

In studies at the NIH, childhood-onset schizophrenia is characterized by region-specific progressive cortical gray matter loss in parietal, frontal, and temporal regions. A "wave" of back-to-front tissue loss, early parietal followed by frontal and temporal gray matter loss, occurs in adolescence. Loss of gray matter slows in early adulthood. In contrast, two large studies of 57 boys and 50 girls with ADHD showed smaller brain size, abnormal caudate, and decreased volume of the posterior inferior cerebellar vermis, when compared to 105 matched controls. Anatomical changes in patients with ADHD support a postulated dysfunction of cerebellar-striatal-prefrontal brain circuits. Although results of MRI studies at present are promising, they are not sufficiently homogeneous to indicate routine brain MRI in childhood neuropsychiatric disorders. (Gogtay N, Giedd J, Rapoport JL. Brain development in healthy, hyperactive, and psychotic children. Arch Neurol August 2002;59:1244-1248). (Reprints: Judith L Rapoport MD, Child Psychiatry Branch, National Institute of Mental Health, National Institutes of Health, Bldg 10, Rm 3N202, 10 Center Dr, MSC 1600, Bethesda, MD 20892).

COMMENT. These large prospective MRI studies of the brains of hyperactive, autistic, and healthy children and adolescents, undertaken at the NIH since 1990, have uncovered subtle structural changes in brain development that supplement postmortem findings and are potentially significant in diagnosis and management.

**Impaired activation of prefrontal-temporal regions demonstrated by PET studies in autistic subjects** at the Wellcome Department of Cognitive Neurology, London, UK (Castelli F, Frith C, Happe F, Frith U. Autism, Asperger's syndrome and brain mechanisms for the attribution of mental states to animated shapes. Brain August 2002;125:1839-1849). While watching animated sequences depicting two triangles moving interactively, a 'mentalizing' effect that is normally associated with specific brain activation is impaired in autistic compared to control subjects. It is theorized that autism is the result of impaired mentalizing, and is characterized by a lack of social insight and poor communicative skills (Baron-Cohen et al. 1985).

## HEADACHE DISORDERS

### **PRACTICE PARAMETERS FOR EVALUATION OF HEADACHE**

The Quality Standards Subcommittee of the American Academy of Neurology and the Practice Committee of the Child Neurology Society have developed practice parameters for evaluation of children and adolescents with recurrent headaches. Individual committee members reviewed titles and abstracts for content and relevance. Articles selected included studies with more than 25 patients, those with details of a neurologic examination, and those concerning etiology. Of those reviewed, only one study reported results of laboratory tests and none concerned the role of routine lumbar puncture. Eight studies assessed the use of EEG in 1,148 children with recurrent headache, but none compared the incidence of EEG abnormalities in migraine vs nonmigraine pediatric headache patients.

EEG was not recommended for routine evaluation, even in patients suspected of having seizure-related headaches. Neuroimaging should only be considered in patients with an abnormal neurologic examination or findings suggesting CNS disease. Predictors of a space-occupying lesion included: 1) recent-onset or change in type of severe headaches; 2) absent family history of migraine; 3) abnormal neurologic exam; 4) gait abnormalities; and 5) seizures.

Controlled prospective studies are needed to define risks for serious intracranial disease with recurrent headaches, to define the role of laboratory tests, and the value of neuroimaging in patients with normal neurologic exam. The AAN and CNS attach a disclaimer recognizing that each patient is an individual with different circumstances and specific diagnostic indications. (Lewis DW, Ashwal S, Dahl G et al. Practice parameter: Evaluation of children and adolescents with recurrent headaches. Report of the Quality Standards Subcommittee of the American Academy of Neurology and the Practice Committee of the Child Neurology Society. Neurology August (2 of 2) 2002;59:490-498). (Reprints: American Academy of Neurology, 1080 Montreal Avenue, St Paul, MN 55116).

COMMENT. The committee concluded that the diagnosis of recurrent headaches is made on a clinical basis and not by routine tests. Diagnostic studies such as neuroimaging are not recommended in the absence of associated risk factors and an abnormal neurologic examination.

The committee wisely attached a disclaimer regarding these recommendations which should not be accepted as all inclusive. For example, in deciding on the necessity for neuroimaging, the luxury of follow-up evaluation and observation over time may not be available to the neurologist who examines a patient in consultation. Deferral of neuroimaging may not always be practical or judicious. (Millichap JG. Progress in Pediatric Neurology III, 1997;p186). In particular, headaches in children younger than 4 years may pose a diagnostic problem. Straussberg R, Amir J (Arch Neurol 1993;50:130) report 5 young children with headache as the first symptom of intracranial tumor, and a normal initial neurologic examination, including the fundi. These authors stress the need for neuroimaging studies in young children with recent-onset recurrent headaches, even when the neurologic exam is normal.

An EEG study in 100 consecutive children with recurrent headaches, migrainous and nonmigrainous, apparently not qualifying for inclusion in the Committee selection criteria, found epileptiform EEGs in 18% of the total group and with the same incidence in the migraine group. The EEG did not distinguish migraine from nonmigraine patients. (Millichap JG. Child's Brain 1978;4:95-105). A trial of phenytoin in 30 children with migraine in this study demonstrated a beneficial response to the anticonvulsant in 77%. In 13 with abnormal and 17 with normal EEGs, the beneficial response rates were 61% and 88%, respectively. Response to phenytoin was not significantly correlated with an abnormal EEG. Alternative anticonvulsants are now recommended in the prophylactic treatment of migraine, independent of EEG findings or associated seizures.

## MOVEMENT DISORDERS

### **TICS AND ASSOCIATED BEHAVIORAL DISORDERS**

The prevalence of tic disorders and comorbid psychopathologies was determined in a community-based study of 1596 school children (age 9 to 17 years) conducted at the University of Rochester School of Medicine and Dentistry, NY. Using a standard psychiatric interview and standardized rating scales to diagnose behavioral disorders, 339 patients with tics were identified. Psychopathologies occurring more commonly ( $p < 0.05$ ) in children with tics included OCD, ADHD, separation anxiety, overanxious disorder, simple phobia, social phobia, agoraphobia, mania, major depression, and ODD. ADHD occurred in 38.4% of children with tics and 19.5% without tics ( $p < 0.0001$ ). Prevalence of OCD was 10.9% with, and 7.4% without tics ( $p = 0.04$ ); ODD 17.4% with, and 9.7% without tics