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DEMYELINATING DISORDERS

ACUTE INFLAMMATORY DEMYELINATION: MRI PROGNOSTIC FACTORS FOR RELAPSE

Initial MRI factors predictive of a second attack and disability following a first episode of acute CNS inflammatory demyelination in a cohort of 116 children seen between 1990 and 2002 were studied at the Hopital Cochin-Saint-Vincent de Paul, Paris; Hopital Bicetre, Lille; Hopital Neurologique, Lyon, France; and McGill University, Montreal, Canada. The average follow-up was 4.9 +/- 3 years. Fifty-two patients (45%) had a second attack and therefore met the criteria for multiple sclerosis; 33 (28%) were >10 years of age; and 10 (9%) were initially diagnosed with acute disseminated encephalomyelitis (ADEM). Fifty patients (43%) were diagnosed with monophasic ADEM and 14 (12%) had another monophasic episode (transverse myelitis, optic neuritis, brainstem dysfunction). The risk of a second attack, indicative of conversion to multiple sclerosis (MS), was significantly higher in patients with corpus callosum (CC) long axis perpendicular lesions (n=34, 30% of patients), focal lesions, well-defined single lesions (46, 40%), or more than 9 total lesions. Thalamic and/or basal ganglia lesions were equally frequent in both monophasic and recurrent disease. Both CC and single lesions were more specific of relapse (100%) than the 3 MRI Barkhof criteria for MS (63%), but were less sensitive (21% cf 52%). None of the MRI criteria was predictive of severe disability. The mean time between first and second attacks was 1.1 years (range 0.4-1.8) for patients with CC and well-defined lesions compared to 7.1 years (range 5.7-8.5) for those without these 2 lesions ($p<0.001$). (Mikaeloff Y, Adamsbaum C, Husson B, et al. MRI prognostic factors for relapse after acute CNS inflammatory demyelination in childhood. **Brain** Sept 2004;127:1942-1947). (Respond: Dr Yann Mikaeloff, MD, Service de Neurologie Pediatrique, Centre Hospitalier Universitaire d'Angers, 4 rue Larrey, 49933 Angers Cedex 9, France).

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The editor is Pediatric Neurologist at Children's Memorial Hospital and Northwestern University Medical School, Chicago, Illinois. PNB is a continuing education service designed to expedite and facilitate review of current scientific information for physicians and other health professionals.
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COMMENT. Relapses in patients initially diagnosed with ADEM are reported in 10% of cases (Tenembaum et al, 2002; see **Ped Neur Briefs** Nov 2002;16:81). Residual disability was not related to MRI findings at onset in this series, but it was correlated with the occurrence of optic neuritis. Absence of oligoclonal bands in the CSF and long-term MRI findings will distinguish ADEM from MS in the 10% of patients showing a biphasic course with single relapse. In the present report, corpus callosum (CC) and single well-defined lesions in the MRI occurred more frequently in patients with relapse than those with a monophasic course. Corpus callosum long axis perpendicular lesions are defined as well-defined ovoid lesions perpendicular to the CC long axis. They are sometimes known as 'Dawson's fingers' and are considered a relatively specific indicator of MS. However, even using initial MRI lesions, survival analysis methods and a 5-year mean follow-up, the authors found it difficult to predict conversion to MS after a first episode of acute CNS inflammatory demyelination. Corpus callosum and periventricular demyelination characteristic of MS was present in 29% of 31 childhood cases of ADEM reported from Australia (Hynson et al, 2001; see **Ped Neur Briefs** June 2001;15:46).

ADEM: AGE AT ONSET AND NEUROPSYCHOLOGICAL OUTCOME

The influence of age at onset of acute disseminated encephalomyelitis (ADEM) on cognitive, educational, and social functioning was evaluated in 19 children (10 < 5 years of age) admitted to the Royal Children's Hospital, Melbourne, Australia. Compared to controls, stratified for age and socioeconomic status, patients who developed ADEM before 5 years of age had a lower mean intelligence quotient ($p<0.01$), significantly lower scores on reading and spelling ($p<0.001$), and a higher incidence of severe behavioral and emotional problems. The young onset group also obtained a significantly lower standard score on spelling in comparison with the old onset group ($p<0.05$). No significant differences were found on cognitive measures in children treated or not treated with steroids; the number not treated was too small for a meaningful conclusion. The frequency of MRI abnormalities was similar in the young and old onset groups, and the proportion of children experiencing one or more relapses was also similar. (Jacobs RK, Anderson, VA, Neale JL, et al. Neuropsychological outcome after acute disseminated encephalomyelitis: Impact of age at illness. **Pediatr Neurol** September 2004;31:191-197). (Respond: Dr Jacobs, Department of Psychology, Royal Children's Hospital, Flemington Road, Parkville, Melbourne, Victoria, 3054, Australia).

COMMENT. Long-term neuropsychological dysfunction may occur in children who develop ADEM in early childhood, despite the absence of persisting neurologic deficits. Children under 5 years of age recovering from ADEM should be tested for possible cognitive, behavioral, and emotional problems that require educational and psychological intervention.