

Brain Imaging in Chronic Headaches: Is it Indicated?

[Maytal I, Bienkowski RS, Patel M, Eviator L. The value of brain imaging in children with headaches. Pediatrics 1995, 96: 413-416].

The authors retrospectively evaluated medical records of 133 patients who had headaches of greater than 2 years of duration. The records were reviewed to find out the probable indications for performing computed tomography (CT) and magnetic resonance imaging (MRI) studies. These patients were clinically diagnosed as having vascular migrainous headache (52%) or chronic tension headache (21%); other diagnoses were mixed tension-migraine, psychogenic, post traumatic or unclassified. The CT, MRI or both were performed in 78 patients. In 23 patients, physician's or parents' concern for some serious brain disease, was the indication for imaging studies. In others, atypical headache pattern, early age (<5 years) of onset, recent change in characteristics of headache, or presence of focal signs, symptoms or systemic manifestations were important indications. Eleven patients had abnormal imaging studies; 7 had abnormalities in paranasal sinuses while 4 had intracerebral abnormalities (neuroepithelial cyst, cerebral hemiatrophy, Dandy-Walker variant malformation, arachnoid cyst). In all these four patients, the cerebral abnormalities were not directly related to the origin of headache. Potentially treatable cerebral lesions such as brain tumors, vascular abnormalities or hydrocephalus could not be discovered in any children with prolonged headache. It was concluded that brain

imaging studies have very limited value in evaluating chronic headaches in pediatric patients without clinical evidence of an underlying structural brain lesion.

Comments

Headache is one of the common presenting complaint in a Pediatric Neurology Clinic. It is frequently a cause of concern among parents and physicians as it may be the only pointer to a underlying serious brain disease like intracranial space occupying lesion. Rothner(1) distinguished four types of headaches; acute, paroxysmal and recurrent, chronic and progressive, and chronic and non progressive. Chronic and non progressive headaches are almost invariably functional. In some they are a manifestation of anxiety and tension, other affected children may have underlying history of depression. Hyperventilation syndrome is another cause for chronic non progressive headache which can be accompanied by giddiness, paresthesias, brief loss of consciousness and blurring of vision.

Each patient with a complaint of headache should undergo careful neurological and general physical examination. Occasionally the examination may yield clues to the etiology of headache (*e.g.*, papilledema, focal neurological deficit), but generally it will serve to reassure both the parents and the physician that probably nothing serious is causing headache. Any patient with headache in whom neurological assessment discloses an abnormality should undergo imaging studies. When the neurological examination is normal, no further imaging

studies are required except if the history suggests a specific diagnosis, the headache develops a new quality, pain becomes more severe and refractory to treatment, or the headaches are atypical(2). The present study also highlights that if the history and neurological examination do not alert the physician to any focal abnormality then the likelihood of identifying a definite underlying abnormality on an imaging study is quite remote. The authors advised that the pressures of patients, parents and doctors for performing imaging studies must be resisted. However, if the physician feels that an imaging evaluation is indicated, MRI is the study of choice, although a computed tomography is often adequate in identifying a space occupying lesion, a shift of midline structures, herniation, or the presence of subarachnoid blood(3). Parental concern about headaches and the increasing practice of defensive medicine, as emphasized even by these authors, are also important deciding factors regarding the need for brain imaging. The facilities of these expensive imaging studies should not be used indiscriminately though they are relatively safe(4,5).

However, at times the imaging studies may provide a positive effect by alleviating apprehension about the cause of headache.

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