completely normal EEG within two weeks of starting treatment in a nine year old child. Three to six years after discontinuing therapy the children are off anticonvulsant medication and free from seizures and language disability. (Lerman P et al. Effect of early corticosteroid therapy for Landau-Kleffner syndrome. Dev Med Child Neurol March 1991; 33:257-266).

COMMENT. These results are encouraging and warrant further trials of hormone therapy in children with the aphasic epilepsy syndrome. As in the treatment of West syndrome, corticosteroids administered early are more effective than delayed treatments.

Hypsarrhythmia is not a sine qua non for ACTH therapy. Two children, aged 3 years and 2 years 8 months with status absence and generalized tonic-clonic seizures refractory to anticonvulsant medication were benefitted by ACTH 10 units intramuscular daily. Control of seizures, improvement in the EEG, and a dramatic recovery of mental and motor abilities occurred within two hours of the first injection in one patient and seizure control and EEG improvement occurred in the second after a three week course of therapy. Further trials of ACTH in children with seizures other than infantile spasms are recommended. (Millichap JG. Neurology March 1991; 41 (Suppl 1):201).

SEIZURE ETIOLOGY IN DOWN SYNDROME

The etiology of seizures in 47 infants, children, and young adults with Down syndrome was examined at The Floating Hospital for Infants and Children, Boston, MA and the Institute for Basic Research in Developmental Disabilities, Staten Island, NY. Of a total of 737 patients with Down syndrome, 47 (6%) had seizures; and 24 had an identifiable etiology usually related to a complication of Down syndrome, including neonatal hypoxia-ischemia, hypoxia from congenital heart disease, or infection. The infections were bacterial meningitis 3, viral meningoencephalitis in 1, brain abscess 1, febrile seizures 2. The patterns of the seizures in those of known etiology were generalized tonic-clonic in 18, infantile spasms in 2, myoclonic 2, absence 1, simple partial 3, and complex partial 1. Mixed partial and generalized seizures occurred in 2. Of 12 patients with seizures related to cardiovascular disease 4 died of complications of acute heart failure. Neonates with hypoxic ischemic injury had relatively poor outcomes. The authors recommend that all Down syndrome patients with seizures be thoroughly evaluated to determine the etiology. (Stafstrom CE et al. Seizures in children with Down syndrome: Etiology, characteristics and outcome. Dev Med Child Neurol March 1991; 33:191-200).

COMMENT. Febrile seizures occurred in only two (0.9%) of the author's patients during the susceptible age range. The relative rarity of febrile seizures in Down syndrome is contrasted with the relatively frequent occurrence of infantile spasms. Wisniewski KE, one of the authors, has previously studied the arrest of neurogenesis and synaptogenesis in brains of patients with Down syndrome. (N Engl J Med 1984; 311:1187). Long necked

dendritic spines persist after birth suggesting a dysgenetic process, and neuronal membranes in Down syndrome are abnormally hyperexcitable. The mechanism of increased susceptibility to seizures in children with Down syndrome may involve an interplay between hyperexcitable membranes, altered dendritic spines, and reduction of inhibitory interneurons. The present study suggests that seizures in patients with Down syndrome are frequently caused by additional factors including hypoxia and infection.

The prevalence, onset, and type of seizure disorders and seizure control were studied in 405 individuals with Down syndrome aged six months to 45 years at the Departments of Pediatrics and Neurology, Rhode Island Hospital, Providence, RI. The prevalence of seizures in this group of patients was 8.1%. The onset of seizures occurred before one year of age in 40% and in the third decade of life in another 40%. Infantile spasms and tonic-clonic seizures with myoclonus were most common in the younger age group and partial simple or partial complex seizures and tonic-clonic seizures occurred in the older patients. A bimodal distribution of seizures in patients with Down syndrome was noted. (Pueschel SM et al. Seizure disorders in Down syndrome. Arch Neurol March 1991; 48:318-320).

HEADACHE DISORDERS

MANAGEMENT OF HEADACHE: A DEVELOPMENTAL PERSPECTIVE

Developmental issues related to the assessment and treatment of childhood headache are discussed from the Department of Psychology, University of South Alabama, Mobile, Alabama. The three major areas of development are cognitive, self-regulation, and psychosocial development. Young children use "what", "where", and "who" before they can use "how", "why", and "when". "What is a headache?" is more likely to produce an intelligible response than "How do people get headaches?" Knowing the child's explanation of headache will help provide better explanations of medical and psychological procedures for children. Children's reports of the quality of headache pain are variable and may be exaggerated in the 9 to 11 age group and minimized in the 6 to 8 year olds. The headache record is the predominant outcome measure for determining treatment success, and the diary format should divide the day according to relevant and easily remembered events of meals and bedtime. An open ended format for measuring intensity such as a vertical thermometer scale is preferred to a fixed response scale of 0-5 that assumes equal increments in intensity. Headache duration might be compared to the length of a favorite television show, recess, or other activity rather than actual time estimates which may be problematic for children. "Before" and "after" are confusing for preschoolers although they understand the concepts of "first" and "last".

A shift from an external health locus of control to the acknowledgement of one's own role in headache control occurs with increasing