Management of the Acute Migraine Headache

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As many as 30 million Americans have migraine headaches. The impact on patients and their families can be tremendous, and treatment of migraines can present diagnostic and therapeutic challenges for family physicians. Abortive treatment options include nonspecific and migraine-specific therapy. Nonspecific therapies include analgesics (aspirin, nonsteroidal anti-inflammatory drugs, and opiates), adjunctive therapies (antiemetics and sedatives), and other nonspecific medications (intranasal lidocaine or steroids). Migraine-specific abortive therapies include ergotamine and its derivatives, and triptans. Complementary and alternative therapies can also be used to abort the headache or enhance the efficacy of another therapeutic modality. Treatment choices for acute migraine should be based on headache severity, migraine frequency, associated symptoms, and comorbidities. (Am Fam Physician 2002;66:2123-30,2140-1; Copyright© 2002 American Academy of Family Physicians.)

A patient information handout on migraines, written by the authors of this article, is provided on page 2140.

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Migraine headaches are a major public health problem affecting more than 28 million persons in this country.[1] Nearly 25 percent of women and 9 percent of men experience disabling migraines.[2,3] The impact of these headaches on patients and their families is tremendous, with many patients reporting frequent and significant disability.[4] The economic burden of migraine headaches in the United States is also tremendous. Persons with migraines lose an average of four to six work days each year, with an annual total loss nationwide of 64 to 150 million work days. The estimated direct and indirect costs of migraine approach $17 billion.[5,6] Despite the prevalence of migraines and the availability of multiple treatment options, this condition is often undiagnosed and untreated.[7] About one half of patients stop seeking medical care for their migraines, in part because of dissatisfaction with the therapy they have received.[4]

Patients with migraine headaches often present family physicians with diagnostic and therapeutic challenges. The aspects of migraine management that deserve careful consideration include the treatment of acute pain, the role of neuroimaging, and the management of patients who fail to respond to initial treatment. This article addresses these issues, presenting the evidence-based migraine headache treatment guidelines recently established by the U.S. Headache Consortium, a multidisciplinary team consisting of members from seven organizations, including the American Academy of Family Physicians (AAFP). The guidelines are available on the AAFP Web site.[8]

Clinical Presentation

The classification of migraines is based on the clinical features of the headache, most notably the presence or absence of a characteristic aura before the onset of pain. The aura may take many forms but usually involves visual distortions, including scotomas. Other prodromal symptoms described by many patients with migraines include nausea, food cravings, heightened sensory perceptions, and alterations in mood or behavior.

The International Headache Society's categorization of headaches is listed in *Table 1*.[9] Migraines can be triggered by hormonal changes, certain foods, sensory stimuli (i.e., light, smells), missed meals, or the relief of tension after stressful events.

Evaluation

The initial task in managing a patient who presents with migraine headache is to take a

TABLE 1
International Headache Society Classification of Headaches

Migraine headache—diagnostic requirements	Tension headache—diagnostic requirements	Cluster headache—diagnostic requirements
At least two of the following features: Unilateral location Throbbing character Worsening pain with routine activity Moderate to severe intensity At least one of the following features: Nausea and/or vomiting Photophobia *and* phonophobia	At least two of the following features: Pressing, tightening, or nonpulsatile character Mild to moderate intensity Bilateral location No aggravation with routine activity Both of the following features: No nausea or vomiting (may have anorexia) No photophobia *and* phonophobia (but may have one or the other)	Five attacks, with a frequency of one to eight attacks on any given day Severe unilateral, bilateral, supraorbital, or temporal pain lasting 15 to 180 minutes (untreated), with at least one of the following features on the same side as the pain: Lacrimation Nasal congestion Rhinorrhea Forehead and/or facial sweating Ptosis Miosis Eyelid edema

Adapted with permission from Classification and diagnostic criteria for headache disorders, cranial neuralgias and facial pain. Headache Classification Committee of the International Headache Society. Cephalalgia 1988;8 Suppl 7:1-96.

detailed history and perform a thorough physical and neurologic examination. Patients may present with significant expectations derived from the numerous sources of information available, especially those on the Internet. One of the most popular and authoritative Web sites is that of the National Headache Foundation (NHF) (http://www.headaches.org/). The NHF site provides patients with a "checklist" of questions that primary care physicians should ask when taking an appropriate history *(Table 2)*.[10]

This site can be a highly useful part of patient education, but family physicians should be aware that it advises patients to seek referral to a subspecialist or headache clinic if the primary care physician does not appear to appropriately appreciate, diagnose, or treat the headache. This suggestion may raise concern in some patients about the ability of primary care physicians to appropriately manage headaches. Family physicians might ask patients about their sources of medical information.

