

Headache: Differentiating Among the Types, Use of Imaging, and Medication Overuse Headache

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WHAT CLINICAL FINDINGS ARE MOST USEFUL FOR DIFFERENTIATING AMONG THE VARIOUS TYPES OF HEADACHES?

When asked to comment on this topic I immediately thought of the advice that Seymour Diamond, founder of the Diamond Headache Center and the godfather of headache gave to his daughter Merl when she succeeded him as director, "Merl, it's all migraine." About 90% of all the patients that we see at The Headache Center are diagnosed with probable Medication Overuse Headache (Analgesic Rebound) on their first visit. Once they are successfully treated, their underlying headache disorder is usually migraine or a combination of migraine and tension type headache.

In a primary care setting, the vast majority of patients you will see with headache have migraine. As in all of medicine the history remains the key to diagnosis, however with primary headaches the history is the only means for diagnosis. There were no accepted ways to diagnose migraine until 1988 when The International Headache Society developed a classification of headache with criteria to diagnose each headache.¹ There are 14 categories that are divided into 3 groups: Primary, Secondary and Cranial Neuralgias. Primary headaches are those that exist independent from any other medical condition. Secondary headaches are those caused by another medical disorder. Even the members of the classification committee cannot remember all the criteria however in clinical practice it is helpful to know the criteria for migraine.

The diagnostic criteria for migraine are as follows:²

- A. At least 5 attacks fulfilling criteria B-D
- B. Headache attacks lasting 4-72 hours (untreated or unsuccessfully treated)

- C. Headache has at least two of the following characteristics:
 - i. unilateral location
 - ii. pulsating quality
 - iii. moderate or severe pain intensity
 - iv. aggravation by or causing avoidance of routine physical activity (e.g., walking or climbing stairs)
- D. During headache at least one of the following:
 - i. nausea and/or vomiting
 - ii. photophobia and phonophobia
- E. Not attributed to another disorder

The most important item is A. The diagnosis of migraine should never be given to a patient experiencing their first migraine. Subarachnoid hemorrhage has mistakenly been diagnosed as migraine for this reason.

A three-question screening tool developed by Richard Lipton called ID Migraine[®] results in a predictive value of 93%.³ The three questions were:

- 1. Has a headache limited your activities for a day or more in the last three months?
- 2. Are you nauseated or sick to your stomach when you have a headache?
- 3. Does light bother you when you have a headache?

Yes to any two results is a positive screen.

Although tension headache is the most common headache, patients seldom seek medical attention.

Cluster headache is considered the most severe headache pain. It is seen 18 times more commonly in men. The associated nasal congestion, eye tearing, and scleral injection result in its commonly being misdiagnosed as a sinus infection. The best clue is the shorter duration of the

headache (cluster headaches almost never last longer than 3 hours even without treatment).

In my experience, the most common secondary headache is medication overuse followed by post-traumatic headache. If there is one diagnosis that I make sure we never miss, it is temporal arteritis. This headache is seen almost exclusively in patients over 50 years old. Although temporal pain and tenderness are common the headache can be less localized and tenderness less apparent.

I can count on one hand the number of patients who presented to my office with headache and subsequently found to harbor a brain tumor. All three had another cause for headache. This leads me to the issue of imaging studies.

WHAT ARE THE CLINICAL INDICATIONS FOR USE OF IMAGING TO EVALUATE HEADACHES?

Although there should be no better situation than the use of imaging studies in headache to make a significant impact on the cost of healthcare, there remains a paucity of Class I evidence that would allow a definitive answer to this question.

Headache is one of the most common complaints of patients seeking medical attention; approximately 20% of women suffer from migraine alone. The vast majority of patients, even seen in a headache referral center such as mine, will suffer from primary headache disorders (migraine, tension-type and cluster headache). Of the remainder who are diagnosed with a secondary headache, analgesic rebound headache, now referred to as medication overuse headache, accounts for greater than 90% in our practice. The odds of finding a significant abnormality responsible for their headaches on imaging studies are exceedingly low. In patients fulfilling the criteria for migraine for example, the prevalence of significant intracranial abnormalities on imaging studies in meta-analysis was approximately 0.2%.⁴ This would be consistent with my experience.

