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## **PEDIATRIC OPTIC NEURITIS**

Editorial

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Optic neuritis in the pediatric population greatly differs from its presentation in the adult population. Firstly, it is usually bilateral in children and mostly unilateral in adults. (1,2,3) Second, it is generally associated with inflammation of the optic disc in pediatrics (1,2,3), whereas the inflammation is often retrobulbar in adults. (2) Finally, pediatric optic neuritis is often considered a post-infectious condition that is not usually associated with the subsequent development of multiple sclerosis (MS) (4,5,2), while in adults, the demyelinating event often precedes the clinical onset of MS. (6)

The neuroimmunological mechanisms involved in several of the demyelinating disorders that affect the optic nerve in children have been elucidated, including the role of B cells and antibody-mediated mechanisms. (7) The diagnosis and management of pediatric optic neuritis is currently based on the search for molecular biomarkers, such as antibodies against aquaporin-4 (AQP4) and myelin oligodendrocyte glycoprotein (MOG), especially in children with recurrent optic neuritis. (7)

The presence of anti-AQP4 antibodies is synonymous with neuromyelitis optica (NMO) (8), while anti-MOG antibodies are mostly found in children with recurrent optic neuritis, acute disseminated encephalomyelitis (ADEM), and some NMO and MS phenotypes. (9,7) Patients with anti-MOG antibodies are usually younger (10) and more likely to develop optic disc inflammation than those without anti-MOG antibodies; these types of optic neuritis tend to be bilateral and more dependent on steroids than in patients with negative MOG antibodies. (9,11) Several recent studies have found that anti-MOG antibodies are generally associated with a course of disease without MS in children. (12,13)

In general terms, in the presence of a more severe initial involvement of the optic nerve, this condition can be associated with NMO, while

alterations of the white matter in MRI can be associated with MS. (14) As more biomarkers are identified, it is possible to conclude that infections or immunizations are the triggering stimuli that most frequently activate the cascade of neuroinflammatory events that have historically been diagnosed as post-infectious optic neuritis. (15)

NMO, formerly known as Devic's disease, is an autoimmune demyelinating disorder that causes recurrent episodes of optic neuritis and transverse myelitis. (16) This disease should be considered as a diagnostic option in any child or adult who develops unilateral or bilateral optic neuritis and myelopathy within a short period of time. (17)

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