Physicians may struggle to determine the appropriate use of neuroimaging in the patient with migraine. The American Academy of Neurology suggests that neuroimaging should be considered only in patients with migraine who have atypical headache patterns or neurologic signs[11]; the U.S. Headache Consortium has developed evidence-based guidelines on the use of neuroimaging for patients with migraines.

The Internet now enables patients to access significant amounts of information about migraine.

In general, the U.S. Headache Consortium guidelines do not recommend neuroimaging if the patient is not at higher risk of a significant abnormality than the general population or if the results of the study would not change the management of the headache. Symptoms that increase the odds of positive neuroimaging results include rapidly increasing frequency of headache, a history of uncoordination, focal neurologic signs or symptoms, and a headache that awakens the patient from sleep. Other "red flags" include abrupt onset of severe headache, marked change in headache pattern, or persistent headache following head trauma. The specific U.S. Headache Consortium guidelines for neuroimaging are outlined in *Table 3*.[12]

Electroencephalography is not useful in the routine evaluation of patients with headache but may be appropriate in those who have associated symptoms suggestive of a seizure disorder, atypical migrainous aura, or episodic loss of consciousness.[13]

Goals of Migraine Treatment

Migraine treatment depends on the duration and severity of pain, associated symptoms, degree of disability, and initial response to therapy. Management of migraines can be difficult because of the complexity of migraines and the variation of symptoms among and within patients. Some medical conditions (stroke, myocardial infarction,

TABLE 2
Questions to Ask Patients About Their Headaches

How frequent are the headaches?
What time of day do the headaches occur?
In women, do the headaches occur during the menstrual cycle?
What is the character of the pain: dull, aching, throbbing, piercing, squeezing, excruciating?
What other symptoms accompany the headache? Nausea or vomiting? Dizziness? Head/neck muscles contracting? Are the senses (eyesight, hearing, touch) affected?
Where is the pain located? One or both sides of the head? Front or back of the head? Over or behind one eye?
How long do the headaches last? Hours, days?
Do you take over-the-counter medications for your headaches? Did another doctor prescribe a medication? Does it work and for how long? Do you take any natural remedies or herbs?
Where are you when the headaches occur? Home, office, shopping, etc.?
Do the headaches ever occur during sexual activity?
When you have these headaches, are you under any stress?
What is the weather like when the headaches occur? Are you exposed to any odors such as perfume, chemicals, or smoke when the headaches occur?
When the headaches occur, have you eaten a meal or snack recently, or have you missed a meal? If you have eaten, what foods did you eat and what beverages did you drink within the past 24 hours?
What are your sleeping patterns? Do these headaches ever awaken you from sleep?
Is there a history of headaches in your family?
Have you ever been evaluated for these headaches? If so, what was the result?

Information from Moore KL, Noble SL. Drug treatment of migraine: part I. Acute therapy and drug-rebound headache. Am Fam Physician 1997;56:2039-48.

epilepsy, affective and anxiety disorders, and some connective tissue disorders) are more common in people with migraine. These conditions provide opportunities to treat both conditions with one medication but are also limiting because of drug interactions or contraindications. Appropriate migraine therapy should allow for consideration of the above factors.[14]

TABLE 3
Guidelines for Neuroimaging in Patients Presenting With Migraine Headaches

In patients with nonacute headache and unexplained findings on neurologic examination, neuroimaging should be considered.
In patients with neurologic symptoms (headache that is worsened with use of Valsalva's maneuver, awakens the patient from sleep, is newly onset in an older person, or is progressively worsening), the evidence is insufficient to make specific recommendations. The conservative approach would be to consider neuroimaging in these patients.
In patients with a normal neurologic examination, neuroimaging is usually not warranted. However, if the headache has atypical features or does not meet the strict definition of migraine, a lower threshold may apply.

