigation. The only study that continued with the validated methodology was the NEDICES in Spain funded by the official Spanish Research Agency (FIS).

Portera-Sánchez had an interest in many fields of neurology, but mainly in dementia and edited the first dementia book in Spain6. Additionally, he had great interest in cerebrovascular disorder7.

Moreover, he and his neurological team of the UH120 worked in other neurological fields, such as peripheral neuritis, brain infections, neuroimaging, and others.

The International Stage

We must underline his international neurological affairs. He was elected as vice president of the World Federation of Neurology (WFN) from 1981 to 1991. In addition, he formed part of the WFN Education Committee, the education committee of the Federation of Neurological Societies, and was an honorary member of the American Academy of Neurology in 2003.

In Spain, after many years of being professor of neurology, he obtained the first chair in neurology in Madrid in the Complutense University (UCM) in 1996.

Previously, in 1993, he was elected to membership of the select Spanish Royal Academy of Medicine.

Supporting the Arts

This remembering of his life would fall short if we omitted an important part of his life. Portera-Sánchez was a man of vast culture and love for the arts. He was a friend of many famous contemporary painters such as Chillida, Guerrero, Millares, Mompó, Saura, and others. Additionally, filmmakers and other well-known artists formed part of his frequent social gatherings, where it was possible to find neurologists, scientists, and people from the arts.

In fact, Portera-Sánchez was an art painter himself, and his love for painting was a passion throughout his life, which he passed on to one of his sons9.

To recognize this dedication to art works, he was rewarded as corresponding academic of the Royal Fine Arts Academy of San Fernando and member of the Patronage of the National Museum of the Queen Reina Sofia in Madrid.

Finally, the committee of Spanish neurologists is grateful to Portera-Sánchez for his contribution to the development of clinical neurology in our country.

In addition, as his pupils, we rend our gratitude for having shared with us his neurological skills, his brilliant teaching, his spirit open to the culture and to the scientific innovations, and his permanent cordial, warm, and human manners.

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WFN COMMITTEES

• Congress
• Constitution and bylaws
• Communications
• Education
• Finance
• Grants
• Membership

• Nominating
• Public awareness and Advocacy
• Publications
• Regional liaison
• Specialty groups
• Standards and guidelines

Table 1.

The journals are presently withdrawn with reports and observations of neurological involvement in COVID-19, and it is difficult to select peer reviewed and high quality articles. The WFN has appointed our three WFN editors (Journal of the Neurological Sciences, John England; eNeurological Sciences, Walter Strudhal; and World Neurology, Steven Lewis) to go through suggested articles and give recommendations. You will find these selected articles on our website.

The Specialty Group on the Environment has published a letter in Lancet Neurology encouraging all societies to establish databases and registries and look at neurological effects of COVID-19 (THELANCETNEUROLOGY-D-20-00339 S1474-422X(20)30148-4.)

We are also interested in suggestions and opinions concerning our committees. Please contact us via the London office (Jade), or my email at wolfgang.grisold@wfn.org.
Neurological Meetings in Transylvania

BY DAFIN MURESANU, SELJAN OVIDIU, CRISTIAN ANDRIESCU, AND STEFAN STRILOCU

Over the past 15 years, there have been three annual international events in the field of neurology organized by the Society for the Study of Neuroprotection and Neuroplasticity (SSNN). The society was established in 2005 by an international group of clinicians and basic researchers at the initiative of Prof. Dafin F. Muresanu, MD, Romania, with the scope of promoting a strong collaboration platform for translational medicine, in an attempt to strengthen stronger collaboration between the academics and clinicians. Hence, there is dual focus on basic and clinical research. The organization’s aim is to create a discussion forum for better understanding of endogenous basic biological processes, consequently leading to the development of pharmacological and non-pharmacological strategies for positive manipulation of neuroprotection, neuroplasticity, and neurogenesis.

