chicken), 2 carbohydrates (potatoes and rice), 2 fruits (banana and apple), vegetables (cabbage, sprouts, cauliflower, broccoli, cucumber, celery, carrots, parsnips), water, salt, pepper, pure herbs, and calcium and vitamins for 4 weeks. Patients who responded (no seizures or migraine for the last 2 weeks) were reintroduced to essential foods (eg. milk, cheese, wheat) at the rate of one a week. If symptoms were provoked, soy-based or goat milk products, rye or oats were substituted. Setbacks were avoided by first giving foods least likely to be antigenic (eg. beef, oats, peaches, or grapes). Of 45 children who had epilepsy with recurrent headaches, abdominal symptoms, or hyperkinetic behavior, 25 had no seizures and 11 had fewer seizures during diet therapy. Foods most likely to provoke seizures when reintroduced were cow milk and cheese, citrus fruits, wheat, tartrazine and benzoic acid food additives, eggs, tomato, pork, and chocolate. In double-blind, placebo-controlled provocation studies introducing cow milk, orange juice, wheat, pork, egg, and benzoate, symptoms recurred in 15 of 16 children, including seizures in 8; none recurred with placebo. The oligoantigenic diet was unsuccessful in the treatment of 18 children who had epilepsy uncomplicated by migraine or hyperkinetic behavior. (Egger J et al. Oligoantigenic diet treatment of children with epilepsy and migraine. J Pediatr Jan 1989;114:51-58).

> **COMMENT**. If reproducible and sustained, these results are impressive and deserve further investigation in children with frequently recurrent seizures and headache resistant to anticonvulsant medication. The authors point out that the diets are socially disruptive and may cause malnutrition. In the US, pediatric allergists are not generally impressed with the theory of food hypersensitivity as a cause of neurological disease and their enthusiastic collaboration in studies of this type is not readily available.

VITAMIN E AND EPILEPSY

The value of D-alpha-tocopheryl acetate (Vitamin E 400 IU/day) as an adjunct therapy for drug resistant epilepsy is reported from The Hospital for Sick Children and the University of Toronto Faculty of Medicine, Canada. In a randomized, double-blind, placebo-controlled trial, 10 of 12 children aged 6-17 years showed a greater than 60% reduction in seizure frequency whereas none in the control group showed a significant change. One-half of the responders had concomitant EEG improvements. The study period was 9 months: 3 mo pre-trial, 3 mo double-blind, and 3 mo open-label trial in which patients receiving placebo initially changed to Vitamin E as their own controls. The majority had generalized tonic-clonic seizures and anticonvulsant drug levels showed no significant change during treatment with Vitamin E. Plasma Vitamin E levels increased from 5 to 37 mcM during the treatment phase, the variability dependent on body size. Improvement in seizure control was similar in the open-label phase and no clinically significant alterations of blood counts, SGOT, alkaline

phosphatase, and amylase were noted. (Ogunmekan AO, Hwang PA. A randomized, double-blind, placebo-controlled, clinical trial of D-a-tocopheryl acetate (Vitamin E), as add-on therapy, for epilepsy in children. Epilepsia Jan/Feb 1989;30:84-89).

COMMENT. These authors and others have reported reduced plasma levels of Vitamin E in children taking antiepileptic drugs. Hyperbaric oxygen-induced seizures in rats are prevented by prior administration of Vitamin E. (Jerrett SA et al. Aerospace Med 1973;44:40-4). The clinical trial reported here and a previous uncontrolled study support the experimental findings in animals that Vitamin E may inhibit the effects of oxidation in brain tissue and act as a membrane stabilizer in epileptic cerebral cortex. Further trials of this adjunctive treatment for refractory epilepsies are certainly warranted.

HEADACHE

PSYCHOLOGICAL FACTORS IN ADOLESCENT HEADACHE

Seventy high school students between 16 and 18 years of age reporting a headache frequency of once a week or more were compared with a headache-free control group and were studied by questionnaires for psychosocial, health-behavior, and medical problems at the Dept of Child and Youth Psychiatry, University Hospital of Uppsala, Sweden. Adolescents with recurrent tension and migraine headaches reported significantly more somatic symptoms and psychological distress than controls, they were more often absent from school, and used the school health service more than controls. Their parents were more often divorced and suffered more frequently from headache and abdominal pain. Nervous problems, anxiety, depression, homework time, somatic symptoms and absence from school were psychosocial predictors of headache susceptibility. (Larsson B. The role of psychological, health-behavior and medical factors in adolescent headache. Dev Med Child Neurol Oct 1988;30:616-625).

COMMENT. These results differ from a previous study of anxiety in childhood migraine. Patients with migraine and their parents who completed standardized anxiety, personality, and life-event scales showed no significant difference from controls. All patients had anxiety scores within normal. Patient selection and the omission of tension headache sufferers could explain the difference in findings.

RELAXATION TREATMENT FOR MIGRAINE

Relaxation training was compared to two control placebo psychological methods of treatment in 99 children and adolescents with frequent migraine at the Children's Hospital of Eastern Ontario, University of Ottawa, Canada. Relaxation methods consisted of 6, one-hour, weekly sessions in which children were taught sequential tensing and relaxation of large muscle groups and the use of deep breathing. Placebo treatment consisted of therapy sessions to teach recognition of emotions,