METABOLIC DISORDERS

MAPLE SYRUP DISEASE: DIAGNOSIS AND THERAPY

Infants at high risk for maple syrup disease (MSD) were identified by family history and molecular testing for the Y393N mutation of the E1a subunit of the branched chain a-ketoacid dehydrogenase in a study at Johns Hopkins University School of Medicine, Baltimore, MD. Eighteen neonates with MSD were identified in the high-risk group (n=39) between 12 and 24 hours of age using amino acid analysis of blood specimens. Eighteen additional infants, biochemically intoxicated at diagnosis, recovered rapidly with treatment emphasizing enhancement of protein anabolism and dietary correction of amino acid imbalances. Plasma leucine levels decreased to <400 mcmol/L at 2 to 4 days after diagnosis. Infections caused loss of metabolic control, with cerebral edema, hyponatremia and decreased osmolarity in 4 patients, but all recovered and developmental outcomes were good. (Morton DH, Strauss KA, Robinson DL et al. Diagnosis and treatment of maple syrup urine disease: a study of 36 patients. Pediatrics June 2002;109:999-1008). (Reprints: D Holmes Morton MD, Clinic for Special Children, Box 128, Strasburg, PA 17579).

COMMENT. The authors describe a treatment program for MSD that provides a benign neonatal course, normal growth and development, and management without hospitalization. Common infection may provoke metabolic intoxication with cerebral edema and hyponatremia. Treatment must inhibit protein catabolism, sustain protein synthesis, prevent amino acid deficiencies, and maintain normal serum osmolarity.

MUSCLE DISEASES

MULTI-MINICORE AND CENTRAL CORE DISEASE

A genome-wide screening was conducted in a consanguinous Algerian family with 3 children with multicore disease at the Groupe Hospitalier Pitie-Salpetriere, Paris, France, and other centers. This recessive disease presented in infancy with moderate predominantly axial weakness, affecting pelvic girdle and hands, joint hyperlaxity, and multiple short-length core lesions (minicores) in both muscle fiber types. The disease was mapped to chromosome 19q13 in this family and in 3 additional families with a similar phenotype. In the Algerian family, a novel homozygous missense mutation (P3527S) was identified in the ryanodine receptor type 1 gene, responsible for autosomal dominant congenital myopathy central core disease. New muscle biopsies performed on reaching adulthood showed typical central core disease with rods. This subgroup of families linked to 19q13 is the first variant of central core disease with genetically proven recessive inheritance and transient early presentation as multi-minicore disease. (Ferreiro A, Monnier N, Romero NB et al. A recessive form of central core disease, transiently presenting as multi-minicore disease, is associated with a homozygous mutation in the ryanodine receptor type 1 gene. Ann Neurol June 2002;51:750-759). (Respond: Dr Ferreiro, INSERM U523, Institut de Myologie, Groupe Hospitalier Pitie-Salpetriere, 47 bd de l'Hopital, 75651 Paris, France).

COMMENT. Multi-minicore disease (MmD) and central core disease (CCD) are congenital myopathies that present with neonatal hypotonia, delayed motor development, and generalized muscle weakness and amyotrophy that are non- or