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INFECTIOUS DISORDERS

OUTCOME OF CONGENITAL CYTOMEGALOVIRUS INFECTION

The long-term neurodevelopmental outcome in 41 children with symptomatic congenital cytomegalovirus (CMV) infection was studied by investigators at Baylor College of Medicine and the Houston CMV Study Group. The median age at last follow-up was 5.7 years (range, 11 months-13 years). Neurologic abnormalities at birth included seizures in 7%, chorioretinitis (17%), microcephaly (19%), hearing loss (41%), intracranial calcifications (58%), and abnormal CT scan (78%). At follow-up, 29% had an intelligence/developmental quotient (IQ/DQ) of >90, and 24% had an IQ/DQ of 70-89. The IQ/DQ was <50 in 36%, and 36% had a major motor disorder. The most specific predictor of mental retardation and major motor disability was microcephaly, and the most sensitive predictor was a CT abnormality. The correlation between head size at birth and the IQ/DQ was highly significant ($P < .001$). Children with sensorineural hearing loss had lower IQ/DQ than those with normal hearing. (Noyola DE, Demmler GJ, Nelson CT et al. Early predictors of neurodevelopmental outcome in symptomatic congenital cytomegalovirus infection. *J Pediatr* March 2001;138:325-331). (Reprints: Gail J Demmler MD, Texas Children's Hospital, 6621 Fannin, MC 3-2371, Houston, TX 77030).

COMMENT. One third of children with symptomatic congenital CMV infection have a normal cognitive outcome. Microcephaly at birth is the most specific predictor of a poor cognitive outcome. The combination of a normal head circumference proportional to weight and a normal CT scan are predictive of a good cognitive outcome and an IQ/DQ > 70.

Time of maternal CMV infection and infant prognosis. CMV-infected infants born to mothers with recurrent infection and having antibody to CMV before conception have a significantly better prognosis than those with maternal primary CMV infection. A study at the University of Alabama (Fowler KB et al. *N Engl J Med* 1992;326:663-7) showed that infants in the primary-infection group had symptomatic CMV at birth in 18% and neurodevelopmental sequelae in 25%.

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whereas those born to mothers with immunity had no symptoms at birth and sequelae in only 8%, none with mental impairment. CMV is a common complication risk of infant liver transplantation. For further review of CMV infection, see [Progress in Pediatric Neurology II](#), PNB Publ, 1994;pp 412-3.

PROGNOSTIC VALUE OF EEG IN NEONATAL MENINGITIS

The value of an EEG performed soon (first week) after onset of neonatal bacterial meningitis in the prediction of adverse outcome at 1-19 year follow-up (mean, 4 yrs) was evaluated in 37 of 101 infants admitted and diagnosed with meningitis at the Hospital for Sick Children, Toronto, Canada. Causative organisms included Group B streptococcus in 23, and *Escherichia coli* in 7. Adverse outcomes occurred in 21 at 1 year and included developmental delay in 10, microcephaly (3), and seizures (3). Nine infants died, 8 in the neonatal period and 1 at 26 weeks of age.

Abnormal EEG background activity and overall description were predictive of adverse outcome, especially when EEGs were repeated. Univariate analysis showed that 14 of 16 patients with a good outcome at 1 year had a normal or mildly abnormal EEG at birth, whereas 19 of 21 with an adverse outcome had moderately to markedly abnormal EEGs. Outcome was not significantly correlated with abnormal focal or EEG seizure activity. (Klinger G, Chin C-N, Otsubo H, Beyene J, Perlman M. Prognostic value of EEG in neonatal bacterial meningitis. [Pediatr Neuro](#) Jan 2001;24:28-31). (Respond: Dr Max Perlman MB, FRCP, Neonatal Intensive Care Unit, Hospital for Sick Children, 555 University Ave, Toronto, Ontario, Canada M5G 1X8).

COMMENT. A moderately-to-markedly abnormal EEG performed within 1 week of onset of neonatal bacterial meningitis is predictive of an adverse outcome at 1 year follow-up. The EEG is also of prognostic value in older infants and children with meningitis.

Even with optimal treatment, one in four children who recover from meningitis are at risk of neurodevelopmental disorders and hearing impairment (Grimwood K et al. [Pediatrics](#) 1995;95:646-656). Seizures and EEG abnormalities during acute meningitis are predictive of late-onset seizures and permanent neurologic deficits (Pomerov SL et al. [N Engl J Med](#) 1990;323:1651-7). See [Progress in Pediatric Neurology II](#), 1994;pp423-424, for further review of neurologic sequelae of bacterial meningitis.

Age dependence of CSF protein concentration was demonstrated in a study of traditional criteria to exclude meningitis, at St Louis Children's Hospital, MO. CSF protein was highest and most variable in neonates (maximum 1.0 g/L), decreased rapidly to a nadir by 6 months (0.3 g/L), and gradually increased during adolescence toward adult values. Adult CSF reference values are inappropriate in the evaluation of neonates and children with suspect meningitis. (Wong M et al. [Arch Pediatr Adolesc Med](#) 2000;154:827-831).

PERINATAL DISORDERS

SEQUELAE OF CEREBRAL WHITE MATTER INJURY

Diffusion tensor MRI was used to evaluate the effects of cerebral white matter (WM) injury on subsequent microstructural brain development in 20 premature infants studied at Children's Hospital, Harvard Medical School, Boston, MA. Cerebral WM injury identified by conventional MRI within the first 3 weeks of life in 10 infants was examined by diffusion tensor MRI at term. Relative