

Assessment, diagnosis, and management of headache

By Janis R. Guilbeau, DNP, FNP-BC and Christy M. Lenahan, DNP, MSN, FNP-BC

Healthcare providers caring for women can use advanced clinical skills in assessment and accurate diagnosis of headaches. Accurate diagnosis is imperative in providing effective management and making appropriate referrals. The overall goal is to make the correct diagnosis, adequately treat the headaches, and minimize the frequency and severity of headaches in the future.

About 45 million individuals in the United States complain of headaches to their healthcare provider (HCP), accounting for nearly 8 million clinical visits per year.¹ The female preponderance of headaches emerges at puberty, with females, relative to males, having a 1.5-fold greater risk of headaches and 1.7-fold greater risk of migraine.² The most common primary headaches are migraine, tension, cluster, and chronic daily headache.³ Secondary headaches are symptoms of diseases or conditions that can be relatively minor (e.g., sinusitis) or quite serious or even life threatening (e.g., meningitis, brain tumor, cerebral aneurysm, head trauma).³ HCPs must use keen skills to evaluate each woman's symptoms, formulate a diagnosis, and devise a management plan.

Assessment

Health history

A complete history is key in making the diagnosis. Although symptoms of various types of headache may overlap, a detailed history helps the HCP determine whether a secondary cause needs to be further investigated or if the symptoms fit with one of the primary headache types. The HCP needs to ask the patient about the following³⁻⁵:

- onset, location, frequency, duration, severity, and character (e.g., throbbing versus constant) of the headache(s);



- existence of any aura or prodrome;
- any association between the headaches and sleep patterns, emotional factors, or food or alcohol intake;
- any associated symptoms with the headache;
- precipitating and alleviating factors;
- a family history of headache;
- any changes in vision;
- any history of trauma;
- any relationship between the headaches and the menstrual cycle or a change in the method of birth control;
- use of illicit drugs including cocaine and methamphetamine; and
- current medications, including aspirin, nonsteroidal anti-inflammatory drugs (NSAIDs), anticoagulants, and glucocorticoids.

Answers to these questions will enable the HCP to rule out certain types of headaches.³⁻⁵

Red flags in the history require that further evaluation be done for secondary causes. Sudden onset of a severe, intractable headache may suggest an intracranial disorder such as subarachnoid hemorrhage or meningitis.³ Severe headache triggered by sexual intercourse, cough, or exertion may be caused by an intracranial mass or subarachnoid hemorrhage.⁵ New

onset of headaches in persons older than 50, new onset of severe headaches during pregnancy or postpartum, or new headache types in patients with cancer or immunosuppression are of particular concern.^{3,5} Any headache described as the “worst headache ever” requires immediate attention.

Physical examination

Physical examination of a patient presenting with a chief complaint of headache includes a general survey, vital signs, focused assessment of the head and neck, and a full neurologic exam.⁵⁻⁷ The focused exam begins

Red flags in the physical examination include, but are not limited to, fever, weight loss, altered mental status, weakness, papilledema, focal neurologic deficits, proximal artery tenderness, and meningismus.

in a systematic manner starting with the scalp, which is assessed for swelling and tenderness. The temporal arteries are palpated. Nodularity, tenderness, and a diminished or absent pulse on one side are considered abnormal findings consistent with temporal arteritis.^{5,7,8}

Next, the HCP assesses the temporomandibular joint for tenderness or crepi-

tance,^{6,7} the eyes for lacrimation and conjunctival injection, and the periorbital area for eyelid swelling, ptosis, or miosis.^{5,6,9} Visual acuity, extra-ocular movements, visual fields, and pupillary size and response to light are checked for abnormalities and fundi are assessed with an ophthalmoscope for presence of spontaneous venous pulsations and/or papilledema.⁵⁻⁷ The nares are assessed for purulence, the sinuses palpated for tenderness, and the oropharynx examined for presence of purulence, erythema, and swelling.¹⁰ Assessment includes percussion of dentition for presence of tenderness.⁶ The HCP examines the patient's neck utilizing flexion (unless contraindicated) to assess for discomfort and/or stiffness,⁶ and listens for bruits in the neck, which may suggest arteriovenous

malformation.³ The cervical spine is palpated to assess for tenderness.⁶

Red flags in the physical examination include, but are not limited to, fever, weight loss, altered mental status, weakness, papilledema, focal neurologic deficits, proximal artery tenderness, and meningismus.⁶ All pertinent negative and positive physical exam findings, along with history findings, help the HCP further differentiate between primary and secondary headaches.

