

Visual Evoked Potentials as a Biomarker in Multiple Sclerosis and Associated Optic Neuritis

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Disease of the Year: Multiple Sclerosis

Abstract Author Information

From the Section Editor: The next two installments in the JNO “Disease of the Year: Multiple Sclerosis” series focus on lessons that can be learned from the afferent visual pathway, as a putative model of MS. In their article entitled, “Visual evoked potentials as a biomarker in multiple sclerosis and associated optic neuritis” Leocani and colleagues highlight the role of visual evoked potential (VEP) testing as a means of capturing the effects of demyelination, remyelination, and associated neuroaxonal injury in the central nervous system (CNS). Conjointly, Horton and Bennett discuss the acute management of optic neuritis, which is aptly described as an “evolving paradigm.” In their state-of-the-art overview of the topic, these authors explore the spectrum of inflammatory optic neuropathies, with emphasis on clinical features, neuroimaging findings, and serological markers that help refine diagnosis, and target appropriate treatment strategies. When considered holistically, these reviews prompt us to consider how VEP and other surrogate endpoints can be used to differentiate subtypes of optic neuritis that may ultimately herald a wide variety of CNS inflammatory disorders.

Abstract: Multiple sclerosis (MS) is an inflammatory, degenerative disease of the central nervous system (CNS) characterized by progressive neurological decline over time. The need for better “biomarkers” to more precisely capture and track the effects of demyelination, remyelination, and associated neuroaxonal injury is a well-recognized challenge in the field of MS. To this end, visual evoked potentials (VEPs) have a role in assessing the extent of demyelination along the optic nerve, as a functionally eloquent CNS region. Moreover, VEPs testing can be used to predict the extent of recovery after optic neuritis (ON) and capture disabling effects of clinical and subclinical demyelination events in the afferent visual pathway. In this review, the evolving role of VEPs in the diagnosis of patients with ON and MS and the utility of VEPs testing in determining therapeutic benefits of emerging MS treatments is discussed.

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