

SEIZURE DISORDERS

NEONATAL SEIZURE CHARACTERISTICS

Seizure characteristics in 32 neonates were studied prospectively using prolonged video/EEG recording at the Prince of Wales Children's Hospital, Sydney, Australia. Seizures were generally frequent with limited electrographic spread. Of 1420 seizures recorded, 85% had no clinical manifestations. Clinical observations underestimated electrographic seizures in 54% of neonates. The use of portable EEG machines with only 4 electrodes underestimated seizures in 19 neonates and failed to recognize seizures present in 2. Seizures were generally recorded in both hemispheres, but restricted spread of the seizure discharge necessitated full electrode placements for identification. Some neonates had long interictal periods, and recordings >60 min were often required for diagnosis. (Bye AME, Flanagan D. Spatial and temporal characteristics of neonatal seizures. Epilepsia October 1995;36:1009-1016). (Reprints: Dr AME Bye, Department of Paediatric Neurology, Prince of Wales Children's Hospital, High Street, Randwick, 2031, NSW, Australia).

COMMENT. This study confirms that clinical features are unreliable markers of seizures in neonates, especially in those receiving antiepileptic drugs. Prolonged video/EEG monitoring is essential for confirmation of seizure control.

MIGRATING PARTIAL SEIZURES IN INFANCY

A syndrome of undetermined cause, with onset before age 6 months, nearly continuous multifocal seizures, and progressive psychomotor deterioration is described in 14 children examined in the Universite Rene Descartes, and Hopital Saint Vincent de Paul, Paris, France. The seizures were partial and motor, moved from one cortical area to another, in 6 infants they became secondarily generalized, and the EEG discharges involved multiple independent sites. Seizures were controlled by antiepileptic drugs in only 2 patients. The EEG ictal pattern consisted of rhythmic alpha or theta activity, followed by postictal slow waves. CT was normal initially and showed atrophy with hydrocephalus ex vacuo at follow-up. MRI showed no parenchymal abnormalities. Extensive biochemical and viral studies were negative. Apart from 3 who showed improvement, patients regressed developmentally and became quadriplegic and hypotonic. Three patients died at age 7 months, 7 years, and 8 years, respectively. Autopsies in 2 cases showed severe hippocampal neuronal loss and gliosis. (Coppola G, Dulac O et al. Migrating partial seizures in infancy: a malignant disorder with developmental arrest. Epilepsia October 1995;36:1017-1024). (Reprints: Dr O Dulac, Neuropediatric Department, Universite Rene Descartes, Paris, France).

COMMENT. The authors describe a new infantile epilepsy syndrome with onset at 3 months, multifocal partial seizures, resistance to antiepileptic drugs and corticosteroids, and psychomotor deterioration. The cause is undetermined and no familial incidence has been observed.

SUPPLEMENTARY SENSORIMOTOR SEIZURES

The electroclinical and neuroimaging features, and response to antiepileptic drugs in 12 children with seizures involving the supplementary sensory motor area (SSMA) are reported from the British Columbia's Children's

Hospital, Vancouver, BC, Canada. SSMA seizures were characterized by bilateral tonic posturing of upper or lower extremities, preserved consciousness, and no postictal confusion. Sensory auras, speech arrest, and abnormal vocalization were frequent symptoms. Ictal EEGs showed abrupt generalized attenuation of background activity and diffuse beta activity, followed by theta or delta frontal activity or generalized rhythmic midline slowing. Interictal recordings were normal in 50%. Delayed cognitive development occurred in 3 patients. One patient had tuberous sclerosis and one had a hypothalamic hamartoma. Brain imaging was normal in the remaining 10 patients. Seizures were responsive to AEDs in 50% of cases. (Connolly MB et al. Seizures involving the supplementary sensorimotor area in children: A video-EEG analysis. Epilepsia October 1995;36:1025-1032). (Reprints: Dr K Farrell, Division of Neurology, Department of Pediatrics, University of British Columbia, British Columbia's Children's Hospital, 4480 Oak St, Vancouver, BC, Canada V6H 3V4).

COMMENT. Supplementary SM seizures in adults with surgical lesions are described by Penfield W and Jasper H in their classic "Epilepsy and the Functional Anatomy of the Human Brain," Boston, Little Brown, 1954. In one patient with a scar in the right posterior frontal region adjacent to the longitudinal sinus, attacks were ushered in by a sensation in the left foot. This was followed by turning of the head and eyes to the left, raising of the left hand and tonic posturing of both legs. Clonic movements followed. There was no loss of consciousness unless a generalized seizure occurred. Attacks in children are similar to those described in adults. Diagnosis is often difficult because of frequent normal interictal EEG and subtle ictal EEG abnormalities. Repeated video/EEG recordings may be required to establish a clear electroclinical pattern.

VAGAL NERVE STIMULATION FOR REFRACTORY EPILEPSY

The tolerance and efficacy of periodic left vagal nerve (VN) stimulation in 12 children with medically intractable epilepsies are reported from the Sections of Neurology and Neurosurgery, Children's Mercy Hospital, Kansas City, MO. At 2 to 14 months follow-up, 5 patients had a better than 90% reduction in number of monthly seizures, and the overall status of the child was improved on global evaluation ratings. Antiepileptic drugs were reduced after VN stimulation in 4 patients. No serious adverse effects were noted. Several patients experienced transient coughing with initial activation of the stimulator, and some had vocal hoarseness. Credit card inactivation occurs when the activating magnet is stored in the same pocket with the card. The therapeutic response to VNS appeared to be superior and was achieved more rapidly in children than in adults. (Murphy JV et al. Left vagal nerve stimulation in children with refractory epilepsy. Preliminary observations. Arch Neurol September 1995;52:886-889). (Reprints: Dr Murphy, Section of Neurology, Children's Mercy Hospital, 2401 Gilham Rd, Kansas City, MO 64108).

COMMENT. The advantages of vagal nerve stimulation compared to AEDs in children with refractory seizures were listed as follows: 1) no deterioration of response, 2) no allergic rashes, 3) no cognitive deficits, 4) no drug interactions, and 5) complete compliance. The device was well tolerated and free of serious complications. See Progress in Pediatric Neurology II, 1994, pp132-3, for further reports on vagal nerve stimulation for control of epilepsy.