No IQ Effect

Breast-Feeding *from page 1*

valproate, carbamazepine, phenytoin, or lamotrigine) were eligible to enroll. In this study, a blinded cognitive assessment of the children was conducted when they were 2 years old; follow-up assessments will be conducted at years 3, 4.5, and 6.

Compared with their non–breast-fed counterparts, the breast-fed children in this cohort (41%) actually had higher cognition, 98.1 vs. 89.5 on the Bayley Mental Developmental Index ($P = .0012$). However, Dr. Meador said that when investigators controlled for the mother's IQ, there was no significant difference between groups.

"The NEAD study is not randomized and was not specifically designed to examine the effects of breast-feeding," said Dr. Meador, listing some of the study's limitations. Also, "there are only four drugs in the study." However, "breast-feeding during antiepilepsy drug treatment doesn't appear to have a negative impact on a child's cognitive abilities."

Speaking at the annual meeting of the American Academy of Neurology, Dr. Meador added that the 3-year follow-up data analysis is just being completed and that the final child in the study will reach age 6—the last follow-up point—in 2010.

Dr. Meador has received research support from GlaxoSmithKline Inc., UCB SA, Eisai Co., Myriad Genetics Inc., NeuroPace Inc., and SAM Technology Inc. His fellow researchers also disclosed financial or other relationships to a number of pharmaceutical companies. ■

Ketogenic Diet Cut Pediatric Seizures

BY DENISE NAPOLI
Assistant Editor

Following a ketogenic diet reduced mean seizure frequency by 38% in a group of children with treatment-resistant epilepsy, according to findings from a first-of-its-kind study.

"Throughout the 20th century, the reports of the effects of the [ketogenic] diet have been limited to case series and retrospective and prospective observational studies," wrote Dr. Max Wiznitzer of the division of pediatric neurology at the Rainbow Babies and Children's Hospital, Cleveland, in a commentary accompanying the study.

The ketogenic diet establishes a very high-fat, low-carbohydrate regimen, with controlled amounts of protein. There are two versions, both of which were included in this study: the classic, (or LCT, for long-chain triglycerides) version, which has a 3:1 or 4:1 ratio of fat to protein and carbohydrates. A modified version, the MCT, uses medium-chain triglycerides and a slightly lower ratio of fat to carbohydrates and proteins.

In both versions, the fat content was gradually increased from day 1 until the maximum ratio was achieved (by 2 weeks in the LCT version and by 10 days in the MCT). All diets were supplemented with vitamins and minerals, and the children's other treatments were not changed.

In all, 145 patients were enrolled from two U.K. epilepsy clinics to follow a version of the ketogenic diet. The children all had at least one seizure per day or more than seven seizures per week; had not responded to at least two antiepileptic drugs; and had not ever followed a ketogenic diet, wrote Elizabeth G. Neal, Ph.D., of the Institute of Child Health and Great Ormond Street Hospital for Children, London, and colleagues. Patients were aged 2-16 years.

In all, 73 patients were randomly assigned to the diet group; however, 8 did not receive treatment for a variety of reasons, 1 was excluded for inadequate data, and 10 discontinued the diet before the 3-month follow-up, which was the end of the study, leaving 54 patients to be included in the final analysis.

Of the 72 patients initially randomized to the control group, 8 elected not to participate in the study or were not included for other reasons (death, change in diagnosis, or improvements in seizures) and 15 patients were ultimately excluded because of inadequate data, leaving 49 included in the final analysis.

Twice-daily urine tests assessed ketosis. Follow-up visits occurred at 6 weeks and at 3 months (the end of the study). Monitoring also took place via phone.

"The difference between the mean percentage of baseline seizures at 3 months in the diet and control groups was 74.9% (95% confidence interval, 42.4%-107.4%; P less than .0001)," wrote the authors. In addition, one child in the diet group and none in the control group attained complete freedom from seizures (Lancet Neurol. 2008 May 3 [Epub doi:10.1016/S1474-4422(08)70092-9]).

A total of 28 children in the diet groups (38% of the original 73 patients who were randomized) had a greater-than-50% decrease in seizures, compared with 4 in the control group (6% of the original 72 children who were randomized).

A similar magnitude of improvement was seen in children who had symptomatic generalized epilepsy and in those who had focal epilepsy syndromes, both of whom were represented in the study.

Withdrawal from the treatment group resulted from parental unhappiness with the restrictions (three cases); behavioral food refusal (two cases); and one case each of increased seizures, extreme drowsiness, constipation, vomiting, and diarrhea—common side effects of this type of diet.

"Clinically, more information is needed about the long-term effects of the ketogenic diet, including changes in blood lipid concentrations and persistent ketosis," commented Dr. Wiznitzer, who was not affiliated with the study.

