

# PEDIATRIC NEUROLOGY BRIEFS

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## SEIZURE DISORDERS

### ANTECEDENTS OF FEBRILE SEIZURES

Prenatal and perinatal characteristics as possible risk factors for febrile seizures were reviewed by analysis of the data from the collaborative perinatal project of the National Institute of Neurological Disorders and Stroke at the Neuroepidemiology Branch, Bethesda, MD. Family history was the major factor identified as contributory to febrile seizure vulnerability. Both febrile and nonfebrile seizures in the mother were related to an increased tendency to febrile seizures in the child. Glomerulonephritis during the pregnancy was also associated with a risk exceeding 10%. The number of hospitalizations and the number of cigarettes smoked during pregnancy showed a trend but less than twofold increase in risk of febrile seizures in the child. Socioeconomic status was inversely related to risk of febrile seizures in white children. Respiratory distress syndrome and degree of respiratory difficulty showed odds ratios greater than 2; sepsis and errors of metabolism had odds ratios exceeding 4; breech delivery, cesarean section, low Apgar scores, birth weight 2500 grams or less, and feeding problems had odds ratios higher than 1. The authors considered that no complication of labor or delivery was an important risk factor for febrile seizures. (Nelson KB, Ellenberg JH. Prenatal and perinatal antecedents of febrile seizures. Ann Neurol Feb 1990; 27:127-131).

COMMENT. The authors indicate that several earlier reports have shown that abnormalities in perinatal histories were relatively frequent in children with febrile seizures but the studies were not controlled. Of a total of 3427 patients

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reported in 19 studies between 1933-1963 17% showed evidence of possible brain injury caused by trauma or anoxia as an antecedent of febrile seizures. The evidence for brain injury at birth was often presumptive and equivocal, but the agreement among figures quoted in the 19 series of patients was remarkable. (Millichap JG. Febrile convulsions. New York: MacMillan, 1968). In reports that analyzed complicated cases compared to those having febrile seizures alone the incidence of birth injury was not significantly changed by this arbitrary division of patients. Trauma or anoxia at birth was a frequent finding in the history of the febrile convulsive disorder and was implicated with equal frequency in patients with simple febrile seizures and those with complex febrile seizures. In the present NIH study the antecedents of complex febrile seizures were not distinguished from those of simple febrile seizures. The authors indicate that some relationships not uncovered in the study of the total cohort of febrile seizures might emerge in an analysis of clinically defined subsets.

#### PREDICTORS OF RECURRENT FEBRILE SEIZURES

The results of 14 published reports were analyzed to evaluate the strength of association between proposed risk factors and recurrence of febrile seizures in a metaanalytic review from the Departments of Pediatrics and Epidemiology and Public Health, Yale University School of Medicine, New Haven, CT; Montefiore Medical Center, The Albert Einstein College of Medicine, Bronx, New York; and Columbia University College of Physicians and Surgeons, New York, NY. Young age at onset (less than one year) and a family history of febrile seizures each distinguished between groups with approximately a 30% versus a 50% risk of recurrence. Family history of afebrile seizures, focal, prolonged, and multiple seizures were associated with an inconsistent or only a small increment in risk of recurrence. Only one of five indications for anticonvulsant prophylaxis as defined by the 1980 NIH Consensus Developmental Conference was consistently predictive of a recurrence of febrile seizures. (Berg AT et al. Predictors of recurrent febrile seizures: A metaanalytic review. J Pediatr March 1990; 116:329-337).

**COMMENT.** The risk factors and indications for long term phenobarbital prophylaxis of febrile seizures need to be reconsidered. Therapeutic guidelines may be helpful but the decision to treat must be made on an individual basis. Greater reliance on parental education and intermittent therapy should lessen the necessity for long term therapy with potentially toxic medications.

#### BIOMAGNETOMETRY IN SEIZURE LOCALIZATION

Biomagnetometry was discussed at the 75th Annual Meeting of the Radiological Society of North America. Unlike ultrasound, CT, and MRI (which provide anatomic information) and PET (metabolic information), biomagnetic imaging provides spatial and temporal data on the electrical activity of the brain. It may help locate the foci of