surviving the neonatal period, muscle weakness and respiratory function improved with increasing age. (Ryan MM, Schnell C, Strickland CD et al. Nemaline myopathy: a clinical study of 143 cases. Ann Neurol September 2001;50:312-320). (Respond: Dr Kathryn N North, Neurogenetics Research Unit, Children's Hospital at Westmead (Royal Alexandra Hospital for Children), Department of Paediatrics and Child Health, University of Sydney, Sydney, Australia).

COMMENT. Nemaline myopathy, first described by Shy and coworkers in 1963, is characterized by a slowly progressive, or static weakness and hypotonia of pelvic and other muscles, and threadlike, intracellular rods, staining red with modified trichrome stain, in muscle fibers. The term nemaline is derived from the Greek word *nema* or thread. Inheritance is autosomal dominant, recessive, or sporadic. Clinical classification of nemaline myopathy (NM) is determined by three factors: 1) respiratory function, 2) severity and distribution of weakness, and 3) motor milestones. *Severe congenital* subtype has clearly defined symptoms with a poor outcome. *Intermediate and typical congenital* subtypes are difficult to distinguish in infancy but can be separated in later childhood; patients with *typical congenital* NM crawl before 12 months and walk before 18 months, whereas *intermediate cases* are more delayed, the course is more progressive, and mortality is significantly higher. *Childhood- and adult-onset* cases have overlapping characteristics and a good prognosis. Prenatal expression of NM has been associated with fetal akinesia sequence (Lammens et al, 1997, cited by above authors), and frequent obstetric complications. Mortality, especially in severe and intermediate congenital subtypes, is almost invariably caused by respiratory insufficiency, and motor outcome is correlated with respiratory involvement. After the neonatal period, treatment of pulmonary infection and feeding problems can lower mortality. For earlier references to congenital nemaline myopathy, see Progress in Pediatric Neurology III, PNB Publ, 1997;pp349-351).

METABOLIC DISORDERS

GLUT-1 DEFICIENCY SYNDROME AND FAMILIAL EPILEPSY

A family with autosomal dominant Glut-1 deficiency syndrome (DS) affecting 5 members over 3 generations is reported from the University of Goettingen, Germany; and Columbia University, New York. Clinical and laboratory features of 2 brothers and a mother showed severe to mild seizures (nodding, eye rolling, jerking, and atonia, with loss of consciousness), delayed motor and mental development, severe to mild ataxia-dystonia or clumsiness, hypoglycorrhachia (<40 mg/dl; reduced CSF/blood glucose ratio (0.33, normal, 0.65)), and decreased erythrocyte 3-O-methyl-D- glucose uptake. Deceleration in head growth in early childhood was associated with greater neurological impairment in one brother. Fasting accelerated, whereas feeding carbohydrate delayed, neurological deterioration. Antiepileptic drugs were ineffective, and phenobarbital worsened infantile seizures (phenobarbital inhibits Glut-1 facilitated transport of glucose and dehydroascorbic acid). The ketogenic diet controlled seizures. A heterozygous R126H missense mutation was identified in the 3 patients tested. (Brockmann K, Wang D, Korenke CG et al. Autosomal dominant Glut-1 deficiency syndrome and familial epilepsy. Ann Neurol October 2001;50:476-485). (Respond: Dr Darryl C De Vivo, Department of Neurology, Laboratory for Pediatric Research, Columbia University, New York, NY 10032).

COMMENT. This is the first report of a familial multigenerational case of Glut-1 deficiency syndrome. De Vivo et al (1991) first described Glut-1 DS in 2 children and subsequently reported 20 patients with various mutations. Symptoms present in the first year, with delayed motor and mental development, worsened by fasting, seizures refractory to antiepileptic drugs (AED) and aggravated by phenobarbital, and hypoglycorrhachia. A spinal tap and CSF glucose determination are important in a diagnostic workup of infants and young children with AED-resistant seizures, developmental delay, and ataxia. A decreased erythrocyte 3-OMG uptake and demonstration of heterozygous GLUT-1 mutations confirm the diagnosis. Barbiturates and methylxanthines, found to aggravate the seizures, should be avoided, and the ketogenic diet is used in treatment, at least in early childhood. Patients may continue to suffer from episodic limpness, ataxia, and confusion.

RESPIRATORY FAILURE IN ACID MALTASE DEFICIENCY

Sleep-disordered breathing (SDB) and respiratory failure (RF) were studied in 27 patients with juvenile and adult acid maltase deficiency (AMD) and compared with polysomnography outcomes at the University of Essen, Germany. Ventilatory restriction was present in 17/27 patients, and inspiratory vital capacity correlated with peak inspiratory muscle pressure and gas exchange by day and night. Diaphragm weakness occurred in 13/27, and was associated with SDB and RF. SDB was characterized by REM-sleep hypopneas and nocturnal hypoventilation. Treatment of RF or hypoventilation with noninvasive ventilation corrected daytime and nocturnal gas exchange. (Mellies U, Ragette R, Schwake C et al. Sleep-disordered breathing and respiratory failure in acid maltase deficiency. Neurology October (1 of 2) 2001;57:1290-1295). (Reprints: Dr Uwe Mellies, Department of Pneumology/Sleep Medicine, Ruhrlandklinik, Tuschener Weg 40, D-45239 Essen, Germany).

COMMENT. Acid maltase deficiency (AMD), Type II glycogenosis or Pompe's disease, a rare hereditary myopathy, is an autosomal recessive glycogen storage disease that is complicated by heart, CNS and skeletal muscle dysfunction. It presents in childhood or in adults, and is slowly progressive, leading to respiratory failure and obstructive sleep apnea which may be fatal. In infants, acid maltase enzyme is deficient in lysosomes of heart, liver, and skeletal muscle, and glycogen is deposited in every tissue, including the CNS. First symptoms often appear by the second month and include difficulty in feeding, dyspnea, muscle weakness, and cardiac dysfunction, with marked cardiac enlargement. In late childhood and adult onset cases, organomegaly is absent, and muscle weakness is only slowly or nonprogressive, with involvement of lower limb proximal muscles. (Menkes JH, Textbook of Child Neurology, Lea & Febiger, 1980). The above paper stresses the role of diaphragm weakness as the major cause of respiratory failure in juvenile and adult cases of AMD, and the value of noninvasive ventilation in treatment of associated respiratory disorders.

DEGENERATIVE DISORDERS

IRON METABOLISM AND HALLERVORDEN-SPATZ SYNDROME

Hallervorden-Spatz syndrome (HSS) and iron metabolism are reviewed in a scientific workshop sponsored by the NIH and HSS Association in Bethesda, MD. First reported in 1922, the syndrome is now classified in 3 clinical types: 1) early-onset childhood types, rapidly or slowly progressive; 2) late-onset, 10-18 years of age, slowly progressive; and 3) adult type, slowly progressive. Obligate