SEIZURE DISORDERS

OUTCOME OF FIRST SEIZURE FOLLOWING ACUTE ILLNESS

Researchers at Seattle Children's Research Institute and University of Washington report a prospective longitudinal study of children who presented with a first-time seizure associated with a viral infectious illness. Of 117 children in the study, 78 (67%) had febrile seizures, 34 (29%) had non-febrile seizures, and 5 (4%) had unprovoked seizures. Acute gastroenteritis was associated with nonfebrile-illness seizures more frequently than febrile seizures (47% cf 28%, respectively, P=0.05). Children with acute gastroenteritis experienced multiple seizures within the first 24 hours significantly more often than children with febrile seizures (58% and 27%, respectively, p=0.001). None of the 38 primary seizures with acute gastrointestinal illness had focal presentation, compared with 9 (12%) of 74 seizures in the nongastrointestinal illness group (p=0.02). Children with acute gastroenteritis at first seizure, regardless of fever, had fewer seizure recurrences compared with children with other acute illnesses. Children with a first nonfebrile-illness seizure were more likely than those with a first febrile seizure to have a stool sample test positive for rotavirus (p=0.02) and for norovirus (p=0.05). EEGs in 9 children with acute gastrointestinal illness were normal in 6 and showed minor irregularities in 3. (Martin ET, Kerin T, Christakis DA, et al. Redefining outcome of first seizures by acute illness. **Pediatrics** Dec 2010;126:e1477-e1484). (Respond: Danielle Zerr MD MPH, 4800 Sand Point Way NE, M/S R5441, Seattle, WA 98105. E-mail: danielle.zerr@seattlechildrens).

COMMENT. Nonfebrile illness seizures are regarded as a distinct category of provoked seizures associated with a viral infection, frequently acute gastrointestinal. The acute gastrointestinal illness nonfebrile seizure has a lower rate of seizure recurrence and few neurologic complications. The mechanism of the seizure is unclear. Fever was absent in the 24 hours before or 2 hours after the first seizure in 58% of children with gastrointestinal illness-associated seizures in the above study.

MIGRATION OF EEG SPIKE FOCI AND EPILEPSY OUTCOME

Researchers at Chung Shan Medical University, Taichung, and other centers in Taiwan analyzed 969 EEGs from 463 children with epilepsy to determine outcome differences over 3 years between those with fixed epileptic foci and those with migrated foci. Seventy-nine met inclusion criteria: 24 (30%) had fixed and 55 (70%) migrated foci. In 16 (29%) of the migrated foci cases, migration was from posterior to anterior, in 29 (53%) it was anterior to posterior, in 3 (5%) it was lateral, and in 7 (13%) unclassified. More patients with fixed than with migrated foci required multiple AEDs (P=0.004), and had abnormal image findings (P=0.014), mental retardation (P=0.035), and worse seizure control (P=0.047). Seizure frequency and number of prescribed drugs were greater in the fixed group than in the migrated foci group. Migrated foci correlate with better outcomes in both symptomatic and cryptogenic cases. A comparison of cases of BECTs and Panayiotopoulos syndrome found more fixed foci among BECTs (38% vs 0%, P=0.03).

Migrating EEG foci in a child with epilepsy may be associated with a better outcome than fixed foci for seizure control, less abnormal imaging, and less mental retardation. (Lee I-C, Chen Y-J, Lee H-S. Migration of epileptic spike foci in encephalograms with age may correlate with a better outcome in pediatric epilepsy. **Brain Dev** 2010;32:821-828). (Respond:Dr Inn-Chi Lee, E-mail: i0000528@ms12.hinet.net).

COMMENT. Hughes JR, U Illinois, reported EEG epileptiform abnormalities at different ages.(**Epilepsia** 1967;8:93-106). Hughes JR also studied changes during a 15- to 40-year period in EEG paroxysms on 1645 EEG tracings. (Long-term clinical and EEG changes in patients with epilepsy. **Arch Neurol** 1985;42(3):213-223). Frontal and then temporal foci were most common. Patterns changed in 6 to 8 years, and EEG changes accurately predicted the type of later clinical attacks. Most manifested a temporal spike. Bilateral foci, as opposed to unilateral temporal foci, increased with age 1% per year. Right-sided foci were slower than left-sided foci to manifest bilaterality. Lateral migration was the most common intrahemispheric change; anterior migration was not statistically more common than posterior migration. Gibbs EL and colleagues also reported the migration of epileptic foci in childhood (**Am J Dis Child** 1954;88:596-603). The current study from Taiwan demonstrates that children with epilepsy and age-related migrating foci have a better prognosis than those with EEG fixed foci.

INFECTIOUS DISORDERS

NEUROLOGICAL COMPLICATIONS OF H1N1 INFLUENZA

Incidence, characteristics, and outcomes for children hospitalized between April 1, 2009 and November 30, 2009 for neurological complications of 2009 pandemic H1N1 influenza infection were compared to those hospitalized with seasonal influenza, in a study at University of Utah, Salt Lake City, and University of North Carolina, Chapel Hill, NC. Of 303 children hospitalized with pandemic H1N1 influenza, 18 (5.9%) had neurological complications, 9 in each epidemic wave, April 1 to July 30 and August 1 to November 30, 2009. A trend toward increased severity of neurological complications occurred in the second wave of cases. Most of the patients had a pre-existing underlying medical (usually neurological) condition. H1N1 influenza was detected by PCR from upper respiratory secretions. LP was performed in 10 patients and none had pleocytosis or elevated protein; PCR of CSF was negative for influenza virus in 1 patient tested. Fifteen (83%) were treated with oseltamivir. In pandemic cases, neurological complications included seizures in 12 (67%), status epilepticus in 7 (39%), encephalopathy 9 (50%), focal neurological abnormalities 5 (28%), and aphasia in 6 (33%). EEG was abnormal in 8 (44%), and MRI abnormal in 3 (7%). Focal neurological abnormalities persisted in 22% at discharge. In comparison, among 234 seasonal influenza cases hospitalized 2004-2008, 16 had neurological complications, including seizures in 10 (63%), and status epilepticus in 6 (38%). EEG was abnormal in only 1 (6%) and MRI was normal. None had encephalopathy, aphasia, or focal neurological deficits. Patients were younger (mean age 2.4 years) than those with pandemic influenza (mean ages 7.3 and 5.6 years). (Ekstrand JJ, Herbener A, Rawlings J, et al. Heightened neurologic complications in children with pandemic H1N1 influenza. **Ann Neurol** Nov