

cases, 1206 involved the intracranial venous sinuses. Pediatric malignancy was the most common comorbid condition associated with recurrent VTE.

## **HEADACHE DISORDERS**

### **DIETARY TREATMENT FOR MIGRAINE UNDER SIX YEARS**

Clinical factors and response to treatment were compared in children < 6 years and older children treated for migraine by nonpharmacologic measures in a pediatric headache clinic at Schneider Children's Medical Center, Petah Tiqwa, Israel. Treatment involved only good sleep hygiene, additive-free diet, and limited sun exposure. Foods eliminated included smoked lunch-meats, smoked cheese, yellow cheese (high tyramine), chocolate, pizza, and foods containing monosodium glutamate. Of 92 children identified retrospectively in records, 50 boys and 42 girls met study criteria. Ages ranged from 3.8 to 17.2 years (mean 9.4 +/- 3.9 years). Thirty-two (15 boys and 17 girls) were aged 6 years or younger at onset of follow-up, and 60 were older. The younger group had a significantly lower frequency of migraine attacks with aura (13 vs 23 patients,  $P=0.02$ ) and a lower number of migraine attacks per month (6.8 vs 14.08,  $P=0.008$ ); disease duration before start of treatment was also shorter (11.34 vs 24.62 months,  $P=0.0057$ ). Response to treatment was graded 1 (none), 2 (partial-50% decrease), and 3 (complete-75% decrease in attacks). Mean ages of patients with grade 1, 2, and 3 responses were 10.588, 9.11, and 8.11 years, respectively ( $P=0.02$ ). The younger group of patients had a significantly higher percentage with grade 2 or 3 responses as opposed to grade 1 response (73.3% vs 27.7%,  $P<0.0075$ ). Also, percentages of patients with grade 3 compared to those with grade 1 responses were significantly different in the 2 groups (81.2% vs 38.3%,  $P<0.001$ ), and on comparison of results for each of the 3 grades ( $P=0.0003$ ). Nonpharmacological therapy for migraine may be effective in younger children because of shorter disease duration and fewer attacks than in older children. (Eidlitz-Markus T, Haimi-Cohen Y, Steier D, Zeharia A. Effectiveness of nonpharmacologic treatment for migraine in young children. **Headache** Oct 2009;xx:xx). (Respond: Dr T Eidlitz-Markus, Ambulatory Day Care Center, Schneider Children's Medical Center of Israel, Petah Tiqwa 49202, Israel).

COMMENT. The nonpharmacological, "conservative" therapy as described above is predominantly dietary, eliminating additives and foods commonly recognized as migraine triggers, especially cheese and chocolate (Egger J et al. **Lancet** 1983;2:865-869; Egger J et al. **J Pediatr** 1989;114:51-58; Millichap JG, Yee MM. **Pediatr Neurol** 2003;28:9-15). Elimination diets, such as the Feingold additive-free diet, advocated in the treatment of the hyperactive child, was found in controlled studies to be mildly effective only in some small groups of younger children. The diet was ineffective in older children (NIH Consensus Panel 1982). Elimination and oligoallergenic diets continue to be used in some European and Australian centers for the treatment of childhood neurobehavioral disorders. Interest in dietary therapy for childhood hyperactivity has waned in the United States, and few neurologists use elimination diets for migraine in practice.

Age seems to be a factor in the effectiveness of dietary therapy for migraine. According to the above, children under 6 years are expected to derive most benefit. However, before eliminating certain foods, specific headache triggers should first be identified by

completion of headache diaries. Simultaneous elimination of all known triggers is not generally recommended for nutritional reasons. A well-balanced diet is important, and skipping of meals or fasting should be avoided.

## CRANIAL AUTONOMIC SYMPTOMS IN MIGRAINE

Cranial autonomic symptoms (CAS) in patients with migraine and cluster headaches (CH) were characterized and compared in a prospective study of consecutive patients attending a headache clinic at Taipei Veterans General Hospital, Taiwan. CAS items surveyed were conjunctival injection, lacrimation, nasal congestion, rhinorrhoea, eyelid edema, and forehead/facial sweating. Of a total of 884 patients, 786 (625 women/161 men, mean age 40.1 (12.9) years) had migraine and 98 patients (11 women/87 men, mean age 36.2 (10.5) years) had CH. Migraine diagnoses were episodic without aura in 48%, with aura in 5%, chronic in 39%, and probable migraine in 8%. In the CH group, 99% had episodic CH and 1% had chronic CH, a typical low incidence of chronic cases among Asians.

CAS occurred in 56% patients with migraine, and the incidence was similar in all migraine subtypes. Forehead/facial sweating in 28% of migraine patients was the commonest CAS, followed by lacrimation in 24%. Migraine patients with CAS compared to those without had higher frequencies of severe migraine, nausea, photophobia and phonophobia, and vomiting. Patients with CH had a higher frequency of CAS than migraine patients. To differentiate migraine with CAS from CH, the characteristic most predictive of migraine was bilateral CAS with either 1) mild to moderate intensity or 2) CAS occurring without headache. Lacrimation was the CAS with highest positive predictive value, specificity, and second highest sensitivity. (Lai T-H, Fuh J-L, Wang S-J. Cranial autonomic symptoms in migraine: characteristics and comparison with cluster headache. **J Neurol Neurosurg Psychiatry** Oct 2009;80(10):1116-1119). (Respond: Dr S-J Wang, Neurological Institute, Taipei Veterans General Hospital, Taipei, Taiwan 11217. E-mail: [sjwang@vghtpe.gov.tw](mailto:sjwang@vghtpe.gov.tw)).

COMMENT. More than 50% of adults with migraine have cranial autonomic symptoms (CAS). Patients with CAS have more severe migraine often associated with photophobia, nausea and vomiting. Compared to those with cluster headaches, CAS with migraine are usually bilateral rather than unilateral and less severe.

Prof PJ Goadsby, San Francisco, in an editorial commentary, discusses the anatomy and physiology of CAS (**J Neurol Neurosurg Psychiatry** Oct 2009;80:1057-1058). The trigeminal-autonomic reflex is the basis for the symptoms. The effect is largely lateralized but innervation is also crossed. The pathway can be activated from the brain via connections from hypothalamus to superior salivatory nucleus. Comparing trigeminal autonomic cephalgias (TACS) and migraine, TACs are shorter in duration, sometimes seconds as in SUNCT/SUNA, minutes in paroxysmal hemicrania, and a few hours in cluster headache. In the clinical distinction of cluster headache and migraine, findings pointing to migraine include bilateral pain, attacks longer than 3 hours (>1-2 hours in children), bilateral CAS, bilateral photophobia and phonophobia. Whereas patients with migraine are generally quiet, cluster headache patients are restless. Hemicrania continua response to indomethacin is another differentiating factor. CAS only at the time of headache should help in the distinction from sinus infection. In adults, migraine is more common in women, cluster headache in men.