

EAN 2022



Review of the European Academy of Neurology (EAN) 2022 Congress

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THE CURTAIN OPENED on the 8th European Academy of Neurology (EAN) 2022 Congress on 25th June 2022 in Vienna, Austria, with EAN President Claudio Bassetti welcoming more than 8,000 neurologists from around the world. This year's congress saw EAN return to a truly hybrid model, with in-person attendance after the 2 years of primarily virtual congresses. Bassetti highlighted the importance of the personal connections that in-person attendance allows in the wake of the separation of COVID-19, reflecting on the opportunity that crisis and challenge presents for growth.

EAN 2022 saw 5,300 onsite participants, with a further 2,700 online attendees. The congress featured 380 lectures and over 2,200 abstracts were submitted, with a new e-learning platform that featured over 1,000 items. Bassetti used his introduction to highlight the vision and mission of the EAN: to be the home of neurology and to reduce the burden of neurological diseases. Underlining what reducing this burden might mean, Bassetti described the reasons why neurology must be a public health priority. Neurological disorders (ND) were quoted as the number one cause of disability and the number two cause of mortality worldwide, with at least one

in three people having an ND. Crucially, however, NDs can be prevented, with up to 40% of stroke cases, 40% of dementias, and 25% of epilepsy cases potentially preventable.

The priorities of EAN were highlighted as science, education, membership, and advocacy, all aiding in the facilitation and availability of high-quality healthcare. Science is understood by the EAN co-ordinating scientific panel as producing high level guidelines, as well as promoting and conducting studies that address overarching topics such as neuro-COVID-19, the economic burden of neurological disease, and neuro-data sharing. Education is promoted through annual congresses, fellowships, and the launch of the e-learning platform, with membership growing from national societies,

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students, membership programmes, and the launch of a diversity and gender task force. Finally, advocacy is achieved through online sources, activities with industry, and collaboration with non-governmental organisations.

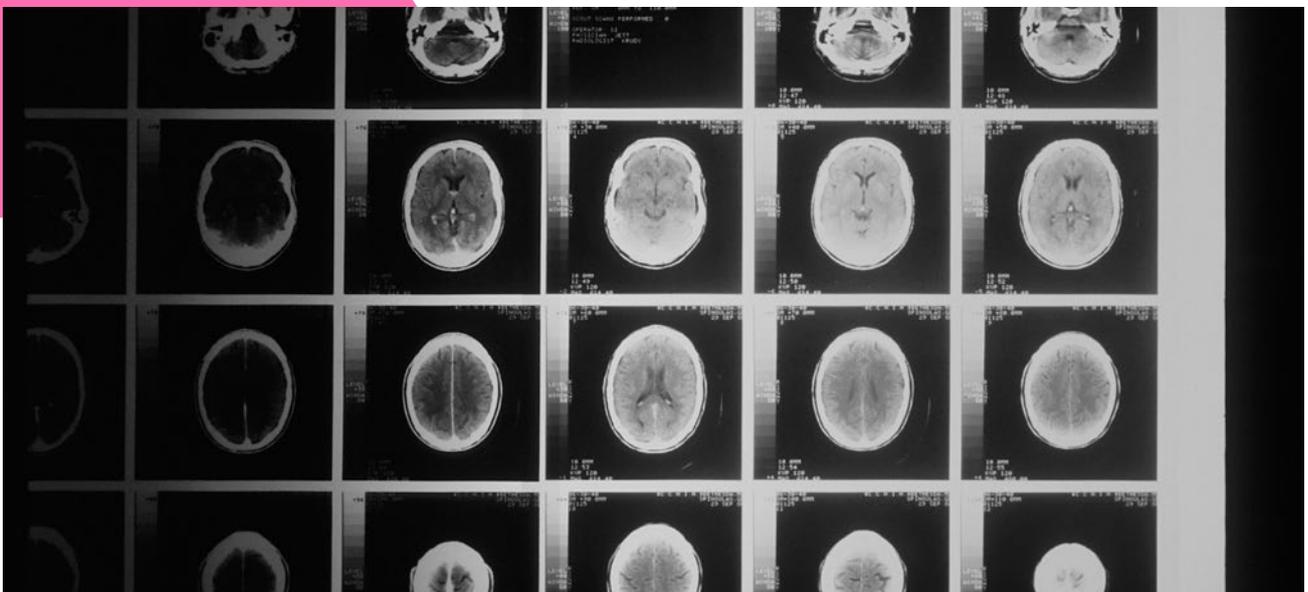
Discussing the future of EAN, Bassetti highlighted the priorities of the academy moving forward to support international co-operation alongside implementation at the national level. "We need to talk about education and awareness among the stakeholders and among the general population," he stated. Sustainability in neurology was emphasised alongside the implementation of the Global Action Plan, a novel research agenda, pre-graduate curriculum, and the leadership programme.