Information from reference 12.

The U.S. Headache Consortium identified the goals of long-term migraine treatment and successful management of acute migraine *(Tables 4 and 5)*.[14] These goals emphasize the importance of patient education and self-participation in the management of migraines, and of establishing reasonable patient expectations and effective communication. Of note, these treatment goals are also designed to avoid "rebound" or medication-overuse headaches. Frequent use of some migraine medications (e.g., ergotamine [Ergostat], opiates, analgesics, and triptans) may cause medication-overuse headaches. Preventive therapy should be considered if the patient has more than two headaches per week.[15]

If identified early, a migraine may be aborted with pharmacologic treatment using either nonspecific or migraine-specific medications. Gastrointestinal motility is reduced during acute migraine, causing impaired drug absorption. If administration of oral medication is not possible because of nausea or if the oral agents fail, alternative methods of administration (rectal, nasal, subcutaneous or intravenous) may be used for many medications.

Nonspecific Abortive Migraine Therapy

Table 6[4,16-18,22] lists the nonspecific treatments that may be effective for mild to moderate migraines. Non-narcotic analgesics can be used for mild to moderate migraines that are not associated with nausea and vomiting. Administration as early as possible during an attack improves efficacy.

TABLE 4
U.S. Headache Consortium Guidelines for Migraine Treatment

Goals of long-term migraine treatment	Goals for successful treatment of acute migraine attacks
Reduce migraine frequency and severity	Treat migraine attacks rapidly and consistently without recurrence
Reduce disability	Restore the patient's ability to function
Improve quality of life	Minimize the use of back-up and rescue medications*
Prevent headache	Optimize self-care for overall management
Avoid escalation of headache medication use	Be cost-effective in overall management
Educate and enable patients to manage their disease	Cause minimal or no adverse effects

**—Rescue medications are defined as medications used at home when other treatments fail that permit the patient to get relief without a visit to the physician's office or emergency department.[11]*

Information from reference 14.

The use of these analgesics should be closely monitored because overuse may lead to rebound headaches.

Acetaminophen alone has not been shown to be beneficial in migraine treatment, but it is effective in combination with aspirin and caffeine. Ketorolac (Toradol), a parenteral nonsteroidal anti-inflammatory drug (NSAID), has a relatively rapid onset of action and a duration of approximately six hours. It is generally reserved for abortive therapy of severe migraines, and rebound headache is unlikely. Opioid analgesics such as meperidine (Demerol) and butorphanol (Stadol) are sometimes required to abort severe migraines. Narcotic use should be avoided for chronic daily headaches because it can lead to dependency, rebound headaches, and eventual loss of efficacy.

TABLE 5
Overview of Acute Pain Management in Patients With Migraine Headaches

For mild to moderate migraine attacks or severe attacks that have been responsive in the past to similar agents, use the following options:
NSAIDs (oral)
Combination analgesics containing caffeine
Isometheptene combinations
For moderate to severe migraine or mild to moderate migraines that respond poorly to NSAIDs, use:
Migraine-specific drugs (i.e., triptans [naratriptan, rizatriptan, sumatriptan, zolmitriptan], DHE)
or
Combination drug therapy (e.g., aspirin plus acetaminophen* plus caffeine)
or
Other drugs such as ergotamine
For migraine accompanied by nausea or vomiting, use a non-oral route of administration.
For severe migraine that does not respond to other treatments, use a self-administered rescue medication.
Limit and carefully monitor the use of opiates and butalbital-containing analgesics.

NSAIDs = nonsteroidal anti-inflammatory drugs; DHE = dihydroergotamine.

**—Acetaminophen alone is not recommended for migraine.*

Information from reference 14.

Adjunctive therapy is used to treat the associated symptoms of migraine and provide synergistic analgesia. While metoclopramide (Reglan) is sometimes recommended as a single agent in the treatment of migraine pain, its main use is for treating accompanying nausea and improving gastric motility, which may be impaired during migraine attacks. Prochlorperazine (Compazine) can effectively relieve headache pain.[19,20] Other adjunctive therapies for the abortive treatment of migraines are caffeine and sleep.

