



## **Headache Treatment: What's the Latest?**

Philip Bossart, MD, FACEP

Clinical Professor  
Division of Emergency Medicine  
University of Utah Medical School  
Salt Lake City, Utah

### **Case Presentation**

A 20 year old female presents to the ER with a chief complaint of a severe headache. The headache started suddenly 6 hours ago while reading a book. She has had similar headaches about 5 times in the past few years but never this severe. Prior headaches resolved with Ibuprofen and rest but not this one. Her pain is bilateral, 10/10 in intensity, and associated with photophobia and phonophobia. She also notes some visual blurring prior to the headache which is now gone. She denies nausea, fever, focal weakness or numbness. Her past medical history is unremarkable. Review of systems reveals being late for her last period.

Her exam shows a BP of 120/80, HR of 70, RR of 20 and no fever. She is alert and O<sub>x</sub>3 but is in significant distress from her headache. She has scalp tenderness bilaterally. Pupils are 2 mm, equal and reactive. Heart, lung, and abdominal exams are normal. She has a GCS of 15. Cranial nerves and motor, sensory, cerebellar, DTRs are all normal.

What diagnoses need to be considered in this patient?

What laboratory and radiological tests need to be done?

What is the most likely diagnosis?

How should her headache be treated?

## **Key Clinical Questions and Learning Points**

### **What are the life threatening causes of acute headache which need to be considered in all patients?**

The following conditions need to be considered in all patients with an acute headache:

Intracranial bleed (especially subarachnoid headache)  
Meningitis  
Carotid or Vertebral dissection  
Sinus Thrombosis

Although most patients with these conditions will appear very ill, all of these conditions may present with only a headache. These conditions may be missed unless the physician **thinks** about them. Other serious causes of headache include: mass lesions, intracranial hypertension, temporal arteritis, hypertensive encephalopathy, hypoxia, hypercarbia, CO toxicity, glaucoma.

### **What are the “red flags” which suggest a serious secondary headache?**

Thunderclap headache. A sudden onset headache that becomes severe right away (within seconds) increases the likelihood of a subarachnoid bleed. Other conditions that may present this way include carotid and vertebral artery dissections, venous thrombosis, pituitary apoplexy and hypertensive encephalopathy.

Headache during exertion. The acute onset of a headache during exertion is typical of intracranial hemorrhage and carotid or vertebral artery dissection.

HIV and Immunosuppressed patients. AIDS patients have a very high incidence of intracranial infections and tumors. Any significant headache in these patients should be worked up with CT scan of the head and possibly lumbar puncture.

Likewise patients with known cancer who present with headaches may have metastatic disease to the brain.

New onset headache over age 50. Any patient with a significant headache that is totally different from previous headaches should be considered for work up for a secondary headache. A secondary headache had a specific pathological cause for the pain, such as bleeding or tumor. However the literature suggests that patients over the age of 50 have a higher incidence of having a secondary headache. In particular these patients may have mass lesions or temporal arteritis.

Any neurologic signs or symptoms. A neurologic abnormality on exam is the best predictor of intracranial pathology. This includes subtle focal abnormalities as well as altered mental status or seizures. Careful attention to the eye exam may reveal papilledema, Horner's syndrome, or narrow angle glaucoma.

### **What are the International Headache Society's (IHS) diagnostic criteria for migraine?**

The IHS criteria for diagnosing migraine headache require at least 5 episodes of a headache that:

Lasts 4 to 72 hours

Have at least two of the following characteristics: unilateral location; pulsing quality; moderate or severe intensity; aggravated by physical activity.

Is associated with at least one of the following: nausea and/or vomiting; photophobia and phonophobia.

History and exam do not suggest any other diagnosis.

### **How should Migraines be treated in the ED?**

Most patients who present to the ED with migraine headaches have either a severe headache or one that has not responded to over the counter oral medications.

Therefore most patients will require a parenteral medication. The US headache Consortium recommends using migraine specific medications (triptans and DHE) when possible.

Triptans are serotonin 1B/1D agonists which inhibit the release of vasoactive peptides, vasoconstrict, and block pain pathways in the brainstem felt to be the cause of migraines.

Sumatriptan is the best studied agent. It can be given 6mg SQ or 20mg Intranasal or 50 to 100mg orally. DHE is an alpha-adrenergic blocker that can be given IV, IM, SQ, and IN. Usually dose is 1mg IV after premedication with an antiemetic such as metachlopramide 10mg IV or prochlorperazine 10mg IV. These antiemetics alone often successfully treat migraines. Other options include chlorpromazine .1mg/kg IV, Valproic Acid 500mg to 1000mg IV, Ketorolac 30mg IV or IM, and narcotics.

There are very few studies directly comparing these medications and so which ones are best is not known.

### **What are the contraindications to Triptans and DHE?**

Triptans and DHE have been used extensively and very safely for many years. There are very few reports of complications from there use. Chest pain is a common side effect of these medications. However, it is not clear that this pain represents cardiac ischemia and no treatment is usually needed.

However, they are contraindicated in patients with known coronary or cerebral vascular disease, uncontrolled hypertension, pregnancy, and hemiplegic or basilar migraines. Also, triptans and DHE should not be used within 24 hours of each other.

## **References**

Clinical policy: Critical issues in the evaluation and management of patients presenting to the emergency department with acute headache. *Annals of Emergency Medicine* Volume 39, No.1, January 2002.

Headache Classification Committee of the International Headache Society. The International Classification of Headache Disorders. *Cephalalgia* 2992; 24:1.

Landy S, Smith T. Treatment of primary headache: acute migraine treatment. In: Standards of care for headache diagnosis and treatment. Chicago (IL): National Headache Foundation; 2002.p.27-39.

Matchar D, Acute management of migraine, Highlights of the US Headache Consortium, *Neurology*. Vol 60, No. 7 April 8, 2003

Silberstein SD, US Headache Consortium. Practice parameter: Evidence-based guidelines for migraine headache. *Neurology* 2000; 55:754.

Hall GC, Brown MM, Mo J, MacRae KD. Triptans in migraine: the risks of stroke, cardiovascular disease, and death in practice. *Neurology* 2004; 62:563.

## **Patient Case Outcome**

### **Emergency Department Course**

The only lab test ordered in this patient was a pregnancy test that came back positive. No radiological tests were obtained. A diagnosis of “migraine with aura” was made clinically. Although the patient did not have nausea or vomiting and her headache was bilateral, this is not inconsistent with migraine headache. She met the IHS criteria for migraine headache and did not have any warning signs of a life threatening secondary headache. Most patients who are pregnant have a decrease in the severity of their migraines but a few may have an increase. Since she was pregnant, triptans and DHE were contraindicated. She was treated with prochlorperazine 10mg IV with prompt relief of her headache. She was **not** started on a preventive medicine since she was pregnant and she did not have frequent attacks.

### **Patient Outcome**

She was discharged home to follow up with her OB.