

Belfast Hospital for Sick Children, Northern Ireland. Theophylline blood level was elevated to 108 mcmol/l (30 mcmol above therapeutic level). Spasms stopped and EEG became normal when nitrazepam was started and theophylline was discontinued. Nitrazepam was withdrawn at 10 months, the sleep EEG was normal at 14 months, and seizures had not recurred at 3 year follow-up. (Shields MD et al. Infantile spasms associated with theophylline toxicity. Acta Paediatr Feb 1995;84:215-217). (Respond: Dr MD Shields, Department of Child Health, Royal Belfast Hospital for Sick Children, 180 Falls Rd, Belfast BT12 6BE, Northern Ireland).

COMMENT. A direct causal relationship was considered probable because of the close temporal association of spasms and a toxic level of theophylline and the complete remission when the drug was discontinued. A dose of 6-8 mg/kg/day theophylline is usually recommended for infants <7 months of age with asthma. The toxic dose in this patient was 16 mg/kg/day.

Infantile spasms in 5 children (4 symptomatic) persisted to 5 to 14 years of age in a report from the Steele Memorial Children's Research Center, University of Arizona, Tucson (Talwar D, Griesemer DA et al. Epilepsia Feb 1995;36:151-155).

MECHANISMS OF ABSENCE SEIZURES

A unifying hypothesis for the pathogenesis of absence seizures, involving the thalamocortical circuitry, is proposed in a neurological progress report from the University of Southern California School of Medicine, Childrens Hospital Los Angeles. Abnormal oscillatory rhythms generated in the circuit involve g-aminobutyric acid (GABA)_B-mediated inhibition alternating with glutamate-mediated excitation which triggers a low-threshold calcium current in neurons of the nucleus reticularis thalami. The process is modulated by pathways utilizing various neurotransmitters and projected onto the thalamus and cortex, generating bilaterally synchronous spike wave discharges and absence seizures. Ethosuximide and trimethadione block absence seizures by reducing the low-threshold calcium current via a direct action at the T-type calcium channel. Other anti-absence seizure medications have indirect effects on this calcium current within the thalamus. (Snead OC III. Basic mechanisms of generalized absence seizures. Ann Neurol Feb 1995;37:146-157). (Respond: Dr Snead, Box 82, 4650 Sunset boulevard, Los Angeles, CA 90027).

COMMENT. A knowledge of the mechanisms of absence seizures should facilitate the development of more specific antiepileptic medications and the avoidance of drugs (eg. phenytoin and carbamazepine) that exacerbate absence attacks. For an excellent review of mechanisms of antiepileptic drug action see Talwar D, 1990, and commentary, Progress in Pediatric Neurology 1, 1991, pp94-5.

MECHANISM OF OPSOCLONUS-MYOCLONUS SYNDROME

Cerebrospinal fluid measurements of the serotonin metabolite 5-hydroxyindoleacetic acid (5-HIAA) and the dopamine metabolite homovanillic acid (HVA) in samples from 27 children with opsoclonus-myooclonus syndrome and 47 controls are reported from the National Pediatric Myoclonus Center, Children's Research Institute, Washington, DC, and other centers. The mean age at onset was 1.5 years, and patients were symptomatic for 3 years before

evaluation. Treatment with ACTH in 65% of patients had been discontinued for a mean of 27 months before collection of CSF. The etiology was paraneoplastic (46%) or infectious. EEGs were not epileptiform. Concentrations of 5-HIAA and HVA were 30-40% lower in patients compared to controls. Biochemical heterogeneity was evident since low CSF levels of 5-HIAA were not found in all patients with opsoclonus. Lowest values were present in younger patients < 4 years of age, when control values were at their highest, suggesting an impairment of ontogenesis of central serotonergic systems. (Pranzatelli MR et al. Cerebrospinal fluid 5-hydroxyindoleacetic acid and homovanillic acid in the pediatric opsoclonus-myoclonus syndrome. Ann Neurol Feb 1995;37:189-197). (Respond: Dr Pranzatelli, National Pediatric Myoclonus Center, Children's Research Institute, 111 Michigan Avenue, NW, Washington, DC 20010).

COMMENT. Opsoclonus and myoclonus have been induced by various neurotransmitters and chemicals that alter serotonergic or noradrenergic mechanisms, eg. tricyclic antidepressants, and the chlorinated insecticides, chlordecone and DDT. Low CSF 5-HIAA levels have also been reported in patients with progressive myoclonus epilepsy of the Unverricht-Lundborg type, and other myoclonic disorders.

LEARNING AND BEHAVIOR DISORDERS

AUDITORY EVOKED POTENTIALS IN ADD

Brainstem auditory evoked potentials (BAEPs) were performed on 114 children with attention deficit disorder (ADD) referred to the Assaf Harofeh Medical Center, and Sackler Faculty of Medicine, Tel Aviv University, Israel. The latencies of waves III and V and brainstem transmission time interval of waves I-III and I-V were longer in the study group compared to controls. Recordings of the latencies performed for each ear separately showed asymmetries of wave III in children with ADD. The results point to brainstem dysfunction in ADD. (Lahat E et al. BAEP studies in children with attention deficit disorder. Dev Med Child Neurol Feb 1995;37:119-123). (Respond: Dr Eli Lahat, Child Neurology Unit, Assaf Harofeh Medical Center, Zerifin 70300, Israel).

COMMENT. BAEP performed in children with ADD/ADHD during inactivity shows abnormalities and asymmetries that may be used as an objective diagnostic test for ADD. Previous studies have demonstrated the value of BAEP in the differentiation of subgroups of hyperactive children, non-delinquent versus delinquent types. (Satterfield JH et al. 1987; see Progress in Pediatric Neurology I, 1991, pp159-160).

ADHD IN ADOLESCENT MANIA. An association between adolescent mania and ADHD is reported from the Department of Psychiatry, University of Cincinnati College of Medicine. (West SA et al. Am J Psychiatry Feb 1995;152:271-273). Of 14 adolescent bipolar patients who were admitted to hospital for the treatment of acute mania or hypomania, 8(57%) also met the DSM-III-R criteria for ADHD. Patients with ADHD had a higher mean total score on the Young Mania Rating Scale than patients with bipolar disorder alone. This finding may have important implications regarding pharmacological therapy.