The pathogen type, *Streptococcus pneumoniae* is the strongest predictor of poor outcome. Additional independent predictors of adverse outcome are male gender, history of atypical convulsions, and low body temperature. Clinical characteristics and laboratory tests during the recovery period are not of value as risk predictors.

SEIZURE DISORDERS

HIGH-DOSE PHENOBARBITAL FOR OHTAHARA SYNDROME

Oral high-dose phenobarbital therapy was effective in the control of tonic spasms in a 1 month-old-infant with early infantile epileptic encephalopathy with suppression bursts (Ohtahara syndrome) treated at Tokyo Metropolitan Hachioji Children's Hospital, Tokyo, Japan. Birth history, CT and MRI and other laboratory tests were normal. Initial treatment with intravenous midazolam (0.5 mg/kg/hour) slightly decreased seizures, but oral vitamin B6, valproic acid, clonazepam, and zonisamide had no effect. On the 38th hospital day, oral phenobarbital beginning at a dose of 15 mg/kg/day decreased seizures from 300 daily to 5-10 times per day, and epileptic discharges on the EEG were markedly decreased. Serum phenobarbital levels ranged between 60 and 100 mg/dL. Sedation and decreased oral feedings but no hypotension were noted. Oxygen was occasionally required because of pneumonia. IV midazolam was gradually withdrawn and discontinued on the 58th hospital day. At 2 years of age, he smiles and takes liquids, but cannot sit or speak. (Ozawa H, Kawada Y, Noma S, Sugai K. Oral high-dose phenobarbital therapy for early infantile epileptic encephalopathy. Pediatr Neurol March 2002;26:222-224). (Respond: Dr Ozawa, Department of Pediatrics, Tokyo Metropolitan Hachioji Children's Hospital, 4-33-13, Daimachi, Hachioji, Tokyo 193-0931, Japan).

COMMENT. High-dose oral phenobarbital may control seizures and epileptiform EEG discharges in Ohtahara's syndrome but the effect on developmental outcome will require further evaluation. Very-high-dose phenobarbital has been used successfully in the treatment of refractory status epilepticus (Crawford TO et al. Neurology 1988;38;1035-1040), neonatal seizures, and in infants with severe perinatal asphyxia (Hall RT et al. J Pediatr 1998;132;345-348). A neuroprotective effect may be induced by reduction of cerebral metabolism and oxygen consumption. Depression of respiratory drive, cardiac suppression and hypotension are serious unfavorable adverse effects.

Effectiveness of phenobarbital in neonatal seizures has been evaluated, using video-EEG telemetry, in 14 babies treated at King's College Hospital;, Denmark Hill, London, UK (Boylan GB, Rennie JM, Pressler RM et al. Arch Dis Cild Fetal Neonatal Ed May 2002;86:F165-F170). Four neonates with normal or moderately abnormal EEG background abnormalities responded to phenobarbital (20-40 mg/kg intravenously over 20 min) and the outcome was good. In 10 with abnormal EEG background activity, electrographic seizures increased after treatment with phenobarbital, whereas electroclinical seizures were reduced. Of 3 treated with second line anticonvulsants, 2 responded. Phenobarbital was ineffective in babies with severe seizures and severely abnormal EEG background activity, even after a second dose up to a maximum of 40 mg/kg. Infants who fail to respond to phenobarbital within 2 hours should receive a second line drug.