

## INFECTIOUS DISORDERS

### POST-VARICELLA ANGIOPATHY

A 4-year-old male child who presented with right middle cerebral artery (MCA) infarction 2 months after varicella is reported from the University of British Columbia, Children's Hospital, Vancouver, Canada. He awoke from sleep complaining of nausea, vomited, and within 30 minutes developed left facial, arm, and leg weakness that partially resolved over 4 hours. On admission, he had a left hemiparesis and a right gaze preference. CT demonstrated the right MCA infarction. Cerebral angiography with catheterization of all major arteries 48 hours after admission showed an isolated 89% stenosis of the proximal right MCA. Within 24 hours he deteriorated acutely, with coma and a left focal seizure. Attempts to control raised intracranial pressure with mannitol and hyperventilation were unsuccessful. At surgery to relieve transtentorial herniation, infarcted brain tissue was evacuated. Pathologic studies showed small vessel vasculitis, lymphocytic infiltration, and white matter demyelination. No viral inclusions were identified, and immunohistochemical staining was negative for herpes simplex virus. Polymerase chain reaction on brain tissue was negative for varicella. After surgery he developed decorticate posturing and a right fixed dilated pupil. At 2 year follow-up he was severely incapacitated with spastic quadriplegia, bulbar dysfunction, and cortical visual impairment. (Hayman M, Henderson G, Poskitt KJ, Connolly MB. Postvaricella angiopathy: report of a case with pathological correlation. *Pediatr Neurol* May 2001;24:387-389). (Respond: Mary B Connolly MB, Division of Neurology, British Columbia's Children's Hospital, 4480 Oak Street, Vancouver, BC, V6H 3V4, Canada).

COMMENT. The present case of middle cerebral artery infarction was considered to be a late complication of the mild varicella infection occurring 2 months previously. Angiography that was followed by an acute deterioration of the stroke, with massive brain swelling and coma, failed to reveal stenosis and beading, signs of vasculitis that were evident in small vessels on pathological examination. The value of cerebral angiography in cases of acute stroke with suspected vasculitis is questionable. Several case reports are cited that demonstrate an association between "idiopathic" arterial strokes in childhood and varicella infection.

## ATTENTION DEFICIT AND COGNITIVE DISORDERS

### SENSORY MODULATION DYSFUNCTION IN ADHD

Sensory processing and reactivity were studied in 26 children with attention deficit hyperactivity disorder (ADHD) (mean age 8.3 years, 18 males, 8 females) and 30 normal controls at the University of Colorado Health Sciences Center, Denver, CO. Responses to repeated sensory stimuli (olfactory, visual, auditory, tactile, and vestibular) were measured by electrodermal (EDR) conductance. Parental observations of sensory, emotional, and attentional disorders were recorded by the Short Sensory Profile (SSP) test, the Leiter International Performance Scale-Revised, Parent Rating subscales, and a Child Behavior Checklist (CBCL) of Achenbach. Children with ADHD showed abnormalities in sensory modulations by both the laboratory EDR measures and parent reports. Variability in responses was also greater among ADHD subjects compared to controls. Levels of sensory modulation dysfunction (SMD), especially

tactile sensitivity on the SSP, were highly correlated with measures of psychopathology on the CBCL, including aggressive and delinquent behavior and concerns about body and health. The authors propose two distinct sensory subgroups within ADHD, one with normal sensory responses and one with SMD. (Mangeot SD, Miller LJ, McIntosh DN et al. Sensory modulation dysfunction in children with attention-deficit-hyperactivity disorder. Dev Med Child Neurol June 2001;43:399-406). (Respond: Lucy Jane Miller PhD OTR, Department of Rehabilitation Medicine, University of Colorado Health Sciences Center Research Office, 1901 W Littleton Boulevard, Littleton, CO 80120).

COMMENT. Sensory modulation is defined as the ability to regulate the degree and intensity of responses to sensory input, to optimize the performance and adaptation to the environment. Sensory modulation dysfunction (SMD) may present as sensation seeking or sensation avoiding behaviors. Seeking sensation behaviors include touching others too often or too hard, overactive and risky behavior, and repeated tapping or banging. Avoiding sensation behaviors are aggressive response or withdrawal from touch, fear of playground and car rides, over response to hugging and dislike for sports. Problems with sensitivity to stimuli such as touch may lead to emotional and behavior problems including aggressive responses. Treatments aimed at remediation of SMD among children with ADHD may prevent the development of comorbid oppositional defiance disorder.

### **CORTICAL LOCALIZATION OF READING IN NORMAL CHILDREN**

Brain regions involved in processing written text while reading were identified by fMRI in 9 right-handed normal children, ages 7.9 to 13.3 years. While reading Aesop's Fables and responding to a reading response naming test, the fMRI showed strong activation in the left middle temporal gyrus and left midfrontal gyrus and variable activation in left inferior frontal gyrus. Reading Aesop's Fables activated twice as many pixels in temporal cortex as the Read Response Naming task. Activation in the right middle temporal region was small. Reading text paradigms and fMRI may be useful in determining language dominance in children with epilepsy before surgery. (Gaillard WD, Pugliese M, Grandin CB et al. Cortical localization of reading in normal children. An fMRI language study. Neurology July (1 of 2) 2001;57:47-54). (Reprints: Dr WD Gaillard, Department of Neurology, Children's National Medical Center, 111 Michigan Ave NW, Washington, DC 20010).

COMMENT. Reading in normal children is lateralized and localized to specific brain areas by middle to late childhood. Strong laterality in left temporal receptive and anterior language areas is identified in right handed subjects. Some but lesser activation is also present in the homologous non-dominant right temporal cortex.

## **MUSCLE DISORDERS**

### **ACUTE ONSET INFANTILE SPINAL MUSCULAR ATROPHY**

Two infants who were asymptomatic at birth and presented at 3 and 6 months of age with acute onset generalized muscle weakness and hypotonia following respiratory infection are reported from the Schneider's Children Hospital, New Hyde Park, NY. A suspected diagnosis of Guillain-Barre syndrome and corroborating nerve conduction studies led to a trial of immunoglobulin