The opening ceremony featured a keynote lecture from Baroness Susan Greenfield, Founder and CEO of Neuro-Bio Ltd., Abingdon, UK. Greenfield's research has focused on brain physiology and mechanisms in Parkinson's and Alzheimer's disease. Primarily a research scientist, Greenfield focused her presentation on the marriage between neuroscience and neurology. Discussing the unique brain, Greenfield explained the core underlying value of plasticity, using experiments

in rats to communicate the effects of an 'enriched' versus a 'standard' environment on the growth, plasticity, and the proliferation of a single brain cell. She emphasised the role of this process for moving from a sensory to a cognitive world. Greenfield broke down the core factors she believes drives the 21st century mind: a world driven by constant external stimuli; consciousness as a continuously variable spectrum; and, finally, the decline of the mind through Alzheimer's and other degenerative diseases.

The session closed with a final welcome from Bassetti, wishing guests an enjoyable stay in Vienna and highlighting the importance of communication and information exchange at the face-to-face congress. ●

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COVID-19 and the Risk of Developing Neurodegenerative Disorders

RESEARCH presented at EAN Congress 2022 has shown that outpatients who tested positive for COVID-19 are at an increased risk of various neurodegenerative disorders compared with those who tested negative for severe acute respiratory syndrome coronavirus 2.

The research team analysed the health records of over half the Danish population. In total, 919,731 individuals tested for COVID-19 within the study. Of these, the 43,375 people who tested positive had a 3.5-, 2.6-, 2.7-, and 4.8-times increased risk of being diagnosed with Alzheimer's disease, Parkinson's disease, ischaemic stroke, and intracerebral haemorrhage, respectively.

The researchers studied in- and outpatients in Denmark between February 2020 and November 2021 as well as patients with influenza from the corresponding pre-pandemic period.

Lead author Pardis Zarifkar, Department of Neurology, Rigshospitalet, Copenhagen, Denmark, highlighted the relevance of the study: "More than 2 years after the onset of the COVID-19 pandemic, the precise nature and evolution of the effects of COVID-19 on neurological disorders remained uncharacterised. Previous studies have established an association with neurological syndromes, but until now it is unknown whether COVID-19 also influences the incidence of specific neurological diseases and whether it differs from other respiratory infections."

Interestingly, the heightened risk of most neurological diseases was no greater in patients who had tested positive for COVID-19 relative to those diagnosed with influenza or another respiratory illness. Furthermore, the frequency of Guillain-Barré syndrome, multiple sclerosis, myasthenia gravis, and narcolepsy was not found to increase after COVID-19, influenza, or pneumonia.

Zarifkar summarised the relevance of the research findings: "We found support for an increased risk of being diagnosed with neurodegenerative and cerebrovascular disorders in COVID-19 positive compared to COVID-negative patients, which must be confirmed or refuted by large registry studies in the near future. Reassuringly, apart for ischaemic stroke, most neurological disorders do not appear to be more frequent after COVID-19 than after influenza or community-acquired bacterial pneumonia." He added: "These findings will help to inform our understanding of the long-term effect of COVID-19 on the body and the role that infections play in neurodegenerative diseases and stroke." ●

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Increased Reports of Adolescent Headaches: An Unanticipated Effect of the COVID-19 Pandemic

ONLINE learning delivered to adolescents during the COVID-19 pandemic could have contributed to increased headache aetiology, new research suggests. A multicentre study including 851 adolescents aged 10–18, presented on 25th June 2022 at EAN Congress 2022 by lead researcher Ayşe Nur Özdag Acarli, Ermenek State Hospital, Türkiye, revealed that headache frequency and severity increased in response to school closure and the delivery of online learning.

Of the 851 participants enrolled, 756 (89%) reported headaches during the study period. New onset headaches were reported by 10% and worsening of headaches were reported by 27%. No change in headaches and headache improvement were reported by 61% and 3%, respectively.

