

Neuroinfectious Disease is an Ever-Changing Problem

Paul Williams*

Department of Neurology and Neurological Sciences, Stanford university, California, USA

Infectious diseases of the nervous system present a unique problem for clinicians: they are relatively rare, and they are often severe enough to cause injury or death, but they are often treatable. Organisms that cause neuroinfectious disease will develop quickly through their own design. Similarly, over a clinician's career, awareness of these conditions will arise and evolve dramatically. To have the best treatment for patients, neurologists must be kept up to date on neuroinfectious disease on a daily basis.

Infections can appear in a wide range of forms, making it difficult for clinicians to rule them out when determining the cause of a patient's complaint. Rapid identification of the causative organism is critical for accurate diagnosis and treatment collection. For bacterial pathogens, culturing the species is still popular, but more rapid identification is often needed. Antigen detection is important in the quick diagnosis of certain fungal infections, such as *Cryptococcus*, and immune response may help diagnose other diseases, such as syphilis. The increasing availability of PCR testing has significantly reduced the difficulties of etiologic diagnosis of viral illness.

The emergence of HIV has highlighted the rapidly changing existence of neuroID as a discipline, leading to the development of the neuroHIV special emphasis. This infection, which was unknown when any of us were training, now affects over 30 million people worldwide and has been linked to a wide range of primary neurologic problems as well as significantly elevated risks of previously rare opportunistic disorders. It is not a one-size-fits-all adversary, but has developed into genetically distinct subtypes that are found in different parts of the world. The rapid advancement of treatments has also increased the prognosis for HIV-positive patients, but the brain is a safe haven from which it can surface even when conventional systemic disease signs seem to be reassuring. The articles in this issue help physicians learn about new fields of awareness about HIV, such as acute HIV infection (Andrade et al.) and the virus's escape from long-term control through treatment (Hoogland and Portegies).

It is important for all neurologists to invest in lifelong learning about new infectious disease issues as they contribute to the nervous system. Our national research enterprise must also fund the efforts of a cadre of specialists committed to this field. We can't continue to neglect these neurologic disorders, which are also harmful but treatable. Leaving their treatment in the hands of doctors who aren't trained in neurologic diagnosis and administration is likely to result in poor results. Fortunately, the AAN and 21st-century communications have made it possible for professionals all around the world to reach out to others with specialised knowledge. However, we must retain a core community of experts with in-depth understanding of both infectious disease research and clinical experience in its neurologic forms. For those interested in studying neuroID, modern tools with molecular pathways, as well as the power of new imaging methods, provide exciting career prospects. Only a few larger university departments offer NeuroID instruction, and there is no standardised evaluation process in place. The number of trainees has been insufficient to cover the costs of formal testing required by accredited fellowship programmes. Current leaders, on the other hand, routinely tutor trainees involved in this field, typically offering a multi-year clinical and research fellowship that kickstarts the trainee's academic career. Often training combines special emphasis on neuroimmunology and neuroID, a rational and synergistic career mix that enlarges practice opportunities to include common neurologic conditions such as multiple sclerosis. Alternative pathways discussed include combining neuroID with hospitalist training, neurologic intensive care training, or global health careers. These neuroID specialists are expected to help train physicians around the world about these illnesses, to lead studies to further explain the pathophysiology that contributes to the disorders, and to preserve and develop diagnostic and therapeutic resources that can save lives in the future. We urge neurologists to join the AAN's NeuroID Section, where those seeking further expertise can receive mentoring from the Section's representatives.

*Corresponding author: Paul Williams, Department of Neurology and Neurological Sciences, Stanford university, California, USA, E-mail: paulwilliams45@hotmail.com

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