The combination of isometheptene, acetaminophen, and dichloralphenazone (Midrin) has been shown to be effective in the treatment of milder migraine headaches.[10,21] Sedatives such as the barbiturates have historically been used to induce sleep in persons with migraines. However, with the advent of effective nonsedating agents and migraine-specific therapy, sedatives are no longer widely used in migraine therapy.

Other nonspecific therapies that have been used to abort acute migraine attacks include intranasal lidocaine (Xylocaine) and systemic steroids. While limited studies report lidocaine to be superior to placebo, the reported incidence of recurrent headaches has been inconsistent. Because the evidence is insufficient, a defined role for intranasal lidocaine as abortive migraine therapy has yet to be established. Steroid therapy may be the treatment of choice for patients with status migrainosus (a severe, continuous migraine that may last up to one week), but there are no good studies documenting its efficacy in the treatment of the acute migraine attack.[14]

TABLE 6
Nonspecific Medications Used to Treat Migraine Headaches

Medication	*Efficacy**	*Dosage*	*Contraindications*	*Adverse reactions*
Analgesics/NSAIDs				
Aspirin	3	650 to 1,000 mg every four to six hours Maximal initial dose: 1 g Maximal daily dosage: 4 g	G6PD-deficiency, bleeding disorder	GI upset; suppositories may cause rectal irritation
Ibuprofen (Motrin)	3	400 to 800 mg every six hours Maximal initial dose: 800 mg Avoid taking more than 2.4 g per day	Aspirin/NSAID-induced asthma	Dizziness, rash, GI upset
Naproxen sodium (Anaprox)	3	275 to 550 mg every two to six hours Maximal initial dose: 825 mg Avoid taking more than 1.5 g per day	Aspirin/NSAID-induced asthma	Dizziness, rash, pruritus, GI upset, constipation
Ketorolac (Toradol)	3	60 mg IM every 15 to 30 minutes Maximal dosage: 120 mg per day Treatment not to exceed five days	Aspirin/NSAID-induced asthma, pregnancy, cerebrovascular hemorrhage	Edema, drowsiness, dizziness, GI upset, increased diaphoresis
Narcotic analgesics				
Meperidine (Demerol)	3	50 to 150 mg IM or IV Repeat 50 to 150 mg every three to four hours	MAOI use within 15 days, pregnancy, lactation	Hypotension, fatigue, drowsiness, dizziness, nausea, vomiting, constipation, muscle weakness, histamine release, respiratory depression
Butorphanol (Stadol)	4	One spray (1 mg) in one nostril Repeat in one hour if needed Maximal daily doses: four Limit use to two days per week	Use with caution in patients with impaired renal, hepatic, or pulmonary function, elderly patients, those with CNS depression	Drowsiness
Adjunctive therapy				
Metoclopramide (Reglan)	2	10 mg IV or orally 20 to 30 minutes before or with a simple analgesic, NSAID, or ergotamine derivative	Pheochromocytoma, seizure disorder, GI bleeding, GI obstruction	Restlessness, drowsiness, diarrhea, muscle weakness, dystonic reaction
Prochlorperazine (Compazine)	4	25 mg orally or suppository Maximum of three doses per 24 hours	CNS depression, use of adrenergic blocker	Hypotension, tachycardia, arrhythmias, akathisia, pseudo-parkinsonism, tardive dyskinesia, dystonia, dizziness, xerostomia, constipation, urinary retention, blurred vision, pigmentary retinopathy, nasal congestion, decreased diaphoresis
Isometheptene, acetaminophen, dichloralphenazone (Midrin)	3	Maximal initial dose: two capsules Repeat one capsule per hour to maximal dosage of five capsules per 12 hours and 20 per month; limit use to two days or fewer per week	Hepatic or renal impairment, diabetes, hypertension, glaucoma, alcoholism, cardiac disease, MAOI use within 14 days	Hypertension, dizziness, rash

NSAIDs = nonsteroidal anti-inflammatory drugs; G6PD = glucose-6-phosphate dehydrogenase; GI = gastrointestinal; IM = intramuscularly; IV = intravenously; MAOI = monoamine oxidase inhibitor; CNS = central nervous system.

**—Efficacy = clinical impression of effectiveness on a scale of 1 to 4, with 4 being most effective.*

Information from references 4, 16 through 18, and 22.