Soon after its establishment, SSNN became a member of the Global College of Neuroprotection and Neuroregeneration (GCNN). The SSNN continues to grow its network, by establishing scientific and academic relations with European and international institutions such as the World Federation of Neurology (WFN), the European Academy of Neurology (EAN), the European Federation of Neurorehabilitation Societies (EFNR), the Iuliu Hațegianu University of Medicine and Pharmacy, Cluj-Napoca, Romania, the Tel Aviv University, Israel, the Danube University Krems, Austria, the Foundation of the Journal of Medicine and Life, and the RoNeuro Institute for Neurological Research and Diagnostic in Cluj-Napoca, Romania.

International Summer School of Neurology

The mission of the International Summer School of Neurology is to provide a platform in which a select class of young neurologists-in-training can interact with an international faculty recognized for its expertise in both basic and clinical neurosciences.

The idea for the event dates back to 2005, being initiated by Muresanu, Prof. Natan Bornstein, MD, Israel, and Prof. Ovidiu Bajenaru, MD, Romania. The founders understood the young specialists’ and practitioners’ need to be connected with the latest developments in the complex field of neurosciences, hence developing a dynamic environment for this symbiosis to take place. After almost a year of preparations, the first edition of the International Summer School of Neurology opened its doors to participants on July 9, 2006. International experts covered current topics like blood-brain barrier research, secondary stroke prevention, the latest advances in neuroimaging and stroke, epilepsy, neurodegenerative disorders, and movement disorders.

Its community reach defines the success of the International Summer School of Neurology. At Poiana Brasov, Romania, 200 participants from eight different countries and 26 illustrous speakers joined together to participate in the 14th Summer School.

In addition to the educational program presented, SSNN also organizes the European Teaching Course on Neurorehabilitation and the EAN Task Force on Rare Neurological Disorders Teaching Course.

European Teaching Course on Neurorehabilitation

One of SSNN’s most prestigious academic projects is the European Teaching Course on Neurorehabilitation. Since its first edition in 2011, the organization joined forces with the educational architect of this program – the European Federation of Neurorehabilitation Societies (EFNR). The teaching course also benefits from the support and endorsement of the international organization in the field of neurorehabilitation, namely the World Federation of Neurorehabilitation Societies (WFNR).

The teaching courses’ objectives are (1) to advance the development and improve the quality of neurorehabilitation in Europe; (2) to stimulate the collaboration between clinicians and other disciplines of the neurorehabilitation team; (3) to facilitate the exchange of knowledge and scientific research between clinicians with an interest in neurological rehabilitation, and (4) to contribute to the development of cooperation and communication networks between National Neurorehabilitation Societies. Having these principles in mind, the SSNN and its collaborators have developed a comprehensive and up-to-date teaching course which addresses the pressing needs that reside in the field of neurorehabilitation year by year.

Neurorehabilitation societies are not the only stakeholders that actively contribute to the development of the teaching course. Many other international academic institutions have pledged support and active contribution, including the Foundation of the Journal of Medicine and Life, Iuliu Hațegianu University of Medicine and Pharmacy, Cluj-Napoca, Romania; Tel Aviv University, Israel; Danube University Krems, Austria; and the RoNeuro Institute for Neurological Research and Diagnostic, Cluj-Napoca, Romania. In 2017, the EAN endorsed the European Neurorehabilitation Teaching Course.

This year, the European Teaching Course on Neurorehabilitation reached its 9th edition. The event set the stage for two days of intensive talks and debates between 130 participants from seven countries, on a broad range of challenges in neurorehabilitation and neuroscience, promoting the integration of new scientific information via keynote lectures. A rich and diverse audience of health care professionals interested in this steadily expanding and multidisciplinary field attended the event, including physicians, nurses, therapists, public health experts, and clinical researchers.