The Quality Standards Subcommittee of the American Academy of Neurology has published a practice parameter regarding neuroimaging in the evaluation of headache patients with normal neurological examinations.⁵ The data of all studies reviewed were classified as Class III. The subcommittee concluded that in adults with recurrent headache that have been defined as migraine—including those with visual aura—with no recent change in pattern, no history of seizures, and no focal neurological signs or symptoms, the routine use of neuroimaging is not warranted. Again, these studies were performed on patients with a definite diagnosis of migraine and, as mentioned, apply only to those patients.

Since expert opinion is considered Class III evidence, I have decided to give you mine. In any of the following situations, imaging studies are mandatory.

- a. Severe, sudden onset headache
- b. Headache described as the worst headache ever experienced
- c. New onset headache at age 50 or older
- d. New onset headache associated with a history of cancer, immunodeficiency or systemic symptoms (e.g., fever, weight loss)
- e. New onset headache that does not fit the strict criteria for a primary headache. (Remember the International Headache Society Criteria to diagnose migraine require five separate episodes)
- f. Chronic headache with any new neurological sign or symptom
- g. Chronic headache with significant change in severity or frequency
- h. Headache associated with exertion, sexual activity or valsalva
- i. Headache associated with fever or meningeal symptoms. (Do not delay LP waiting for an imaging study in a patient with a non-focal exam.)
- j. Headaches that awaken the patient
- k. Headache associated with head trauma. No clinical criteria have been developed that will totally exclude a structural lesion.
- l. Any patient with such concern about a structural lesion that treatment will be ineffective until such a lesion is ruled out.

It is also extremely important to ask about the use of over the counter meds since patients routinely omit these when describing the medications used to treat their headache.

HOW IS MEDICATION OVERUSE HEADACHE BEST TREATED?

Medication Overuse Headache (MOH)⁶ is defined by the International Headache Society Classification of Headache as:

- A. Headache present ≥ 15 days/month fulfilling criteria C and D
 - B. Regular overuse for ≥ 3 months of one or more drugs (see table below) that can be taken for acute and/or symptomatic treatment of headache
 - C. Headache has developed or markedly worsened during medication overuse
 - D. Headache resolves or reverts to its previous pattern within 2 months after discontinuation of overused medication
1. Simple Analgesics (Acetaminophen, Opioids, NSAID's)
 2. Combination Analgesics (Excedrin®, Fiorinal®, Fioricet®)
 3. Ergotamines
 4. Triptans (Imitrex®, Maxalt®, Relpax®, etc)
 5. Other Vasoconstrictors, i.e. pseudoephedrine

In practical terms, this is a chronic daily or almost daily headache that develops in patients treating each headache with acute/abortive medications. It is most commonly seen with underlying migraine. The above criteria are for simple

analgesics; i.e. triptans, ergotamines, opioids, acetaminophen. Combination analgesics only require 10 days per month. Since MOH requires a response to treatment, only a diagnosis of probable MOH can be made initially. It should be recognized that the criteria are for days per month and not pills per month. I can't tell you how often I hear "but doctor I only take one Fiorinal® a day."

It is also extremely important to ask about the use of over the counter meds since patients routinely omit these when describing the medications used to treat their headache. Decongestants such as pseudoephedrine are commonly used to treat migraine mistakenly assumed to be "sinus headaches" and results in MOH as well. Antihistamines do not cause MOH, however we do prohibit use of antihistamine-decongestant combination medications due to the vasoconstrictive effects of the decongestant. Some patients develop MOH during the treatment of another disorder. Daily analgesics for back pain or other ailments will result in the development of MOH in susceptible patients.

The most important reason to identify MOH is its effect on response to preventative treatment. Patients rarely respond to preventatives while they are in rebound and any preventative medication prescribed while the patient suffers from MOH cannot be considered an adequate trial. We have seen countless patients at The Headache Center who have not responded to prior treatments with preventatives. Once MOH has been eliminated, we will rechallenge patients with the same prophylactic medications with success.

