

MOVEMENT DISORDERS

TICS, OCD AND STREPTOCOCCAL INFECTION (PANDAS)

Forty matched pediatric autoimmune neuropsychiatric disorders associated with streptococcal infections (PANDAS) case-control pairs were prospectively evaluated clinically and with testing for group A b-hemolytic streptococcus for an average of 2 years, in a study at University of Rochester School of Medicine, New York; and WHO Streptococcal Reference Laboratory, Minneapolis, MN. Chronic tic and/or obsessive-compulsive disorder exacerbations were more frequent and were accompanied by a significantly higher rate of group A b-hemolytic streptococcus infection than controls. Five of 64 exacerbations were temporally associated (within 4 weeks) with a group A b-hemolytic streptococcus infection in cases, but >75% of exacerbations in cases were not associated with strep infection. PANDAS represents a subgroup of tic/OC disorders susceptible to exacerbations precipitated by strep infection, but other antecedent events may also be causative. A family history of rheumatic fever was significantly higher in PANDAS cases than in controls (22.5% vs 5.3%; $P=0.03$). The separation of tic or OC disorders based on symptom precipitants requires validation by further studies. (Kurlan R, Johnson D, Kaplan EL, Tourette Syndrome Study Group. Streptococcal infection and exacerbations of childhood tics and obsessive-compulsive symptoms: a prospective blinded cohort study. *Pediatrics* June 2008;121:1188-1197). (Respond: Roger Kurlan MD, University of Rochester School of Medicine, Mt Hope Professional Building, 1351 Mt Hope Ave, Ste 100, Rochester, NY 14620. E-mail: roger.kurlan@urmc.rochester.edu).

COMMENT. Children with PANDAS are a subgroup of patients with tic disorder or obsessive-compulsive disorder whose symptoms are exacerbated by a susceptibility to group A b-hemolytic streptococcus infection (GABHS). The authors suggest that the increased susceptibility to GABHS may represent a genetic vulnerability or infection with strains that induce autoimmune manifestations. Further research involves environmental precipitants of tics other than GABHS, including alternative infections, and emotional stress factors. Trials of antimicrobial agents in prevention or treatment of tic exacerbations may also be considered.

PERIODIC LIMB MOVEMENTS OF SLEEP (NOCTURNAL MYOCLONUS)

The prevalence and clinical correlates of pediatric periodic limb movements of sleep (PLMS) were identified by polysomnography in children attending St Christopher's Hospital for Children, Philadelphia, PA. Of 982 polysomnograms, 77 showed PLMS, a prevalence of 7.8%. Males outnumbered females, 47 to 30. Mean age was 9.4 +/- 4.2 years (range, 1-19 years). Rapid eye movement sleep constituted 16.8% and slow-wave sleep 22% of sleep time. Associated diagnoses included obstructive sleep apnea in 36 (46.8%), ADHD in 10 (13%), migraine in 7 (9.1%), seizures in 7 (9.1%), narcolepsy in 7 (9.1%) and autistic spectrum disorder in 5 (6.5%). Serum ferritin was decreased (mean 26.1 microg) in 29 (96.6%), but the degree of decrease did not correlate with severity of PLMS. Data regarding

the efficacy of oral iron in treatment was not available. (Bokkala S, Napalinga K, Pinninti N, et al. Correlates of periodic limb movements of sleep in the pediatric population. **Pediatr Neurol** July 2008;39:33-39). (Respond: Dr Sanjeev V Kothare, Department of Neurology, Children's Hospital Boston, Harvard Medical School, Fegan 9, 300 Longwood Avenue, Boston, MA 02115. E-mail: sanjeev.kothare@childrens.harvard.edu).

COMMENT. The significance of periodic limb movements of sleep is controversial, some authorities dismissing the movements as a normal variant of arousal patterns, not associated with disturbed sleep and not requiring treatment. (Mahowald MW. **Con J Clin Sleep Med** 2007;3:15-17). Sir Charles Symonds who first described the entity as nocturnal myoclonus affecting 5 adult patients, regarded the movements as a variant of epilepsy (Symonds CP. **J Neurol Neurosurg Psychiatry** 1953;16:166-171). EEGs obtained in 3 patients uncovered bioccipital slowing in one but none showed epileptiform discharges.

TRAUMATIC BRAIN INJURY

EXECUTIVE FUNCTIONING AFTER TRAUMATIC BRAIN INJURY

The Behavior Rating Inventory of Executive Function (BRIEF), a caregiver-report questionnaire, was used to measure changes in executive function in the first year after traumatic brain injury (TBI) in a study of children, aged 5 to 15 years, at University of Minnesota, Minneapolis, and Johns Hopkins University School of Medicine, Baltimore, MD. BRIEF reports were obtained at baseline (retrospectively), and at 3 months and 1 year after injury in 330 children with mild-to-severe TBI and in 103 controls with orthopedic fractures. Children with TBI had more dysfunction than controls on the Global Executive Composite at 3 months after injury, and on the Behavioral Regulation Index, Metacognition Index, and Global Executive Composite at 1 year after injury. Between 18% and 38% of children with TBI had significant executive dysfunction in the first year after injury, children with more severe TBI having the greater dysfunction. Only 8% to 10% of children with orthopedic fractures showed executive dysfunction in the year after injury. The working memory scale was the only scale to discriminate between controls and all 3 TBI severity groups at both 3 and 12 months after injury. Predictors of greater Global Executive Composite dysfunction were preexisting learning/behavior problems, lower respondent education, and poor family functioning. More systematic screening for executive dysfunction after TBI is recommended to increase recognition of cognitive disability, especially in patients with preinjury learning and behavior disorders and in dysfunctional families. (Sesma HW, Slomine BS, Ding R, McCarthy ML, and CHAT Study Group. Executive functioning in the first year after pediatric traumatic brain injury. **Pediatrics** June 2008;121:e1686-e1695). (Respond: Heather Whitney Sesma PhD, University of Minnesota, Department of Pediatrics, Mayo Mail Code 486, 420 Delaware Street SE, Minneapolis, MN 55455. E-mail: hwsesma@umn.edu).

COMMENT. Executive functioning, or the ability to perform sustained, goal-directed, multiple-step skills while inhibiting inappropriate behavior, is dependent on intact frontal-striatal brain circuits. Executive functioning is impaired following TBI that interrupts these frontal lobe connections; the more severe the injury, the greater the degree of executive dysfunction. The BRIEF questionnaire is more valid than performance-based, distraction-free