EAN Task Force on Rare Neurological Diseases Teaching Course

The most recent educational project proposed by the EAN Task Force on Rare Neurological Diseases (EAN TF RND) to the international scientific community is developed together with the SSNN. From a neuroepidemiological perspective, rare diseases have significant public health impact due to their collective large number and diversity. The task of providing care for over 5,000 documented diseases that are considered to be rare worldwide is a daunting experience. While significant progress has been made in recent years with understanding and mapping rare diseases, providing early diagnosis and valid treatment options for patients with such afflictions is still a great challenge.

Rare neurologic diseases (RNDs) are vastly underdiagnosed and effective treatment is often lacking. The EAN Scientific Committee has established the task force intending to help patients with RNDs and their families, through strategies to facilitate earlier diagnosis, timely management and coordinating research. The Task Force members are experienced scientists, experts in the complex field of rare neurological diseases, who work together to raise awareness and improve knowledge, aiming for earlier diagnosis and specific research programs to identify disease mechanisms and lead to possible therapies.
The COVID-19 pandemic has created an unprecedented medical, social, and economic crisis. Although the respiratory system is the major site of infection with SARS-CoV-2, many other complications are now recognized. Although not initially suspected, neurological features of COVID-19 do occur. In fact, for patients who recover from the respiratory disease, neurological complications may be one of the severe lasting features of COVID-19. New information on COVID-19 becomes available very quickly, often on a daily basis.

To facilitate rapid dissemination of new results and observations on COVID-19, the Journal of the Neurological Sciences and its companion journal, eNeurologicalSci have agreed to review rapidly all manuscripts relevant to COVID-19 and to publish expeditiously all accepted papers. Additionally, all such articles are freely available upon publication. To facilitate ease of access to COVID-19 articles and guidelines, Elsevier and the World Federation of Neurology have both developed new platforms specific to COVID-19. These sites are refreshed regularly as new research, guidelines, and commentary become available.

If you are interested in learning what articles and resources are available, please access the following sites: COVID-19 Health care Hub (covid-19.elsevier.health) and World Federation of Neurology.

John D. England, MD, is editor-in-chief of the Journal of the Neurological Sciences, the official journal of the WFN.
The 24th World Congress of Neurology was held Oct. 26-Nov. 1, 2019, in Dubai, United Arab Emirates. Many topics were presented by well-known experts worldwide. Formal and informal meetings in the congress gave an excellent opportunity to greet and meet or to share an exchange of knowledge and ideas, even on ongoing research projects to enhance and collaborate. This event was the best opportunity for new networking and contact with others.

It was a great honor given to me by the WFN to attend the congress as a poster presenter. I received many questions during my poster session as well as remarks from colleagues. This includes Prof. Reilly from the University College London, who had abundant questions about my poster. Overall, this congress gave me a boost to gain a better experience for further development as young neurologist.

My attendance at the congress was kindly supported by the WFN with support from the WFN Junior Traveling fellowship. I wish to express my gratitude and happiness for this great opportunity. Great thanks to all members of the WFN.

EMMANUEL IWUOZO, MBBS, MSC, FMCP

As one of the privileged recipients of the WFN Junior Traveling fellowship 2019 Award, I attended the World Congress Neurology 2019, Oct. 27-31 at the World Trade Centre in Dubai, United Arab Emirates. The registration for the congress, visa, flight, and accommodations were all free. I also had two of my abstracts accepted for poster presentation, which I uploaded before the congress. The setting of the conference – the World Trade Centre – was excellent. I participated in the plenary sessions, teaching courses, botulinum toxin workshop, and tournament of the mind. The exhibition stand and congress abstract viewing sessions were equally enlightening.

This conference will remain the memorable one as it gave me opportunity to meet new friends and colleagues. I remain grateful to the World Federation Neurology for support. Accept my kind regards.

HAMDAD ZEHRY

I want to thank the WFN for helping me to attend the WCN 2019 in Dubai, United Arab Emirates. I was very satisfied with all the lectures, especially those concerning epilepsy and movement disorders. The congress provided the most up-to-date scientific content. Thank you.