Diagnosis and treatment

Because of overlapping symptomatology among the different headache types, the diagnosis of a particular headache type can be challenging. In addition, the HCP must discern between a primary headache, which, although painful, is usually not harmful, and a secondary headache such as subarachnoid hemorrhage or transient ischemic attack, which could lead to a stroke.¹

Migraine

Migraines present as severe, disabling, unilateral headaches often described as pulsating in nature.¹¹ Symptoms may worsen with routine physical activity. Sensitivity to light, sound, and smells is often present, as are nausea and stiff neck.¹¹ Some migraineurs describe having prodromal symptoms (e.g., drowsiness, restlessness, decreased concentration, gastrointestinal upset) that may last for hours to days before the migraine.⁷ Twenty percent to 30% of migraineurs experience an aura. Aura consists of fully reversible visual, sensory, or speech disturbances that develop gradually before the headache and that last no longer than 60 minutes.^{7,11} Despite all these symptoms, neurologic examination findings in patients with migraine headache are negative or normal.

Migraines are 2-3 times more common in women than in men and vary in severity.¹¹ In females, prevalence of migraines diminishes after age 50 or after menopause unless estrogen replacement therapy is used.¹¹

Treatment for migraine is either abortive, halting an existing headache, or preventive, lessening the frequency and severity of the headaches. First-line abortive therapy for mild to moderate, non-disabling

migraine includes simple analgesics, combination analgesics, and NSAIDs.^{7,12} Metoclopramide may be added for nausea relief and may promote absorption of oral pain medications.⁷ Abortive therapy for moderate to severe headaches and those not relieved by analgesics may include drugs that affect serotonin, including the triptans (oral, intranasal, subcutaneous), combination triptan/NSAIDs, ergotamine tartrate, dihydroergotamine, and acetaminophen-isometheptene-dichloralphenazone.^{7,12,13} A weak opioid analgesic such as a butalbital compound or acetaminophen-codeine may be tried if the aforementioned agents are ineffective.^{12,13}

Prevention includes elimination or reduction of identified triggers (e.g., aged cheeses, red wine, monosodium glutamate, artificial sweeteners, caffeine overuse or withdrawal, too much or too little sleep).⁷ Pharmacologic prophylaxis is considered when migraineurs have more than one headache per week.^{7,12,13} Drug classes that have proved useful in preventive therapy include beta blockers, calcium channel blockers (CCBs), antidepressants, anti-seizure medications, and some antihistamines.^{7,12,13}

Cluster headache

Cluster headaches usually occur at night and are severe and unilateral.¹⁴ Although cluster headaches have been found to be 6 times more prevalent in males than in females, more and more women—typically between ages 20 and 40—are being diagnosed with this condition.^{14,15} Cluster headaches are frequently misdiagnosed as migraine, sinusitis, or allergies.⁵ The patient may describe sharp, unilateral orbital, supraorbital, or temporal pain accompanied by autonomic symptoms on the affected side (e.g., teary eye, nasal congestion or runny nose, ptosis, eyelid swelling, conjunctival injection).^{1,7,9,14} Unlike migraineurs, who prefer to remain at rest in a dark room, patients with cluster headache tend to be restless.¹⁴

Episodes may last 15-180 minutes, and may occur once every other day to as often as 8 times daily.^{7,9,14} These headaches typically occur daily for several weeks, followed by a period of remission.^{7,9} Treatment entails alleviating pain at the onset of the attack and

instituting preventive strategies such as smoking and alcohol cessation.¹⁶ Following onset of an acute attack, oxygen therapy and sumatriptan injection have been found to be the most effective treatment modalities.¹⁶ The CCB verapamil can be started at the beginning of a cluster headache, continued until the patient is headache-free for at least 7-14 days, and then slowly tapered and discontinued.^{7,9}

Tension headache

Tension headaches can be episodic (usually associated with a stressful event) or chronic (usually associated with muscular contraction in the neck and scalp).¹⁷ Definitive diagnosis includes two of these traits: pressing or tightening pain; occipitofrontal location; bilateral pain, with mild to moderate intensity; and lack of effect of physical activity.¹⁷ These headaches are typically self-limiting and non-debilitating and have no associated symptoms. Physical exam findings are normal. Relief is generally achieved with acetaminophen or NSAIDs.^{7,12} Treatment modalities for chronic tension headache include lifestyle modifications such as regular exercise, stretching, stress management, relaxation techniques, and adequate sleep. Other treatments include use of hot or cold packs, ultrasound, improvement of posture, trigger point injections, and occipital nerve blocks.^{7,17}

Chronic daily headache

This type of headache occurs on 15 or more days per month for at least 3 months and is typically related to medication overuse, although it may represent chronic (transformed) migraine.^{12,18,19} Medication overuse headache results from taking acute headache medication for 2-3 days per week.^{12,18} Treatment for chronic daily headache includes preventive medications to decrease reliance on acute medications, and assistance with withdrawal symptoms such as nausea, vomiting, and restlessness.¹⁸ Transformed migraine is a constant (24-hour) headache with intermittent, superimposed migraine symptoms.¹⁹ As many as 80% of patients with transformed migraine have coexisting depression; treat-

ment focuses on counseling and biofeedback in addition to medication needed to treat depression.¹⁹

“Choosing Wisely” initiative

With regard to headache assessment, diagnosis, and management, the American Headache Society endorses the “Choosing Wisely” initiative.²⁰ The initiative lists five suggestions:

- Avoid neuroimaging studies in patients with stable headaches that meet criteria for migraine.
- When indicated, magnetic resonance imaging is preferred over computed tomography except in emergency settings when hemorrhage, acute stroke, or head trauma is suspected.
- Do not recommend surgical deactivation of migraine trigger points outside of a clinical trial.
- Do not prescribe opioid- or butalbital-containing medications as first-line treatment for recurrent headache disorders.
- Do not prescribe frequent or long-term use of over-the-counter medications for headache.

