correlated with an abnormal EEG. In 13 patients with abnormal and 17 with normal EEGs, the beneficial response rates were 61% and 88%, respectively. Epileptiform EEGs were found in 18% of a total 100 consecutive children with recurrent headache, and with the same frequency in those with migraine. Kramer U, Harel S and associates found an 11% incidence of epileptiform EEGs in children with migraine or tension headaches; the incidence was 26% and significantly higher in children with chronic "very brief" headaches (**Brain Dev** 1994;16:304-308).

# SEIZURE DISORDERS

## TOPIRAMATE MONOTHERAPY IN EPILEPSY

The dosing, effectiveness, patient characteristics predictive of effectiveness, and safety of topiramate monotherapy in treatment of epilepsy were evaluated in a 6-month, multicenter, open-label study at UCLA School of Medicine, Mattel Children's Hospital, Los Angeles; and University of Miami School of Medicine, FL. Of 244 patients meeting requirements for evaluation (>12 weeks of treatment and stabilized topiramate dose during final 28 days), 213 were taking topiramate monotherapy at end of trial. The mean stabilized daily dose of topiramate over the last 28 days of treatment (primary endpoint) was 191 mg in patients with 1-3 seizures (low seizure frequency, n=147) and 239 mg in those with >3 seizures (high seizure frequency, n=66) ($P<0.003$). Patients with low seizure frequency reached a stable topiramate dose after a median of 36 days, compared with 53 days for patients in the high-seizure-frequency group. Baseline seizure frequency and lifetime seizure count were significant ($P<0.05$) predictors of the required stabilized dosage. Treatment-emergent adverse events (TEAEs) that occurred with cumulative incidence rates >10% in either seizure frequency group included paresthesia, fatigue, anorexia, dizziness, somnolence, headache, and hypoesthesia. Most adverse events were considered mild to moderate, 5.1% were serious, and 18.2% of patients discontinued therapy because of a TEAE (16.6% of the low-seizure-frequency, lower dose group compared with 21.4% in the high-seizure-frequency higher dose group). (Sankar R, Ramsay E, McKay A, Hulihan J, Wiegand, CAPSS-311 study group. **Epilepsy Behav** Aug 2009;15:506-512). (Respond: Dr Raman Sankar, David Geffen School of Medicine at UCLA, Mattel Children's Hospital, PO Box 951752, Los Angeles, CA 90095. E-mail: RSankar@ucla.edu).

COMMENT. Lower topiramate monotherapy doses (200 mg/kg day in 2 divided doses, am and pm) are adequate for patients with low baseline seizure frequency, and seizure control is associated with a lower incidence of adverse effects.

## VALPROIC ACID AND SLEEP DURATION IN CHILDREN WITH EPILEPSY

Sleep duration and behavior were assessed in 46 children (age range 1.7-17.4 years) before and after tapering valproic acid (VPA) administered for more than 6 months for epilepsy, in a study at University Children's Hospital, Zurich, Switzerland. Actigraphy data obtained for 7 consecutive days and nights showed that after termination of VPA 33 children

slept less (>30 min in 9 patients) and 13 children slept longer (>30 min in 1). Mean Actual Sleep Time per Day was significantly reduced after VPA termination (-10.7 min) in children older than age 6 years. Gender and dose of VPA were not contributing factors. Questionnaire data showed no significant difference in bed and wake time, duration of sleep, and time to fall asleep before and after ending VPA treatment. (Schmitt B, Martin F, Critelli H, Molinari L, Jenni OG. Effects of valproic acid on sleep in children with epilepsy. **Epilepsia** Aug 2009;50:1860-1867). (Respond: Bernard Schmidt MD, Department of Pediatric Neurology, University Children's Hospital, Steinwiesstrasse 75, CH-8032 Zurich, Switzerland. E-mail: bernard.schmidt@kispi.uzh.ch).

COMMENT. Termination of VPA after long-term treatment for epilepsy is associated with a small but significant reduction of sleep duration, but only in children older than 6 years of age. The reason given for initiating this study was frequent parental reports that sleep duration increases during VPA treatment and decreases when medication is suspended. The results partly confirm the parental observations.

## CONCURRENT ANTICONVULSANT/KETOGENIC DIET EFFICACY

Researchers at the Johns Hopkins Hospital, Baltimore, studied retrospectively the comparative efficacy of six most frequently used anticonvulsants when employed in combination with the ketogenic diet (KD) for treatment of 115 children with epilepsy. Mean age at initiation of the KD was 4.7 years. Patients had tried unsuccessfully a median of 4 anticonvulsants, and at KD initiation were receiving a median of 2 anticonvulsants (range 1-5). At KD onset, the most common anticonvulsants included valproic acid (n=38), topiramate (31), levetiracetam (27), lamotrigine (25), zonisamide (21), and phenobarbital (14). Only 4 children received vigabatrin. Most common seizure types treated with drug/KD combination included Lennox-Gastaut syndrome or mixed/multiple seizures (n=56), infantile spasms (18), and complex partial seizures (19). After 3 months on the diet and no change in the anticonvulsant dose, 72% had a >50% seizure reduction. Patients receiving zonisamide and KD were more likely to have a >50% reduction in seizures than the other children combined who were receiving the other 5 anticonvulsants (P=0.04). Nineteen of the 21 children (90%) receiving zonisamide had a >50% seizure reduction. Children receiving phenobarbital and KD were less likely to have a >50% seizure reduction (P=0.003). The difference in the interaction between KD and zonisamide or phenobarbital was not explained by seizure type or age. Patients responding with a >90% seizure reduction or seizure freedom showed no significant correlation with a specific anticonvulsant/KD combination. (Morrison PF, Pyzik PL, Hamdy R, Hartman AL, Kossof EH. The influence of concurrent anticonvulsants on the efficacy of the ketogenic diet. **Epilepsia** Aug 2009;50:1999-2001). (Respond: Eric H Kossof MD, Pediatric Epilepsy Center, The Johns Hopkins Hospital, Baltimore, MD 21287. E-mail: ekossof@jhmi.edu).

COMMENT. Zonisamide is not approved for use in children, and its mechanism of action is not definitely known. It is thought to increase seizure threshold by effects on sodium and calcium channels. As a carbonic anhydrase inhibitor, zonisamide is less active than acetazolamide, but this mechanism may have a contributory anticonvulsant effect.