

DEMYELINATING DISORDERS

ANTIBODIES TO OLIGODENDROCYTE GLYCOPROTEIN IN CHILDREN WITH ADEM

Antibodies to native myelin oligodendrocyte glycoprotein (nMOG) in 47 children during a first episode of CNS demyelination (acute disseminated encephalomyelitis [ADEM] in 19, and a clinical isolated syndrome [CIS] in 28) were investigated by a cell-based bioassay in a study at Children's Hospital at Westmead, Sydney, Australia, and at the University of Munich, Germany. High serum immunoglobulin G (IgG) titers to nMOG were found in 40% children with CIS/ADEM and in 0% of control children with other neurologic disorders, in healthy children, or in adults with inflammatory demyelinating diseases. In contrast, IgM antibodies to nMOG occurred in only 3 children affected by ADEM. Children with high anti-nMOG IgG titer were significantly younger than those with low IgG titer. Anti-nMOG IgG titers were similar in CIS and ADEM groups, and did not predict conversion from CIS to MS during a mean 2-year follow-up. Intrathecal IgG-anti-MOG antibody synthesis occurred only in the CIS group. nMOG is a major target of the humoral immune response in a group of children with inflammatory diseases of the CNS. (Brilot F, Dale RC, Selter RC, et al. Antibodies to native myelin oligodendrocyte glycoprotein in children with inflammatory demyelinating central nervous system disease. *Ann Neurol* Dec 2009;66:833-842). (Respond: Dr Bernhard Hemmer, Dept Neurology, Klinikum rechts der Isar, Technische Universität München, Ismaninger Strasse 22, 81675 Munich, Germany).

COMMENT. In adults, a first CNS demyelinating event is most likely to be MS, whereas in children, ADEM is more frequent, with a lower risk of progression to MS. Another first demyelinating event in children is a clinically isolated syndrome (CIS) with a higher risk of MS. The above study demonstrates a specific antibody response to nMOG in a subgroup of children with a first demyelinating event but not in adults with demyelinating disease.

MRI characteristics of children and adults with pediatric-onset MS (Yeh EA et al. *Brain* Dec 2009;132:3392-3400). Pediatric onset MS has a greater MRI disease burden both early on in the disease and later, with higher frequency of relapses than in adult onset MS. Children with early onset MS showed a higher T1 lesion volume compared with adults with similar disease duration. Disease is more aggressive in early stages of childhood MS, but disability is slower to accrue in pediatric- vs adult-onset MS.

MRI Barkhof criteria were predictive of conversion to MS in 42% of 468 patients with a clinically isolated syndrome, irrespective of interferon treatment for 1 year. At least 9 T2-weighted lesions and at least 3 periventricular lesions at baseline were the Barkhof criteria with the strongest prognostic value. Follow-up MRI was most informative after 9 months. (Moraal B et al. *Arch Neurol* 2009;66(11):1345-1352).

Barkhof MRI criteria predict early relapse in pediatric MS. At least 3 of 4 Barkhof criteria at onset were predictive of early relapse in 20 (71%) of 28 children with MS onset before age 16 years. (Neuteboom RF et al. *Pediatr Neurol* 2010;42(1):53-55).