

and skin temperature biofeedback was analysed in 30 patients, ages 7 to 18 years, using a controlled group outcome design, at the Department of Psychology, University of South Alabama, Mobile, AL (Labbe EE. Headache Jan 1995;35:10-13). Headache frequency and duration, but not headache intensity, improved in the treatment groups as compared to the waiting list controls; 80% of the biofeedback group, 50% of the autogenics group, and none of the controls were symptom-free. In this study, biofeedback and relaxation therapies were practical and effective in the management of childhood migraine and were free from adverse side-effects.

In a previous report from the University of Ottawa, Canada, McGrath et al found that relaxation training was no more effective than brief reassurance and self-control suggestion techniques in treating pediatric migraine (see Progress in Pediatric Neurology I, Chicago, PNB Publ, 1991, pp 144-5). Perhaps certain foods may have been observed to play a greater role in precipitating headaches in the Halifax study if the influence of diet had been stressed at the time of initial diagnosis.

## HYDROCEPHALUS AND INTRACRANIAL PRESSURE

### ACETAZOLAMIDE IN HYDROCEPHALUS MANAGEMENT

The efficacy of treatment with acetazolamide (100 mg/kg/day) without frusemide in arresting post-hemorrhagic ventricular dilatation was evaluated in 3 infants at the Hammersmith Hospital, London, UK. Treatment was begun at 21, 25, and 35 days of age. A decrease in ventricular size occurred after one week in all patients. Dilatation recurred when acetazolamide was withdrawn or reduced. Reintroduction of therapy was less effective and less well tolerated. Treatment was tailed off between 8 and 14 months of age. No patient has required shunting. In 2 additional infants, a severe and treatment-resistant acidosis required discontinuation of therapy after two days. Nephrocalcinosis was not a side-effect with monotherapy, whereas the combination of acetazolamide and frusemide is known to cause kidney damage. (Mercuri E, Dubowitz L et al. Acetazolamide without frusemide in the treatment of post-haemorrhagic hydrocephalus. Acta Paediatr Dec 1994;83:1319-21). (Respond: Dr L. Dubowitz, Department of Paediatrics and Neonatal Medicine, Hammersmith Hospital, London W12 0NN, UK).

COMMENT. Huttenlocher first described the benefit of acetazolamide in 8 of 15 children with hydrocephalus due to various etiologies. Bergman, Shinnar, and colleagues recommended acetazolamide combined with frusemide. The report of nephrocalcinosis with the combined therapy in 1992 was cause for concern and a return to trials of monotherapy. Acetazolamide may reduce ventricular size and postpone or obviate the need for shunt insertion in neonates with hydrocephalus. The use of acetazolamide in hydrocephalus is discussed by Sarnat HB in Progress in Pediatric Neurology II, 1994, pp277-8.

The long-term prognosis for 42 children, born between 1963 and 1975, who underwent shunting for hydrocephalus, was reported from Oulu University Central Hospital, Finland. (Kokkonen J et al. Child's Nerv Syst 1994;10:384-387). Seven had died, 5 were in institutions for the mentally handicapped, one-half of the patients had neurological abnormalities or epilepsy, one-third were receiving vocational

training, and one-quarter had no meaningful work. Shunts had been changed 103 times in 29 patients still alive. Encouragement and support for the families seemed essential in improving social development of patients in adolescence.

### **PSEUDOTUMOR CEREBRI WITHOUT EDEMA**

The pathologic findings in two adult patients with idiopathic intracranial hypertension (IIH) who died unexpectedly are reported from the University of Iowa College of Medicine, Iowa City. Patient 1 died of cardiac arrest during operation for duodenal ulcer, and patient 2 died in her sleep of unknown cause. No histologic evidence of either intracellular or interstitial brain edema was found at autopsy. Arachnoid granulations were not available for study. (Wall M et al. Idiopathic intracranial hypertension. Lack of histologic evidence for cerebral edema. Arch Neurol Feb 1995;52:141-145). (Reprints: Dr Wall, Department of Neurology, University of Iowa, College of Medicine, 200 Hawkins Dr, Iowa City, IA 52242).

COMMENT. The absence of cerebral edema was in agreement with the report of 3 patients studied by Greer and in contrast to a finding of interstitial and intracellular edema in cortical biopsies of 10 patients reported by Sahs and Joynt. A review of tissue from 3 of the Sahs and Joynt cases, one a girl aged 17 years, showed artifactual changes and no convincing evidence of edema on re-examination of slides. The authors recommend measures of brain water content of frozen tissue and examination of arachnoid granulations when available, in future investigations of pathogenesis of pseudotumor cerebri.

The MRI has been used to clarify the pathophysiology of pseudotumor in 7 children, aged 6 months to 13 years. Normal signal intensity in the white matter was in keeping with absence of brain edema, as reported in the Iowa autopsy specimens. (Connolly MB et al. 1992; see Progress in Pediatric Neurology II, 1994, pp 336-7).

## **HEAD TRAUMA**

### **MANAGEMENT OF CONCUSSION IN YOUNG ATHLETES**

The discharge instructions received by youth athletes hospitalized for a sports-related closed head injury over a 5-year period (1987-1991) were examined at the Children's Hospital and University of Alabama, Birmingham, AL. Injury severity was graded according to Cantu's 1986 guidelines and compared to the Colorado Medical Society guidelines as endorsed by the American Academy of Pediatrics. Concussions were grade 1 (least severe) in 8 patients (24%), grade 2 in 10 (30%), and grade 3 (most severe) in 15 (45%). Discharge instructions were inappropriate and not in compliance with guidelines in 8 of 10 patients with grade 2, and in all of 15 with grade 3 concussions. The majority had uneventful hospital courses, but most received inadequate counseling regarding potential future risk. Of 23 for whom instructions were inadequate, 3 were allowed to return to sports participation too quickly, and no instructions were documented for 20 (87%) patients. (Genuardi FJ, King WD. Inappropriate discharge instructions for youth athletes hospitalized for concussion. Pediatrics February 1995;95:216-218). (Reprints: Dr FJ Genuardi, University of Florida Health Science Center, Dept of Pediatrics, 653-1 W 8th St, Jacksonville, FL 32209).