

microemboli; 2) alterations in blood flow, distribution, and pressure; and 3) neuropsychological effects of neuroleptic drugs, anxiety, pain, and postoperative isolation. Some protection from cerebral injury is provided by hypothermia and drugs that decrease cerebral metabolism.

## CEREBRAL BLOOD VOLUME AFTER BIRTH ASPHYXIA

Cerebral hemodynamics and oxygenation in 18 perinatally asphyxiated neonates were compared with 13 healthy controls using near-infrared spectroscopy (NIRS) at the Dept of Pediatrics, University Hospital of Leiden, The Netherlands. Cerebral blood volume (CBV) in the first 12 hours of life was decreased in all of 9 severely asphyxiated neonates who subsequently developed neurologic abnormalities. This decrease in CBV was associated with a drop in HbO<sub>2</sub> and cytochrome oxidase. All patients showed stable CBV and enzyme patterns at 12 to 24 hours. The findings suggest that posthypoxic-ischemic reperfusion injury of the brain occurs during early neonatal life after severe birth asphyxia. (van Bel F et al. Changes in cerebral hemodynamics and oxygenation in the first 24 hours after birth asphyxia. Pediatrics Sept 1993;92:365-372). (Reprints: Frank van Bel MD, PhD, University Hospital Leiden, Neonatal Unit, Bldg 35, PO Box 9600, 2300 RC Leiden, The Netherlands).

**COMMENT.** The decrease in cerebral CBV, oxyhemoglobin, and cytochrome oxidase during the first 12 hours of life are indicators of decreased cerebral perfusion and oxygenation. The authors propose a possible relation between a decreased CBV and adverse neurologic outcome, suggesting a relation between cerebral hypoperfusion and brain tissue damage in severely asphyxiated neonates. NIRS may be used to monitor changes in CBV of neonates.

## CEREBRAL ULTRASOUND AND NEURODEVELOPMENT

The relations between lesions detected by ultrasound brain-imaging and neurodevelopmental outcome at 8 years in a cohort of 206 very preterm infants were studied at the Department of Paediatrics, University College and Middlesex School of Medicine, London. Scans were normal at discharge from hospital in 112 (54%), and of these, 4% developed major, disabling impairment and 22% had minor impairments. Uncomplicated periventricular hemorrhage (PVH) was diagnosed in 55 (27%), ventricular dilatation in 21 (10%), hydrocephalus developed in 5, and cerebral atrophy was found in 13 (6%). Disabling neurodevelopmental impairments, including epilepsy, mental retardation and cerebral palsy, were documented in 25 children at follow-up (12%). Ventricular dilatation and cerebral atrophy were significant independent predictors of impairment of neurodevelopment, of school performance or achievement, and of the WISC-R Full-scale and Performance subscale IQs. (Roth SC, Reynolds EOR et al. Relation between ultrasound