

COMMENT. The authors propose that their fMRI findings are compatible with a bilaterally distributed sensorimotor system in the preterm infant. The reductions of oxy/deoxy-Hb ratio in activated brain tissue may reflect ineffective neural processing during this maturational stage of rapid synapse formation. Positive blood oxygenation level-dependent responses or failure to activate the sensorimotor cortex in a preterm infant may predict abnormal cerebral development and need for careful follow-up. fMRI should provide a more effective measure of long-term developmental problems than the neonatal neurological exam.

CONGENITAL HYDROCEPHALUS RISK FACTORS

Risk factors associated with the pathogenesis of congenital hydrocephalus were evaluated in a 10 year retrospective study of 596 cases identified at the University of Mississippi Medical Center between 1998 and 2007. Significant risk factors included lack of prenatal care, multiparous gestation, maternal diabetes, maternal chronic hypertension, pregnancy-induced hypertension, and alcohol use during pregnancy. Hydrocephalus was familial in 12% cases. Except for an increased incidence of multiparous pregnancies and prenatal care in the first trimester in familial cases, no differences in risk factors were identified between sporadic and familial congenital hydrocephalus. The prevalence of familial cases within this cohort is much higher than that reported in X linked congenital hydrocephalus (2-7%), and suggests that the strong genetic factor in etiology is attributed to non-X linked patterns of inheritance. (Landingham MV, Nguyen TV, Roberts A, Parent AD, Zhang J. Risk factors of congenital hydrocephalus: a 10 year retrospective study. **J Neurol Neurosurg Psychiatry** February 2009;80:213-217). (Respond: Dr J Zhang, Department of Neurosurgery, University of Mississippi Medical Center, 2500 N State St, Jackson, MS 39216. E-mail: jhzhang@neurosurgery.umsmed.edu).

COMMENT. Both genetic and environmental factors are involved in the pathogenesis of congenital hydrocephalus. Some risk factors identified in this study should be susceptible to preventive measures, including improved prenatal care and nutrition, avoidance of alcohol, and prompt treatment of hypertension.

MODERATE PREMATURITY AND RISKS FOR CEREBRAL PALSY

The association between moderate prematurity and the incidence of adverse neurodevelopmental outcomes was assessed in a cohort of infants born in the Kaiser Permanente Medical Care Program of Northern California. Data covered 141,321 children born at >30 weeks gestation between Jan 1, 2000 and June 30, 2004, followed through Jan 30, 2005. Decreasing gestational age was associated with increased incidence of cerebral palsy (CP) and developmental delay (DD), even in those born at 34 to 36 weeks gestation. Late preterm infants were >3 times as likely to have CP as term infants. Children born at 34 to 36 weeks were marginally at higher risk of DD and mental retardation but not seizures. (Petrini JR, Dias T, McCormick MC, Massolo ML, Green NS, Escobar GJ. Increased risk of adverse neurological development for late preterm infants. **J Pediatr** February 2009;154:169-176). (Reprints: Joann R Petrini PhD MPH, March of Dimes National Office, 1275 Mamaroneck Ave, White Plains, NY 10605. E-mail: JPetrini@marchofdimes.com).

COMMENT. This study demonstrates an increased incidence of CP and DD/MR for children born moderately preterm. Late preterm infants should be examined neurologically and followed through early childhood to exclude or treat associated developmental learning disabilities. The risk of adverse neurodevelopmental delay or CP decreases with increasing gestational age.

MARKERS OF DEVELOPMENTAL SYNESTHESIA IN CHILDHOOD

The prevalence and development of grapheme-color synesthesia in children in the UK and US and its progression in longitudinal testing over 12 months (from ages 6/7 to 7/8) were studied at the Department of Psychology, University of Edinburgh, Scotland, UK. Individuals with synesthesia have the ability to merge sensory and/or cognitive functions. Everyday activities such as reading may trigger extraordinary experiences, eg colors or tastes. These atypical sensations arise spontaneously during development. In adults with synesthesia, a triggering stimulus (inducer) consistently triggers the same concurrent experience over time, referred to as the behavioral hallmark of synesthesia. Synesthetic experiences have anatomic and genetic roots. The average UK primary school has 2-3 grapheme-color synesthetes, and the average US primary school has 5. Synesthetic associations (eg. the letter "a"=carmine red) develop from chaotic pairings into a system of fixed cogno-sensory responses over time. Synesthesia has benefits and costs for the individual. Children who experience tastes from words read or spoken have difficulties in maintaining attention when reading, while grapheme-color synesthetes show superior color and digit memory. (Simner J, Harrold J, Creed H, Monro L, Foulkes L. Early detection of markers for synaesthesia in childhood populations. *Brain* Jan 2009;132:57-64). (Respond: Julia Simner, Department of Psychology, University of Edinburgh, 7 George Square, Edinburgh, EH8 9JZ, UK. E-mail: j.simner@ed.ac.uk).

COMMENT. In Webster, synesthesia is defined as a concomitant sensation, a subjective sensation or image of a sense (as of color) other than the one (as of sound) being stimulated. DeJong RN (*The Neurologic Examination*. 3rd ed, New York, Hoeber, 1967) uses the terms synesthesia, together with allachesthesia, allesthesia, and allochiria when the sensation of touch is experienced at a site remote from the point of stimulation. Neurologists have been aware of the phenomenon of synesthesia but, except for the neuropathologist, Yakovlev PI (*J Nerv Ment Dis* 1948;107:313-335), do not appear to acknowledge it as "an involuntary physical experience" that is real in the mind of the subject affected. Cytowic RE (*Psych* 1995;2(10) in a review of synesthesia describes the sensation as a cross-modal association, a familial trait, more common in females and non-right handed subjects. The neurological examination is usually normal. Synesthesia is considered a left hemisphere function, involving the hippocampus. Behavioral correlates include superior memory and weakened math and spatial perception. A recent resurgence in interest in synesthesia is led by the field of neuropsychology and cognitive science. A PubMed search uncovers 7 references on synesthesia, none authored by a neurologist. Usually regarded as rare, two studies estimate that 5% of the population may experience at least one type of synesthesia. Epileptologists might be interested to research the prevalence of synesthesia in patients with temporal lobe seizures.