"Furthermore, better identification of epilepsies that benefit from starting early on the ketogenic diet and comparisons between the choices of ketogenic diet are needed." Dr. Wiznitzer also called for "a better delineation of the mechanism of action of the diet and the development of a medication that would duplicate its effects."(Lancet Neurol. 2008 May 3 [Epub doi:10.1016/S1474-4422(08)70093-0]).

The study was funded by the HSA Charitable Trust, Smiths Charity, Scientific Hospital Supplies, and the Milk Development Council. ■

Children With Absence Seizures Require Close Monitoring

BY DAMIAN McNAMARA
Miami Bureau

Miami — Absence epilepsy seizures can be differentiated from daydreaming or ADHD with an office procedure involving nothing more than a piece of paper.

"Hyperventilate the child by having them blow on a paper or on their own, and you will see loss of consciousness [if they have absence epilepsy]," said Dr. Michael S. Duchowny. "It's a very easy thing to do in your office."

In the absence of a piece of paper, one tip is an obvious onset and offset of the transient loss of consciousness characteristic of absence seizures. "You cannot snap the child out of it during an episode," Dr. Duchowny said.

EEG can confirm the diagnosis of absence epilepsy. The readout will show bilateral, symmetric, and synchronous 3-Hz spikes and wave discharges against a normal EEG background, Dr. Duchowny said.

The age at which a child presents with absence seizures is an important consideration. Physicians who suspect a child is having absence seizures—which were formerly known as petit mal epilepsy—should rule out other conditions, said Dr. Duchowny, director of the comprehensive epilepsy program at Miami Children's Hospital.

Onset of absence seizures is usually at 5-12 years old. "A red flag should go up with any child who comes into your office before age 5 with absence seizures. This is unusual—you need to look for other developmental disorders," Dr. Duchowny said at a meeting sponsored by Miami Children's Hospital.

First-line treatment includes antiepileptic drugs (AEDs) like ethosuximide, valproic acid, or clonazepam, Dr. Duchowny said. Newer AEDs are also effective, such as lamotrigine, levetiracetam, or topiramate. AEDS to avoid include carbamazepine, oxcarbazepine, phenytoin, and gabapentin. Dr. Duchowny received an honorarium from and is on the speakers bureau for GlaxoSmithKline Inc.

Despite timely treatment, children with absence epilepsy should be monitored for adverse psychosocial effects, Dr. Duchowny said. "If one looks long term at children with absence seizures, sometimes the outlook may not be as favorable as we think."

For example, adults with a history of childhood absence seizures, even when they remained seizure-free, had greater difficulty with academic, social, and behavior domains, according to a cohort study (Arch. Pediatr. Adolesc. Med. 1997;151:152-8). The mean follow-up for the 58 patients in the study was 23 years.

Absence seizures can occur as a discrete seizure type or a robust epilepsy syndrome with associated symptoms. If the child has the syndrome, physicians and parents might see frequent automatisms, such as lip smacking or eye closure, especially during longer seizures.

"Absences tend to disappear around age 15 or 16 years," Dr. Duchowny said. "You can tell families these seizures will not recur later in life. They 'time on' but they also 'time off.' " If the child experiences mixed seizure types, such as concomitant generalized tonic-clonic seizures, they can persist in some patients, he added.

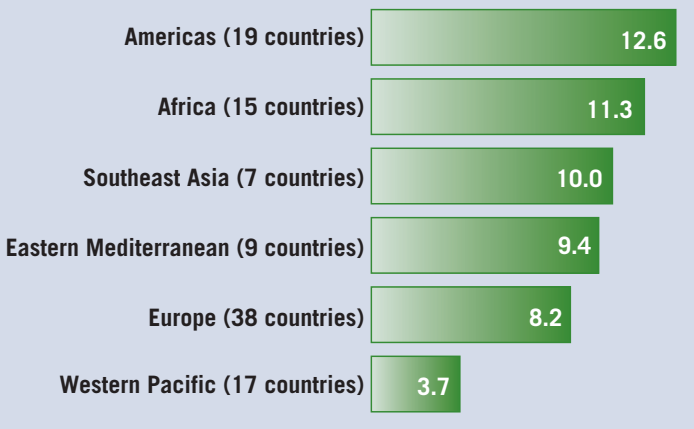
Absence seizures must be the initial and most prominent type of seizure for the diagnosis of childhood absence epilepsy. "By and large, these children are neurologically healthy," Dr. Duchowny said.

In contrast, a small subset of patients can have atypical absence seizures. Poor seizure control and persistence of epilepsy are more common with atypical seizures. "These typically occur in children with some type of associated neurologic disability," Dr. Duchowny said. The seizures generally occur in children with development delay and often coexist with other seizure types, especially tonic-clonic, myoclonic, and tonic seizures. "These children often have a much poorer neurodevelopmental outcome, including less control of seizures, even with medication." ■

DATA WATCH

Mean Epilepsy Rate Highest in the Americas

(per 1,000 population)



Note: Based on a large international 2002-2004 survey.
Source: World Health Organization

Elsevier Global Medical News