Marburg, Germany).

COMMENT. The addition of topiramate may have induced the VPA/TPM encephalopathy by the inhibition of carbonic anhydrase and cerebral glutamine synthetase. If correct, a combination of VPA and acetazolamide should be avoided. The addition of phenobarbital may also increase the risk of VPA/TPM encephalopathy by decreasing ammonia detoxification in the liver.

N-acetyl-glutamate synthetase deficiency explains VPA-Reye illness. A boy developed periods of paroxysmal crying resembling seizures, lethargy, ataxia and tremor at 2 1/2 years. His condition worsened after treatment with VPA. When examined at 4 years because of vomiting and jaundice, VPA was discontinued. Liver biopsy was compatible with Reye syndrome. Enzymatic analysis found a deficiency of N-acetyl-glutamate synthetase (NAGS). Treatment with carbamyl-glutamate and arginine was partially effective, liver function and neurologic signs improved but hyperammonemia persisted. The VPA had exacerbated the NAGS by further inhibiting carbamyl-phosphate synthetase. (Forget PPh, van Oosterhout M, Bakker JA et al. Partial N-acetyl-glutamate synthetase deficiency masquerading as a valproic acid-induced Reye-like syndrome. Acta Paediatr Dec 1999;88;1409-1411).

METABOLIC DISORDERS

NEUROLOGIC PRESENTATION OF MITOCHONDRIAL DISORDERS

Nervous system presentations in 42 children with mitochondrial disorders were analyzed by reviewing charts at the Wolfson Medical Center, Holon, and other centers in Israel. Mean age was 8 years; 2.8 yrs at presentation and 4.8 at diagnosis. Six died with neurologic deterioration, 4 of Leigh disease. Nervous system involvement was the first clinical presentation in 28 (66%) children: mental retardation or developmental delay occurred in 24; hypotonia in 18; autonomic manifestations in 18; seizures (generalized tonic-clonic) in 12; microcephaly in 12; cerebellar ataxia in 8; and choreoathetosis in 6 children. Unusual manifestations were stroke-like episodes in only 4; and headache, external ophthalmoplegia, autism, and hyperexplexia. Twenty five had an acute regression or progressive encephalopathy. Myopathy occurred in only 6.

Autonomic symptoms included gastrointestinal dysmotility and dysphagia in 6, central apnea in 6, cardiac irregularities in 4, neurogenic bladder in 3, and alternating anisocoria in 2.

Optic atrophy (5), retinitis pigmentosa (3), and sensorineural deafness (7) were presenting sensory signs.

CT or MRI in 33 patients showed hypodensities in the basal ganglia, thalamus, or brain stem in 7 patients, leukodystrophy in 2, hemiatrophy in 2, cerebral atrophy in 15 and cerebellar atrophy in 2. (Nissenkorn A, Zeharia A, Lev D et al. Neurologic presentations of mitochondrial disorders. J Child Neurol Jan 2000;15:44-48). (Respond: Dr Tally Lerman-Sagie, Pediatric Neurology Unit and Metabolic-Neurogenetic Clinic, Wolfson Medical Center, Holon, Israel 58100).

COMMENT. The most common neurologic presentations of mitochondrial disorders in children are developmental delay, abnormal muscle tone, and seizures, whereas characteristic symptoms including stroke-like episodes and ophthalmoplegia are rare. Unusual features include autism and hyperexplexia. In children presenting with a variety of complex neurologic symptoms, normal intelligence and normal serum lactic acid levels should not preclude a workup for

mitochondrial disease.

GAUCHER DISEASE TYPE IIIC, WITH OCULOMOTOR APRAXIA

Four siblings with consanguineous parents, presenting with oculomotor apraxia in early childhood, were diagnosed with Gaucher disease (GD) at 10 years of age, at King Faisal Specialist Hospital, Riyadh, Saudi Arabia. Slow horizontal saccades, compensatory head thrust, and reading disability in early childhood was followed by cardiovascular calcification at 10 years. Bone marrow biopsy showed Gaucher cells, and cultured fibroblast B-glucocerebrosidase was reduced to 10% of control levels. Genotype analysis in 2 patients showed homozygosity for D409H (1342G->C) mutation. The uniformity of symptoms and signs allowed classification of this variety of GD as the type IIIC. (Bohlega S, Kambouris M, Shahid M, Al Homsi M, Al Sous W. Gaucher disease with oculomotor apraxia and cardiovascular calcification (Gaucher type IIIC). Neurology Jan 2000;54:261-263). (Reprints: Dr Saeed Bohlega, Department of Neurosciences (MBC 76), King Faisal Specialist Hospital and Research Centre, PO Box 3354, Riyadh 11211, Saudi Arabia).

COMMENT. Oculomotor apraxia presenting in early childhood and progressive aortic and mitral valve calcification in adolescence are the distinctive clinical manifestations of Gaucher disease, type IIIC.

NEUROMUSCULAR DISEASE

SURAL NERVE AND NERVE CONDUCTION STUDIES IN GUILLAIN-BARRE SYNDROME

Sural nerve biopsy findings from 29 of 50 patients (median age, 4.75 yrs) with Guillain Barre syndrome (GBS), admitted to Beijing Children's Hospital, China, were correlated with nerve conduction studies, to determine the reliability of diagnosis of GBS subtypes. All 11 patients with acute motor axonal neuropathy (AMAN) had normal sural nerve biopsies, whereas all 3 cases classified electrophysiologically as acute inflammatory demyelinating polyneuropathy (AIDP) showed macrophage-mediated demyelination on biopsy. One patient with reduced sural sensory nerve action potentials and classified as acute motor sensory axonal neuropathy (AMSAN) had the greatest number of degenerating sensory nerve fibers on sural nerve biopsy. Nerve conduction studies are reliable in differentiating subtypes of GBS. (Lu JL, Sheikh KA, Wu HS et al. Physiologic-pathologic correlation in Guillain-Barre syndrome in children. Neurology Jan 2000;54:33-39). (Reprints: Dr Tony W Ho, Department of Neurology, Johns Hopkins Hospital, Pathology 509, 600 N Wolfe St, Baltimore, MD 21287).

COMMENT. The reliability of classification of Guillain-Barre syndrome subtypes on the basis of nerve conduction studies (NCS) is confirmed by sural nerve biopsy findings. NCS alone may be sufficiently diagnostic.

Epidemiological, clinical, and electrodiagnostic features of GBS variants were studied in 61 children, aged 14 months to 14 yrs, admitted to the Hospital Nacional de Pediatria, Buenos Aires. Two groups were identified by electrodiagnosis: 18 with AMAN, and 43 with AIDP. Those with AMAN were younger and 90% lived outside the metropolitan area, in rural areas without running water. In contrast, 50% of children with AIDP resided in Buenos Aires City. Poor hygienic conditions underly the increased incidence of AMAN in underdeveloped countries. (Paradiso G, et al. Ann Neurol Nov 1999;46:701-707).