The risk factors associated with new onset and worsening headaches were identified as prolonged exposure time to computer screens, lack of suitable conditions for online learning from home, anxiety regarding COVID-19 itself, and school exams. Those who reported new onset or worse symptoms were experiencing headaches on average 8–9

times per month, and analgesic use was higher in these groups (43%) compared with those who reported no change in headaches (33%).

The authors discuss that those who developed new or worse headaches had significantly higher depression and anxiety scores than those with stable headaches. In addition to this, the study participants felt that their headaches had negatively affected the quality of their schoolwork.

Whilst previous short-term studies have shown a reduction in adolescent headaches as a result of school closure and online learning, this longer-term study highlights the opposite and is an example of COVID-19's evolving impact.

Overall, the findings from this study reveal that school closure and online learning during the pandemic led to an increase in adolescent headaches, and that the aetiology of this was multi-factorial. Further work analysing indirect effects of the pandemic could be performed for better understanding of the long-term impact that the pandemic has had on adolescents. ●

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Undiagnosed Risk Factors Found in Patients with Ischaemic Stroke

ISCHAEMIC stroke is the most common type of stroke, occurring when a blood clot, or another type of blockage, cuts off blood supply to the brain. A new study presented by André Rêgo from the Centre Vaudois, Lausanne, Switzerland, at the EAN Congress 2022 on 26th June 2022, highlighted that patients with ischaemic stroke typically have previously undetected health conditions.

Before this study, there was limited clinical information on the frequency, patient profiles, and stroke mechanisms in patients with acute ischaemic stroke and previously undiagnosed major risk factors (UMRF). The results show that 67.7% of patients with stroke and previously UMRF had one major risk factor, and Rêgo believes that this study provides significant insights into previously UMRF.

The researchers analysed the health records of 4,354 patients with stroke between 2003 and 2018 from the ASTRAL registry. Out of all these patients, 1,125 had UMRF. The most common vascular risk factor was dyslipidaemia, which is an imbalance of blood fats (e.g., high cholesterol or raised triglyceride levels), with 61.4% of patients having this condition. Other common risk factors included high blood pressure, which was detected in 23.7% of patients, and atrial fibrillation, which

causes a fast and irregular heartbeat and was detected in 10.2% of patients.

There were several positive associations in patients with UMRF and risks, including a younger age; Black and minority ethnic ethnicities; the use of contraceptives in females aged 55 and younger; and smoking in patients aged 55 and over. However, the researchers found that the use of antiplatelet before a stroke and a higher BMI have negative associations.

"Our findings underline the importance of testing and treating blood fat imbalances such as high cholesterol and triglyceride levels, as well as blood pressure and identifying and treating those with atrial fibrillation and Type 2 diabetes," Rêgo stated. ●

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Parkinson's Disease Survival Length Affected by Gene Variants

RESEARCHERS have discovered that the length of time a patient with Parkinson's disease survives for could be the result of specific gene mutations. New research presented at EAN Congress 2022 has been collated by four institutes in Paris, including the specialist Paris Brain Institute at the Sorbonne Université, France.

Records of 2,037 patients diagnosed with Parkinson's disease were included in the study, beginning at their initial hospital visit. It was found that genetic variants could be the answer in establishing the speed of Parkinson's disease progression in patients, with research focused here on cases where the disease consists of a single gene.

The hazard ratios included in the study give the ability for investigators to compare survival rates of those with a genetic mutation to a control group, none of whom have a genetic mutation. Patients discovered to have either *LRRK2* or *PRKN* mutations tended to have a longer survival time than those without a gene mutation (hazard ratio: 0.5 and 0.42, respectively). However, those patients found to have *SNCA* or *GBA* gene mutations had a shorter survival time than those who did not

present with a gene mutation (hazard ratio: 10.20 and 1.36, respectively).

Monogenic forms of Parkinson's disease, caused by a single gene variant, make up around 5% of all cases, and most occur without hereditary reason. Researchers believe that the most common genetic variant in Parkinson's disease is that of the *LRRK2* gene. Those who carry this variant tend to develop the degenerative disease later in life, with 70% of individuals diagnosed by the age of 80 years.

Aymeric Lanore from the Paris Brain Institute, Francelead researcher of the study, commented that this was the first study of its kind to compare survival times of patients with Parkinson's disease who carried these particular four genes. He remarked: "The results suggest the shorter survival of *SNCA* and *GBA* patients may be related to faster motor progression of the disease and earlier development of cognitive impairment." He then declared: "These are important new insights, which could help the development of new drugs targeting these genetic variants to slow down or stop the disease." ●

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