Conclusion

Headaches are common occurrences in women; skilled HCPs are positioned to assess, diagnose, treat, and prevent headaches in these individuals. Familiarity with various types of headaches and their causes, appropriate treatment modalities, and preventive strategies can assist HCPs in management of women presenting with headache. •

Janis R. Guilbeau and Christy M. Lenahan are Assistant Professors at the University of Louisiana at Lafayette. The authors state that they do not have a financial interest in or other relationship with any commercial product named in this article.

References

1. Winland-Brown JE, Keller MB. Neurological problems. In: Dunphy LM, Winland-Brown JE, Porter BO, Thomas DJ. *Primary Care: Art and Science of Advanced Practice Nursing*. 4th ed. Philadelphia, PA: F.A. Davis; 2015:77-148.
2. International Association for the Study of Pain. Epidemiology of Headache. 2011. www.iasp-pain.org/files/Content/ContentFolders/GlobalYearAgainstPain2/HeadacheFactSheets/1-Epidemiology.pdf
3. Bautista C, Grossman S. Somatosensory function, pain, and headache. In: Grossman SC, Porth CM. *Porth's Pathophysiology: Concepts of Altered Health States*. 9th ed. Philadelphia, PA: Wolters Kluwer; 2014:422-451.
4. Bajwa ZH, Wootton RJ. Evaluation of headache in adults. *UpToDate*. December 10, 2014. www.uptodate.com/contents/evaluation-of-headache-in-adults
5. Hainer BL, Matheson EM. Approach to acute headache in adults. *Am Fam Physician*. 2013;87(10):682-687.
6. Silberstein SD. Approach to the patient with headache. *Merck Manual*. April 2014. www.merckmanuals.com/professional/neurologic-disorders/headache/approach-to-the-patient-with-headache
7. Hale N, Paauw DS. Diagnosis and treatment of headache in the ambulatory setting: a review of classic presentations and new considerations in diagnosis and management. *Med Clin North Am*. 2014;98(3):505-527.
8. Docken WP, Rosenbaum JT. Clinical manifestations of giant cell (temporal) arteritis. *UpToDate*. March 18, 2015. www.uptodate.com/contents/clinical-manifestations-of-giant-cell-temporal-arteritis
9. Weaver-Agostoni J. Cluster headache. *Am Fam Physician*. 2013;88(2):122-128.
10. Brook I. Chronic sinusitis clinical presentation. *Medscape*. April 7, 2014. <http://emedicine.medscape.com/article/232791-clinical>
11. International Association for the Study of Pain. Migraine. 2011. www.iasp-pain.org/files/Content/ContentFolders/GlobalYearAgainstPain2/HeadacheFactSheets/2-Migraine.pdf
12. Freitag FG, Schloemer F. Medical management of adult headache. *Otolaryngol Clin North Am*. 2014; 47(2):221-237.
13. Cunha JP. Migraine headache. *Emedicine Health*. March 16, 2015. www.emedicinehealth.com/migraine_headache/article_em.htm
14. American Headache Society Committee on Headache Education. Cluster Headache and Other Medical Conditions. 2011. www.achenet.org/resources/cluster_headache_and_other_medical_conditions/
15. Cleveland Clinic Foundation. Diseases & Conditions: Cluster Headaches. 2014. http://my.clevelandclinic.org/health/diseases_conditions/hic_Cluster_Headaches
16. Simon H. Headaches – cluster. University of Maryland Medical Center. September 18, 2013. <http://umm.edu/health/medical/reports/articles/headaches-cluster>
17. Blanda M. Tension headache clinical presentation. *Medscape*. October 1, 2014. <http://emedicine.medscape.com/article/792384-clinical>
18. Silberstein SD. American Headache Society. Medication Overuse Headache. www.americanheadache_society.org/assets/1/7/Stephen_Silberstein_-_Medication_Overuse_Headache.pdf
19. National Headache Foundation. Transformed Migraine. 2015. <http://www.headaches.org/2007/10/25/transformed-migraine-more-commonly-known-as-chronic-migraine/>
20. Loder E, Weizenbaum E, Frishberg B, Silberstein S; American Headache Society Choosing Wisely Task Force. Choosing wisely in headache medicine: the American Headache Society's list of five things physicians and patients should question. *Headache*. 2013;53(10):1651-1659.