＜シンポジウム 8―1＞Neuromyelitis Optica (NMO)

Clinical Overview of Neuromyelitis Optica

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Neuromyelitis optica (NMO) is a condition characterized by attacks of severe bilateral optic neuritis and myelitis. Historically, the prototypic syndrome was diagnosed only when these symptoms occurred nearly simultaneously as a monophasic illness[1]. However, a contemporary view acknowledges that most commonly this condition is a relapsing disorder characterized by recurrent attacks, usually of unilateral optic neuritis or myelitis[2]. In the past, arbitrary clinical rules that suggested that all relapsing inflammatory CNS demyelinating disease should be considered a form of MS impeded the distinction between NMO and MS that had been recognized by Japanese investigators, who referred to relapsing optic neuritis and myelitis as opticospinal MS and recognized its resemblance to NMO. NMO can be differentiated from MS by diagnostic criteria that incorporate several clinical, radiological and serological observations, the most specific of which is the presence of a marker autoantibody, NMO-IgG, which is now recognized to be an IgG1 autoantibody that is specific for the extracellular domain of aquaporin-4 (AQP4). No single criterion is completely sensitive or specific, and the combination of criteria proposed by our group in 2006 is best able to distinguish NMO from other conditions with which it is often confused. Currently, the diagnostic criteria most widely accepted for NMO require the presence of optic neuritis and myelitis and two of three additional specificity criteria to differentiate NMO from MS: normal brain MRI at onset; long spinal cord lesion extending over 3 spinal segments on T2-weighted MRI of the spinal cord when performed in the context of an acute myelitis; positive serological test for aquaporin-4 specific autoantibodies[3].

Now that the specificity of the marker antibody has been established internationally, certain other syndromes, some of which formerly would have excluded a diagnosis of NMO (e.g. brain lesions) or which would have been regarded as insufficient for such a diagnosis (e.g. limited syndromes of recurrent myelitis or recurrent optic neuritis) can now be accepted as "NMO spectrum disorders". Approximately 40% of adults with first event of transverse myelitis when accompanied by a long spinal cord lesion are seropositive for NMO-IgG, and such patients are at high risk for recurrence of transverse myelitis and or to develop optic neuritis; the risk exceeds 50% in the first year of followup[4]. Approximately 20% of individuals who have recurrent optic neuritis without other evidence for MS are seropositive for NMO-IgG, and they have a lesser though still considerable risk of developing transverse myelitis over five years followup[5]. Brain lesions associated with neuromyelitis optica include medullary lesions that often present with vomiting or intractable hiccough; brainstem periependymal lesions; hypothalamic and corpus callosum lesions, typically linear in configuration and paralleling the contour of the ventricles; and extensive cerebral lesions[6)~8)]. Some patients have presented with transient symmetrical posterior lesions suggestive of acute vasogenic edema (posterior reversible leukoencephalopathy), and such lesions implicate an effect of aquaporin-4 antibodies and/or their downstream effects including internalization of the aquaporin-4 complex as contributing to the clinical manifestations in some patients[9]. Thus, some brain syndromes may arise from an autoimmune attack on the target antigen, AQP 4, and others from inactivation of its water channel function (e.g. cerebral vasogenic edema).

References

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