

## VASCULAR DISORDERS

### **ETIOLOGY OF BRAIN ATTACKS IN CHILDREN**

Investigators at the Royal Children's Hospital Melbourne, Australia, studied the presenting features, scope, and prevalence of conditions causing brain attack symptoms in children aged 12 months to 18 years presenting to a tertiary pediatric ED. Brain attack is defined as apparently abrupt-onset focal brain dysfunction. Exclusion criteria include epilepsy, hydrocephalus, head trauma, and isolated headache. Of 287 children (46% male) with 301 presentations over 17 months, 35% arrived by ambulance. Median symptom duration before arrival was 6 hours (range 2-28 hrs.); median time from triage to medical assessment was 22 min (range, 6-55 min). Common symptoms included headache, vomiting, focal weakness, numbness, visual disturbance, seizures, and altered consciousness. Common signs included focal weakness, numbness, ataxia, or speech disturbance. CT imaging in 30% was abnormal in 27%, and MRI in 31% was abnormal in 62%. Diagnoses included migraine (28%), seizures (15%), Bell palsy (10%), stroke (7%), and conversion disorders (6%). Relative proportions of conditions in adults (obtained by meta-analysis) and children differed significantly for stroke, migraine, seizures, and conversion disorders. Brain attack etiologies in children differ from those in adults; stroke is a relatively infrequent diagnosis (7%) in children and accounts for 73% of cases in adults. (Mackay MT, Chua ZK, Lee M, et al. Stroke and nonstroke brain attacks in children. *Neurology* 2014 Apr 22;82(16):1434-40).

COMMENTARY. Migraine is the most common stroke mimic in children, accounting for more than one-quarter of cases, whereas in adults it accounts for less than 3% of cases.

**Transient ischemic attacks requiring hospitalization in children.** Using a Kids' Inpatient Database, TIA was the primary diagnosis for 531 children, and secondary diagnoses and risk factors for TIA included sickle cell disease (20%), congenital heart disease (11%), migraine (12%), moyamoya disease (10%), and stroke (4%). Mean length of hospital stay decreased from 3.0 days in 2003 to 2.3 days in 2009. During the same period, pediatric admissions for ischemic stroke (n=2590) were ~5-fold more common than for TIA; 4.8 children with stroke were admitted for every child with TIA [1].

#### **References.**

1. Adil MM, et al. Stroke. 2014 Mar;45(3):887-8.

### **MELAS, STROKE-LIKE EPISODES AND KETOGENIC DIET**

Investigators at University of Toronto and McMaster University, Canada, report a 22-year-old woman with multiple episodes of status epilepticus and migratory cortical stroke-like lesions. Ketogenic diet and magnesium resulted in seizure freedom and decrease in frequency of stroke-like episodes following improvement of mitochondrial dysfunction. Initial mitochondrial genetic testing was negative. Diagnosis was established by muscle biopsy for mitochondrial genome sequencing, demonstrating a mitochondrial DNA disease-causing mutation. (Steriade C, Andrade DM, Faghfoury H, Tarnopolsky