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DEMYELINATING DISEASES

ACUTE DISSEMINATED ENCEPHALOMYELITIS: OUTCOME

The clinical and neuroimaging findings in 84 consecutive children with acute disseminated encephalomyelitis (ADEM) were studied prospectively, between March 1988 and July 2000, in relation to outcome at the National Pediatric Hospital, Buenos Aires, Argentina. Age at onset was 5.3 +/- 3.9 years (range, 0.4-16 years), with a male preponderance of 1.8:1. A febrile infectious illness or vaccination preceded the onset of neurologic symptoms by 12.1 days (range, 2-30 days) in 74%. Nonspecific URI occurred in 35%, immunization (measles in 7, pertussis in 3 cases) in 12%, gastrointestinal illness in 11%, varicella (5%), herpes simplex viral encephalitis (2%), mumps (1%), rubella (1%), and no recognizable prodrome (cryptogenic ADEM) in 26%. The most frequent presenting features were long tract signs (unilateral or bilateral) in 85%, acute hemiparesis in 76%, mental changes (69%), and ataxia (50%). MRI manifestations of ADEM were of four types: 1) small lesions (62%), 2) large lesions (24%), 3) bithalamic lesions (12%), and 4) acute hemorrhagic encephalomyelitis (2%). EEGs showed diffuse slow background in 78%, focal slowing in 10%, and focal temporal spikes in 2%. CSF was abnormal in 28%, with lymphocytic pleocytosis or mildly elevated protein; none showed oligoclonal bonds. High serum antibodies were present for those with recognized viral illnesses. High-dose IV methylprednisolone was followed by recovery and resolution of MRI lesions. At mean follow-up of 6.6 +/- 3.8 years (range, 1 to 19 years), 90% showed a monophasic course with no further relapse, and 10% had a biphasic course with one relapse between 2 months and 8 years (mean, 2.9 years). Expanded Disability Status Scale scores were 0 to 2,5 in 89%, and 3 to 6.5 in 11% of patients at follow-up. Disability was not related to MRI findings at onset, but it was related to optic nerve involvement in 19 patients. Residual deficits included hemiparesis (8%), partial epilepsy (6%), visual impairment (6%), and mental handicap (4%). ADEM was distinguished from a diagnosis of multiple sclerosis by long-term clinical and MRI findings and the absence of oligoclonal bands in the CSF. (Tenembaum S, Chamoles N, Fejerman N. Acute disseminated encephalomyelitis. A long-term follow-up study of 84 pediatric patients. Neurology October (2 of 2) 2002;59:1224-1231). (Reprints: Dr Silvia Tenembaum,

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COMMENT. Childhood ADEM is an inflammatory demyelinating disease that is typically preceded by a viral febrile illness or vaccination, affects boys more frequently than girls, and usually follows a monophasic course with recovery in 90%. Significant residual disability in 10% is not related to MRI lesions at onset but it is 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 a previous report of 31 children with ADEM from Australia (Hynson JL et al. 2001; See Ped Neur Briefs June 2001;15:46), the most frequent presenting neurologic symptom was ataxia, in 65%. MRI showed bilateral, asymmetrical involvement of white matter of frontal and parietal lobes, with lesions in deep grey matter including the thalamus in 61%. Corpus callosum and periventricular demyelination, characteristic of MS, was present in 29%.

MUSCLE DISEASES

GENE EXPRESSION PROFILES OF INFLAMMATORY MYOPATHIES

The simultaneous expression of 10,000 genes was measured, using Affymetrix GeneChip microarrays, in muscle specimens from 45 patients with various myopathies (dystrophy, congenital myopathy, and inflammatory myopathy) examined at Brigham and Women's Hospital, and Children's Hospital, Harvard Medical School, Boston, MA. Bioinformatics techniques were also used to classify specimens from 14 patients with subtypes of inflammatory myopathy (IM) - dermatomyositis, polymyositis, and inclusion body myositis (IBM) - and to identify the gene profiles. Ten of 11 patients with IM, and 10 of 12 with Duchenne MD were correctly classified. The various subtypes of IM have distinct gene expression signatures. (Greenberg SA, Sanoudou D, Haslett JN et al, Molecular profiles of inflammatory myopathies. Neurology October (2 of 2) 2002;59:1170-1182). (Reprints: Dr Steven A Greenberg, Department of Neurology, Brigham and Women's Hospital, 75 Francis Street, Boston, MA 02115).

COMMENT. Standard clinical and histopathological methods of differentiation of various inflammatory myopathies (IM) are not always conclusive, and misclassification may result in inappropriate management. The advent of molecular profiling techniques should provide a more accurate classification of the various subtypes of IM and other muscle diseases. An editorial comment points out that microarray analysis, while generating useful information, has methodological challenges that must be addressed before it realizes its potential in clinical research and practice (Thornton CA, Welle SL. Neurology 2002;59:1128-1129).

MITOCHONDRIAL DNA DEPLETION SYNDROME

Twenty patients with myopathic mitochondrial DNA (mtDNA) depletion syndrome (MDS) were screened for mutations in thymidine kinase 2 (TK2) and deoxyguanosine kinase (dGK) genes at Columbia University, New York, NY. Four patients from two families had TK2 mutations, and none had dGK mutations. Two siblings were compound heterozygous for a H90N and a T77M mutation. Other siblings had a homozygous I22M mutation, one having spinal muscular atrophy