prior seizures was 30%. The authors concluded that the morbidity of aggressively treated status epilepticus in children in the absence of an acute neurologic insult or progressive neurologic disorder was low. (Maytal J et al. Low morbidity and mortality of status epilepticus in children. Pediatrics March 1989; 83:323-331).

COMMENT. Dr. John M. Freeman of Johns Hopkins Hospital, Baltimore, commented that status epilepticus is "not what we've thought or taught." He asks the question: "Does the morbidity of the treatment of seizures in the emergency room to prevent status epilepticus now exceed the morbidity of the status epilepticus itself? He states that "just as it is not necessary to administer long term anticonvulsant medication to a child after a first seizure, it seems also not necessary to initiate long term therapy when a child's first seizure is status epilepticus."

Many will not agree with this advice, however. An incidence of 30% of unprovoked seizures in children surviving status epilepticus is sufficiently high to warrant long term preventive anticonvulsant therapy. Furthermore, status epilepticus if not treated aggressively is a serious and potentially fatal complication of convulsive disorders. The conclusions to this study and commentary should not permit a diminished respect for the hazards of status epilepticus nor change the accepted methods of treatment with maximally tolerated intravenously administered anticonvulsant therapy. The use of rectal anticonvulsant therapy (see Ped. Neur. Briefs Jan 1988; 2:7) by parents in selected patients may prevent prolongation of seizure recurrences and avoid the necessity for toxic levels of anticonvulsant drugs for refractory cases.

TREATMENT OF NEONATAL SEIZURES

The rapid sequential phenobarbital treatment of neonatal seizures was examined in 120 newborns and the efficacy of high dose monotherapy was compared with the addition of a second anticonvulsant for persistent seizure activity. Patients were examined in three participating neonatal intensive care units: Comprehensive Epilepsy Center, Pharmacokinetics Laboratory, Miami; Greensboro Area Health Education Center; and Department of Neonatal Medicine, Moses H. Cone Memorial Hospital, Greensboro, North Carolina. A single loading dose of phenobarbital 15-20 mg/kg was administered initially and nonresponders received sequential bolus doses of 5-10 mg/kg until seizures ceased or a serum concentration of 40 mg/mL was obtained. Infants with refractory seizures received additional phenobarbital to a maximum serum concentration of 100 mg/mL. The majority of neonates with recurrent seizure activity (77%) responded to phenobarbital monotherapy administered in a rapid sequential dosing schedule that achieved a serum concentration of 40 mg/mL. In 40%, seizures were controlled with a single 15-20 mg/kg initial loading dose and a serum concentration in the range of 10-30 mg/mL. Of 28 subjects refractory to phenobarbital, 13 (46%) were controlled by a second anticonvulsant (phenytoin or lorazepam) and four were controlled by three or more agents. Eleven were resistant to medication and ten died. There was no significant difference in drug responsiveness among patients with different seizure patterns and seizure etiology was not a significant determinant of

phenobarbital responsiveness. Subjects less than 32 weeks gestational age responded better than those 32 weeks or greater in gestation. (Gilman J T et al. Rapid sequential phenobarbital treatment of neonatal seizures. Pediatrics May 1989; 83:674-678).

COMMENT. The therapeutic effect of phenobarbital monotherapy in the treatment of neonatal seizures is dose dependent but the effect plateaus at 40 mg/mL and further increases only induce sedation and compromise neurologic assessment. A second anticonvulsant should be given promptly if seizures persist when phenobarbital serum concentrations are 40 mg/mL or above. The availability of rapid serum determinations of drug levels is important because delays in additional drug therapy were thought to predispose to further seizures and risks of serious neurologic sequelae. The authors emphasize that adequate patient monitoring and slow infusion rates of phenobarbital should always be used to avoid possible cardiovascular toxicity.

In our own experience of 63 newborns with seizures admitted January 1985 to December 1987 in the high risk nursery at SIU School of Medicine, monotherapy with phenobarbital was used in 70% and polytherapy in 30%. The mean serum phenobarbital levels after loading doses of 10 and 20 mg/kg were 20 and 40 mg/mL, respectively. Factors predictive of a poor prognosis included 1) polytherapy, 2) Apgar score less than 5 at five minutes, 3) abnormal EEG, and 4) abnormal brain ultrasound. Normal EEG and ultrasound were predictive of a normal follow-up examination. The addition of phenytoin or other polytherapy did not appreciably increase the degree of seizure control or improve prognosis (unpublished observations).

LORAZEPAM-INDUCED MEMORY DEFICITS

The effects of low doses of lorazepam (Ativan), 0.03 mg/kg IV, on episodic versus long-term memory, attention, and somatic and affective symptoms were investigated in a group of 16 children aged 2.8 to 14.2 years at St. Jude Children's Research Hospital, Memphis, and the Center for Pediatric Pharmacokinetics and Therapeutics, Departments of Clinical Pharmacy and Pediatrics, University of Tennessee, Memphis. Psychological assessments were performed twice before drug administration and 1½ hours and 24 hours after intravenous lorazepam. A selective anterograde amnestic effect was observed in 5 of 16 children as measured by a picture recognition test. There were no significant changes in long term memory, attention or somatic symptoms but affective symptoms were significantly decreased at 1½ hours and a trend toward decreased anxiety was seen at 1½ and 24 hours after lorazepam injection. The half life of lorazepam was 10.5 ± 2.9 hours. (Relling M V et al. Lorazepam pharmacodynamics and pharmacokinetics in children. J Pediatr April 1989; 114:641-646).

COMMENT. Lorazepam is a short acting benzodiazepine that is used in children most commonly as a preoperative sedative and as an anticonvulsant. In adults it is used as an antiemetic agent during chemotherapy for cancer, an effect largely due to its amnestic properties. This study shows that it is possible to produce a