SEIZURE DISORDERS

HIPPOCAMPAL ABNORMALITIES AND SEIZURE RECURRENCE

Hippocampal volumetry and T2 relaxometry were performed on 84 consecutive patients (adolescents and adults) with partial epilepsy submitted to antiepileptic drug (AED) withdrawal after at least 2 years of seizure control, in a study at State University of Campinas-UNICAMP, Brazil. Ages ranged from 15 to 76 years (mean, 30 years), and follow-up varied from 5.6 to 11.2 years (mean, 8 years). Hippocampal atrophy was present in 39 (46%) patients; bilateral in 13 and unilateral in 26. Age at time of scanning, age at seizure onset, and duration of epilepsy were similar in groups with and without HA. Seizure recurrence was more frequent in patients with HA (29/39, 74%) than in those with normal hippocampal volumes (21/45, 47%). Abnormal T2 relaxation times were found in patients with more pronounced HA, and with seizure recurrence. (Cardoso TAM, Coan AC, Kobayashi E et al. Hippocampal abnormalities and seizure recurrence after antiepileptic drug withdrawal. **Neurology** July (1 of 2) 2006;67:134-136). (Reprints: Dr Fernando Cendes, Departamento de Neurologia, Faculdade de Ciencias Medicas-UNICAMP, Cidade Universitaria Zeferino Vaz, Campinas SP, Brazil, CEP 13083).

COMMENT. The probability of seizure remission for 5 years after AED withdrawal is 62% in patients without HA, 28% in those with HA, 62% with normal T2 signal, and 23% with abnormal T2 signal. Hippocampal atrophy and hyperintense T2-weighted signal are the MRI abnormalities commonly found in patients with mesial temporal lobe epilepsy. MRI is of value in predicting outcome following AED withdrawal, particularly in patients with HA.

In an editorial, Berg AT and Engel J Jr (**Neurology** 2006;67:12-13) point out that the study does not clarify whether the effects of HA are independent of age at onset, and history of febrile seizures. The relation between HA and a diagnosis of mesial temporal lobe epilepsy was not determined in this series of patients.

HOT WATER EPILEPSY

The clinical and electroencephalographic findings for 25 patients with seizures precipitated by hot water bathing (HWE) were analyzed by researchers at Sisle Etfal Education Hospital, Istanbul, Turkey. In a retrospective review of records of the epilepsy outpatient clinic since 1995, the age at onset of HWE patients ranged from 6 months to 37 years (mean age, 13 years), 52% having their first seizure in the first decade. Male-female ratio was 3:1. Three (12%) had a history of febrile seizures, and 11 (44%) a family history of epilepsy, none of the family members having HWE. HWE patterns were complex partial (CPS) in 20 (80%), secondary generalized in 10 (40%), and primarily generalized tonic-clonic in 5 (20%). Seventeen (68%) had seizures only precipitated by bathing; 8 (32%) had spontaneous seizures also. CPSs were manifested by staring, confused speech, déjà vu, faint feeling, taste of soap, nausea, vomiting, pleasurable feeling including orgasm, and visual and auditory hallucinations. Nine (36%) patients self-induced the seizures by either increasing the temperature of the water, or by increasing the amount of water poured on the head. Pouring the water over the head (11 patients), the temperature of the water (9 patients), and

termination of the bath (8 patients) were the most common triggers. Interictal EEGs obtained in 22 patients showed epileptiform abnormalities over temporal regions in 9 (41%). Brain MRIs in 15 patients and CTs in 2 were normal except for cortical atrophy in 1 and mesial temporal sclerosis in 1. Treatment with AEDs, mainly carbamazepine, in 16 patients prevented seizure recurrence; avoidance of the precipitating factor prevented seizures in the remainder. (Yalcin AD, Toydemir HE, Forta H. Hot water epilepsy: clinical and electroencephalographic features of 25 cases. **Epilepsy & Behav** August 2006;9:89-94). (Respond: Dr A Destina Yalcin, Selcuklar Sokak, Ozlem Apt, 51/14, 34335 Akatlar, Istanbul, Turkey).

COMMENT. Hot water epilepsy is a benign form of reflex epilepsy, typically complex partial with temporal lobe localization, and occurring most frequently in children and young adults, males predominantly. Reports of HWE are most prevalent in India and Turkey, where sitting to bathe and pouring hot water over the head from a bowl are common customs.

Seizures precipitated by very hot water-head baths (40-50^{0}C), a regional religious custom, were reported in 279 patients between 1980-83 in Bangalore, Southern India (Satishchandra P et al. **Epilepsia** 1988;29:52-56). Clinical features were similar to those reported in the Turkish clinic patients: ages ranged from 8 months to 58 years, 28% below 6 years; males predominated 2.65:1; only 7% had a history of febrile seizures; 67% had HW-induced complex partial seizures; and 30% had spontaneous non-reflex epilepsy also. A family history of epilepsy was positive in 22%, but HWE in only 7%. In treatment, the avoidance of the hot water stimulus to the head was supplemented with AEDs. The mechanism was unclear. A hot-air stimulus to the scalp failed to induce attacks. In infants, a febrile seizure induced by the hot water might explain some attacks, but was not confirmed by body temperature recordings. A specific tactile reflex seizure may occur in response to combing the hair in children with absence epilepsy (Millichap; personal observation of a case of repeated eye fluttering and seizure induction by tapping the scalp). Two cases of HWE with CPS, in association with focal cortical dysplasia, and localized to the left parietal region in 1, are reported by Grosso S et al. (**Brain Dev** 2004;26:490-493; **Ped Neur Briefs** 2004;18:70).

Lennox WG (in Epilepsy and Related Disorders, Boston; Little, Brown; 1960;357-370) prefers the term "sensory precipitation" to reflex epilepsy, for seizures induced by touch, smell, taste, hearing, and sight. He cites a case recounted by Hughlings Jackson (1886) of a boy who had falling (astatic or myoclonic) seizures if his head or face was unexpectedly touched. Lennox records failure of seizure induction "by non-painful hot or cold skin applications."

LEVELS OF ANTIEPILEPTIC DRUGS AND THE KETOGENIC DIET

Introduction of the ketogenic diet did not change the plasma levels of antiepileptic drugs in an open study of 51 children (mean age 6.6 years) with refractory epilepsy studied at Karolinska University Hospital, Stockholm, Sweden. (Dahlin MG, Beck OML, Amark PE. Plasma levels of antiepileptic drugs in children on the ketogenic diet. **Pediatr Neurol** July 2006;35:6-10). (Respond: Maria G Dahlin MD PhD; E-mail: maria.dahlin@karolinska.se).