Teenager With Chronic Daily Headache of Sudden Onset

June 01, 2006
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A 15-year-old boy complains of moderate to severe headaches that occur daily and usually last all day; the pain typically worsens toward the end of the day. How will you help this patient?

THE CASE:

A 15-year-old boy complains of moderate to severe headaches that occur daily and usually last all day; the pain typically worsens toward the end of the day. The headache is bilateral and involves the forehead, temporal areas, and occipital areas. The pain of his moderate headaches (4 or 5 on a 10-point visual analog scale) is dull and continuous. Two or 3 times a week, he has 2- to 6-hour episodes of severe head pain (7 or 8 on a 10-point scale--it almost never reaches 10). These he describes as a feeling of pressure with throbbing. During a severe headache, he occasionally experiences mild nausea, without vomiting, and increased sensitivity to bright light and loud noise. The severe episodes exhibit no regular pattern, and he cannot identify any triggering or exacerbating factors. The patient takes ibuprofen or acetaminophen 2 or 3 times a week for management of the severe headaches, but he does not use any medication for the milder headaches.

The patient easily recalls the time 3 years earlier when the headaches started. His parents note that 2 weeks before the headaches began, he had flu-like symptoms (fever, sore throat, decreased appetite, and fatigue) and enlarged lymph nodes in the neck area. After 1 week of symptomatic therapy, the fever and sore throat resolved; the weakness, fatigue, and headaches continued for another 2 to 3 months. After that, only the headaches remained, and they have occurred daily since they started. He had no previous history of headaches. Results of a physical examination are unremarkable. Laboratory results include evidence of IgG for Epstein-Barr virus (EBV) but no evidence of IgM for EBV. The results of a CT scan of the sinuses and of an MRI of the brain are normal.

What is the differential diagnosis of chronic daily headache?
Which features of the history are most helpful in pinpointing the diagnosis?
What should be the primary focus of therapy for this patient?

THE DIALOGUE:

Primary care doctor: This patient has chronic daily headache of sudden onset and 3 years' duration, along with serologic evidence of remote EBV infection. What features here point to a diagnosis?

Headache specialist: The sudden onset of the headaches and the absence of other factors that might contribute to his condition (no abnormalities on physical examination, sinus CT, or brain MRI) suggest new daily persistent headache (NDPH).

Primary care doctor: What are the diagnostic criteria for NDPH?

Headache specialist: According to the second edition of the International Headache Society's Classification of Headache Disorders, NDPH is a chronic, unremitting disorder of sudden onset and a daily pattern that is present from the first day or that develops within 3 days of onset.1 Usually, patients can easily identify the time of headache onset with impressive accuracy, as this patient does. The chronic pattern should persist for at least 3 months. Other helpful features are the moderate severity, bilateral location, and dull tightening quality of the pain. However, some migraine-like features, such as throbbing, may also be present, although obvious trigger factors (eg, physical exertion, routine activities) are not found and associated symptoms (nausea, photophobia, and phonophobia) are mild. Vomiting is almost always absent.

Primary care doctor: In a patient who presents with a chronic throbbing headache, how would you differentiate between NDPH and status migrainosus?

Headache specialist: Both status migrainosus, which is defined as a migraine that lasts longer than 72 hours, and NDPH begin abruptly. Distinguishing between the two may be difficult when the disorder is in its beginning stages. However, status migrainosus possesses all migraine features: throbbing quality; severe pain; and associated nausea, vomiting, and extreme sensitivity to bright
light and loud noise. Typically, status migrainosus is a disabling condition; vomiting is common and frequently causes severe dehydration and electrolyte imbalances that require urgent hospitalization. Here, although some migraine-like features (e.g., throbbing) are present, the patient is able to continue his regular daily activities, such as attending school. The headache does adversely affect his life, but he is not completely disabled. The pain is moderate, vomiting is absent, and the other associated symptoms are not as pronounced as those observed in patients with status migrainosus. Also, although status migrainosus lasts longer than 72 hours, it never persists for 3 years. In the majority of patients with status migrainosus, the duration is limited to 1 or 2 weeks. In sum, status migrainosus is an extreme and prolonged presentation of migraine.

**Primary care doctor:** What about transformed, or chronic, migraine? How would you differentiate NDPH from transformed migraine?

**Headache specialist:** The clinical presentation alone does not provide sufficient information to establish the diagnosis. Both types of headache may be bilateral or involve the entire head. Patients with either type of headache may describe the pain as moderate to severe and throbbing. Both disorders are chronic, and affected patients may complain of mild associated symptoms. This patient can easily recall the date of onset of his daily headaches. He also has no prior headache history, and the daily headache pattern did not vary after its onset. All of these factors perfectly “fit” the definition of NDPH. In contrast, patients with transformed migraine usually report a history of episodic migraine that precedes the transformation period, during which a gradual increase in frequency is observed. Many patients with transformed migraine find it difficult to recall when the headache became chronic.

**Primary care doctor:** How often do you see patients with NDPH?

**Headache specialist:** Not often, although we do see some variation in the prevalence of NDPH among different age groups. According to some studies, the prevalence of NDPH in pediatric populations varies between 12% and 23% of all children with chronic daily headaches. In an adult population with chronic headaches, NDPH occurred half as often as it did in these younger patients. The mean age at onset of the disorder is 34.8 years.

**Primary care doctor:** What factors contribute to the development of NDPH?

**Headache specialist:** The exact cause has not yet been established. In 1 study, the cause was unknown in 80% of patients, while in the other 20%, emotional stress was found to be a triggering factor. Another study pointed to a viral origin for NDPH in many patients, with serologic findings suggestive of recent infection with herpes simplex virus in 42% of patients and evidence of Cytomegalovirus infection in 11%. In the same study, no evidence of infection with EBV was found. However, the most consistent findings regarding the cause of NDPH suggest that EBV in particular may play a significant role in its development. In some studies, an infectious disease had been diagnosed at the onset of NDPH in more than 40% of patients who had the condition. In more than half of those patients in whom an infectious disease was diagnosed, serologic findings suggested recent EBV infection. The percentage of patients with NDPH who are serologically positive for EBV infection may be as high as 84%, with 62% actively excreting EBV from the oropharynx.

**Primary care doctor:** What is the recommended treatment for NDPH, and what is the prognosis for affected patients?

**Headache specialist:** When treating patients with a chronic headache disorder, use a multidisciplinary approach that combines pharmacotherapy and nonpharmacologic methods. The most important aspect of NDPH treatment is prevention. A variety of agents can help prevent headaches in patients with NDPH, including tricyclic antidepressants (TCAs), β-blockers, calcium channel blockers, anticonvulsants, and monoamine oxidase inhibitors (MAOIs). We recommend TCAs as first-line therapy. Start with protriptyline in patients who do not have significant sleeping difficulties; consider doxepin or nortriptyline in patients who present with both NDPH and insomnia. β-Blockers or calcium channel blockers may be used in combination with TCAs. Second-line therapy includes various anticonvulsants. Finally, if a patient is refractory to all these agents, consider using an MAOI. Various abortive medications, such as triptans or ergotamine-containing agents, may be used to control severe exacerbations.

Pharmacologic therapy alone is not as effective as approaches that also incorporate nonpharmacologic methods. Thus, in addition to medical treatment, it is prudent to refer patients for therapies such as biofeedback, relaxation techniques, or counseling. However, even with combination therapy, 50% or more of patients with NDPH may not achieve a successful resolution.

References:
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