An Overview of Neuropathic Pain in Infectious Diseases

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Neuropathic pain can be a long-term consequence of nervous system infections, even long after the infection has been eliminated with antimicrobial therapy. This lecture will give a rapid, high-level, overview of some infections frequently associated with neuropathic pain, touching on a few “snapshots” of recent developments. The lecture will focus on two prevalent infections: varicella-zoster virus (VZV) and human immunodeficiency virus (HIV).

During primary infection (varicella/chicken pox) **VZV** invades sensory ganglia where it lies dormant until a decline in cell mediated immunity precipitates reactivation. This presents clinically as the characteristic dermatomal rash of herpes zoster (shingles). About 10% of zoster cases are complicated by post herpetic neuralgia (PHN). In immunocompetent individuals the risk of both zoster and PHN are age related, climbing steeply over the age of 50. PHN is a model condition for neuropathic pain clinical trials and therefore there is a large body of evidence for the analgesic treatment of PHN, which will be reviewed. New data on the health burden of PHN will be discussed, as will evidence from trials of zoster vaccines which have the potential to prevent an important neuropathic pain condition.

United Nations data reveal that there are currently ~37 million people worldwide living with **HIV**. The good news is that with increasing access to effective antiretroviral therapy (ART) survival and long term living with the infection has become the norm. However, a number of neurological manifestations of HIV persist despite optimal ART. Although there was a slight decline in prevalence following the withdrawal of obsolete neurotoxic ART drugs, about 40% of people living with HIV have a distal symmetrical sensory polyneuropathy, in many cases associated with neuropathic pain. Recent developments in our understanding of the pathogenesis of this neuropathy, and its impact on quality of life, will be described. In contrast with PHN the clinical trials of neuropathic analgesics in HIV-associated sensory neuropathy have been disappointing and no effective therapies have been identified.

Finally, brief mention will be made of two important, but relatively rare, infections associated with neuropathic pain:

Despite worldwide access to mycobacteriologically curative therapy, about 25% of **leprosy** patients suffer from very long term neuropathic pain, usually associated with characteristic mononeuropathies or late stage immune reactions. The clinical presentations and impact of neuropathic pain in leprosy will be discussed.

Human T-cell leukemia virus-1 (**HTLV-1**) is a retrovirus for which there is no curative therapy. HTLV-1 infection is rare, but causes a myelopathy associated with neuropathic pain. As HTLV-1 infection can be overlooked in a patient presenting with unexplained neuropathic pain, the epidemiological and clinical features of this condition will be briefly described, primarily to raise awareness of it as a diagnostic possibility.