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HEADACHE DISORDERS

CAUSES AND MANAGEMENT OF HEADACHE IN THE EMERGENCY DEPARTMENT

The diagnoses, indications for CT scans, and pharmacological therapy in 130 children (0.7% of all pediatric ER visits, mean age 9.3 years), presenting with a chief complaint of headache in the pediatric emergency department, were evaluated by a 1-year retrospective chart review at the Schneider Children's Hospital, New Hyde Park, NY. Diagnostic categories included the following:

- *primary headaches*, 13 cases (10%) [11 were migraine, 2 tension in type];
- *secondary neurological* 60 cases (45%) [posttraumatic 26, of which 18 were minor, VP shunt malfunction 15, seizures 4, aseptic meningitis 3, brain tumor 2, syncope 2, pseudotumor, brain abscess etc 8];
- *secondary nonneurological* 42 (32%) [viral and respiratory illnesses 37, hypertension 2, tooth abscess etc 3];
- *unclassified* 15 (11%).

A neurological etiology was serious and required hospital admission in a total of 11 (9%) patients, including the 3 with aseptic meningitis, 2 with VP shunts, 2 brain tumors, and an epidural hematoma, a subdural hematoma, brain abscess, and one pseudotumor. CT scans were performed in 53 (41%) patients, of which 5 (10%) showed new abnormalities, including hydrocephalus in 2, subdural hematoma (1), epidural hematoma (1), and skull fracture (1). The majority of CT scans (32/53) were obtained in cases with secondary neurological headaches, and this group accounted for all abnormal scans (5/32 (15%)). Of 42 patients (32%) treated pharmacologically, 39 (93%) received over-the-counter analgesics, and 9 (21%) had prescribed analgesics. (Kan L, Nagelberg J, Maytal J. Headaches in a pediatric emergency department: Etiology, imaging, and treatment. *Headache* Jan 2000;40:25-29). (Respond: Dr Joseph Maytal. Division of Pediatric Neurology, Schneider Children's Hospital, Long Island Jewish Medical Center, New Hyde Park, NY 11040).

COMMENT. Headache is a common symptom in children and adolescents but is unusual as a presenting complaint in the pediatric emergency department (ED), accounting for less than one percent of visits. Headaches secondary to viral or

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respiratory illness and those associated with minor head trauma are the most common forms seen in the ER. A serious neurological disorder requiring admission to hospital is encountered in 9% of headache patients. CT scans that are indicated when headache is linked to neurologic disorders may be positive in 15% of cases; none was positive among patients with migraine or nonneurological headaches. Prescription analgesic therapy for ED cases of headache is rarely indicated.

The prevalence of headache, including migraine, increased significantly in school age children, from 23% to 71% during an eighteen year time period (Sillanpaa M, Anttila P. Headache 1996;36:466-470). The highest increases occurred in headache related to tension, stress and social instability, while the prevalence of febrile illness and head trauma, common precipitating causes in ED headache, was unchanged.

The decision to obtain a CT scan in a child presenting in the ED with headache is sometimes difficult, and many cases, approximately 50%, require careful neurological evaluation. Absolute indications include the following: head trauma with skull fracture and/or impaired consciousness; symptoms and signs of increased intracranial pressure; ventriculo-peritoneal shunt malfunction; and abnormal increase in head circumference. Probable indications for CT include: atypical recurrent headaches; a recent change in the character of headaches; early morning headaches, especially if associated with vomiting; abnormal neurological findings; and occurrence of headache in younger age groups. Patients with a known diagnosis of migraine and those with viral and respiratory illness can be treated symptomatically and followed, but those with suspected neurological disorders deserve complete work up before discharge. (see Maytal J et al. *Pediatrics* 1995;96:413-416; and *Progress in Pediatric Neurology III* PNB Publ, 1997; pp185-190, for reviews of indications for imaging studies and prevalence of headache).

MUSCLE DISORDERS

FREQUENCY OF CHILDHOOD MITOCHONDRIAL MYOPATHIES

The frequency of mitochondrial diseases among patients with childhood encephalopathies and myopathies in a defined population of Northern Finland was investigated at the University of Oulu, Finland. Among a total of 116 consecutive patients with unexplained psychomotor retardation enrolled during a 7-year period, the frequency of ultrastructural mitochondrial abnormalities was 71% (ragged-red fibres in 4 cases), oxidative phosphorylation defect (OXPHOS) occurred in 28% (complex I and IV most commonly), and mutations in mitochondrial DNA (mtDNA) in only 1 patient (.9%). A diagnosis of mitochondrial disease was possible (with ultrastructural changes in muscle mitochondria) in 71%, probable (with defects in OXPHOS enzymes in addition to ultrastructural changes) in 15%, and definite (having pathogenic mutations in mtDNA) in 0.9%. Clinical manifestations were mental retardation alone or with hypotonia, ataxia, epilepsy, or spasticity in 74%, and muscular hypotonia or ataxia in 14%. EMG and NCS showed myopathy in 13%, nerve degeneration in 7%, and anterior horn cell disease in 2%. MRI or CT showed cortical atrophy in 18% and calcifications in 6%. Blood lactate was elevated in 58%. (Uusimaa J, Remes AM, Rantala H et al. Childhood encephalopathies and myopathies: a prospective study in a defined population to assess the frequency of mitochondrial disorders. *Pediatrics* March 2000;105:598-603). (Reprints: Kari Majamaa MD, University of Oulu, Department of Neurology, Kajaanintie 52 A, FIN-90220 Oulu, Finland).