There are no double blind placebo controlled studies of MOH treatment. The simplest treatment is to have a patient stop all offending medications, however after treating thousands of patients with MOH this is not a practical solution. I can guarantee you the first question you will be asked after you make this suggestion is "Doctor, what will I do if I get a headache?"

Our protocol at The Headache Center is outlined below:

- 1.) The most important aspect of treatment involves education. Many patients have never heard of the term analgesic rebound headache or medication overuse headache.

One method I employ is to actually show them the International Headache Society Classification of Headache. The list of headaches, even using a small font, takes up approximately 10 letter size pages. I flip through the pages saying, "these are all the headaches, we take all of them into consideration when making a diagnosis and there are criteria to make a diagnosis of each one." I then explain why they fit the criteria and that there is little hope of improving their headaches until the MOH is eliminated.

Education with respect to their underlying headache disorder is also necessary. Almost half of all patients with migraine have never been given a diagnosis, and if they have, they do not realize that migraine or other primary headaches are real diseases.

I spend a great deal of time explaining that migraine is a real disease in the same way Parkinson's is a disease. Like Parkinson's, migraine is a disorder of neurotransmitters. Both are clinical diagnoses and are not associated with any abnormalities of blood or imaging studies. It can be extremely therapeutic for a patient to know that what they are experiencing has a pathophysiological basis.

Once they understand and accept the diagnosis both MOH and their underlying primary headache disorder, we then discuss expectations of treatment. It is extremely important to manage expectations. Utilizing a comprehensive approach, a reasonable expectation is that we can reduce their headaches by 50%. We always try for more but they must realize that even after treatment they will continue to experience headaches.

2.) Sometimes, we delay initiating treatment several weeks to months if the patient's current personal circumstances would limit the chance of success. Once the program starts however, all offending medications must be stopped immediately. The only exception would be a patient on chronic narcotics, in which case we work in conjunction with a formal detox center. Patients who have MOH due to combination analgesics containing butalbital may receive a short course of treatment with phenobarbital to prevent withdrawal.

3.) The mainstay of medical treatment is prednisone.⁷ Our protocol uses 60 mg for 6 days, 50 mg for 5 days, 40 mg for 4 days, etc., until completed. We seldom see significant side effects; however, since anxiety, restlessness and insomnia can occur, each patient is usually given a small prescription of diazepam to take prn. Anti-emetics are also prescribed.

4.) All patients are told to call us if they experience any headache that requires treatment. Treatment for such headaches is individualized. For those patients who experience severe headaches refractory to outpatient therapy, our inpatient program is utilized.

5.) The remainder of the treatment involves non-pharmacological treatment. The other members of the team include Physical Therapists and Behavioral Therapists. I can't emphasize enough the essential role each therapist plays. Our success is primarily based on our ability to work as a team. These are very challenging patients and medication alone is hardly ever successful. Most patients have associated cervical strain and muscle spasm and suffer from poor posture. Psychological comorbidity is also well documented. The prevalence of anxiety and depression is significantly higher in migraine patients especially those with transformed (chronic) migraine or medication overuse headache. In a study published in *Headache*,⁸ seventy-eight percent of patients with transformed migraine had psychiatric comorbidity, including major depression (57%), dysthymia (11%), panic disorder (30%), and generalized anxiety disorder (8%).

6.) We recommend Vitamin B2 and Magnesium.^{9,10}

7.) A headache diary is required of all patients

8.) All patients are seen in follow-up 2 weeks after the treatment is started and at that time, a preventative is usually started.

9.) We do not prescribe abortives until the headache frequency is less than 3/week. In our practice, all patients have abortives limited to avoid development of MOH.

MOH is a challenging disorder to treat but can be very rewarding for you and life changing for the patient after successful treatment.

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Disclosure of Financial Interests

The author and/or spouse/significant other has no financial interests to disclose.

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