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Antimyelin Antibodies as a Predictor of Clinically Definite Multiple Sclerosis after a First Demyelinating Event

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ABSTRACT

Background Most patients with multiple sclerosis initially present with a clinically isolated syndrome. Despite the fact that clinically definite multiple sclerosis will develop in up to 80 percent of these patients, the course of the disease is unpredictable at its onset and requires long-term observation or repeated magnetic resonance imaging (MRI). We investigated whether the presence of serum antibodies against myelin oligodendrocyte glycoprotein (MOG) and myelin basic protein (MBP) in patients with a clinically isolated syndrome predicts the interval to conversion to clinically definite multiple sclerosis.

Methods A total of 103 patients with a clinically isolated syndrome, positive findings on cerebral MRI, and oligoclonal bands in the cerebrospinal fluid were studied. At base line, serum samples were collected to test for anti-MOG and anti-MBP antibodies with Western blot analysis, and the lesions detected by cerebral MRI were quantified. Neurologic examinations for relapse or disease progression (defined as conversion to clinically definite multiple sclerosis) were performed at base line and subsequently every three months.

Results Patients with anti-MOG and anti-MBP antibodies had relapses more often and earlier than patients without these antibodies. Only 9 of 39 antibody-seronegative patients (23

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percent) had a relapse, and the mean (±SD) time to relapse was 45.1±13.7 months. In contrast, 21 of 22 patients (95 percent) with antibodies against both MOG and MBP had a relapse within a mean of 7.5±4.4 months, and 35 of 42 patients (83 percent) with only anti-MOG antibodies had a relapse within 14.6±9.6 months (P<0.001 for both comparisons with antibody-seronegative patients). The adjusted hazard ratio for the development of clinically definite multiple sclerosis was 76.5 (95 percent confidence interval, 20.6 to 284.6) among the patients who were seropositive for both antibodies and 31.6 (95 percent confidence interval, 9.5 to 104.5) among the patients who were seropositive only for anti-MOG antibodies, as compared with the seronegative patients.

Conclusions Analysis of antibodies against MOG and MBP in patients with a clinically isolated syndrome is a rapid, inexpensive, and precise method for the prediction of early conversion to clinically definite multiple sclerosis. This finding may be important for the counseling and care of patients with a first demyelinating event suggestive of multiple sclerosis.

Source Information

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