Triptan medications vary in time to peak blood concentration and half-life.

Specific Abortive Migraine Therapy

ERGOTAMINE AND ITS DERIVATIVES

Historically, ergotamine, a 5-hydroxytryptamine (5-HT_1) nonselective agonist, was the standard abortive migraine therapy. It now has a more limited use because of its potential for causing medication-overuse headaches and increasing the frequency of headaches, ergot poisoning, and negative effects on migraine prophylactic medications. The effectiveness of ergotamine depends on its administration at the onset of migraine pain.[22]

Oral preparations combining ergotamine and caffeine (Cafergot) are available, as are rectal suppositories. Dihydroergotamine (DHE), a semisynthetic ergot alkaloid and nonselective 5-HT_1 receptor agonist, is considered to be more appropriate for the treatment of severe migraines. It is available in parenteral preparations and as a nasal spray. Like ergotamine, DHE has oxytocic properties, precluding its use in pregnancy. Because of their ability to cause peripheral vasoconstriction, ergot alkaloids should not be used chronically. The ergotamine derivatives used to treat migraines are described in *Table 7*.[4,16-18,22]

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TRIPTANS

A widely prescribed and effective class of medications for migraines is the 5-HT_1 receptor-specific agonists ("triptans"). The use of triptans in the treatment of migraine headaches is described in *Table 7*.[4,10,16-18] Triptans are usually reserved for use in patients with moderate to severe migraines or mild to moderate migraines that are unresponsive to analgesics or NSAIDs. As a class, triptans are usually well tolerated. Contraindications to their use include ischemic vascular conditions, vasospastic coronary disease, uncontrolled hypertension, or other significant cardiovascular disease. While members of the triptan family are similar in many ways, there are significant differences in time to peak blood concentration and half-life.

Subcutaneously injectable sumatriptan (Imitrex) reaches peak blood concentrations faster than any other migraine-specific medications (in approximately 15 minutes) and has been shown to be effective in 70 to 82 percent of patients. The oral form of rizatriptan (Maxalt) reaches peak concentration in 60 to 90 minutes, compared with two to three hours for most other triptans. The longest half-life of the triptans belongs to naratriptan (Amerge). There is some speculation that this longer half-life will decrease the chance of recurrence headaches. In general, if recurrence occurs with use of the triptans, it occurs within eight to 12 hours and can be relieved with a second dose of the medication.[16,23]

Some triptans have the benefit of non-oral routes of administration. Sumatriptan is available in subcutaneous or intranasal form, while rizatriptan (as Maxalt MLT) is offered in an absorbable wafer. When significant nausea and/or vomiting are part of the migraine syndrome, these choices may be better for the patient. Frovatriptan (Frova) and almotriptan (Axert) are oral triptans approved by the U.S. Food and Drug Administration. These and eletriptan (under development) are reportedly more effective, have fewer adverse reactions, and have a more rapid onset of action than sumatriptan.

Several important principles of migraine management have emerged from clinical trials of migraine-specific treatments. First, patients should try a medication for two to three headache episodes before abandoning that line of therapy. Second, if one triptan is ineffective in a patient, a different triptan should be tried. In addition, in selecting a migraine-specific drug, the characteristics of the drug should be matched with the patient's needs and the usual duration of the headache.[17,18]

TABLE 7
Migraine-Specific Medications

Medication	*Efficacy rating**	*Dosage*	*Contraindications*	*Adverse reactions*
Ergotamine derivatives				
Ergotamine (Ergostat)†	3	1 to 2 mg orally every hour, maximum of three doses in 24 hours Use lowest effective dose Suppository: 1 mg, maximal dosage, two to three per day and 12 per month	Use of triptans, pregnancy, lactation	Increased incidence of migraines, daily headaches, ergot poisoning, tachycardia, bradycardia, arterial spasm, localized edema, numbness and tingling in extremities, nausea, vomiting, diarrhea, xerostomia
Caffeine plus ergotamine (Cafergot)	3	Two tablets (100 mg caffeine/1 mg ergotamine) at onset, then one tablet every 30 minutes, up to six tablets per attack, 10 per week Suppository (2 mg ergotamine/100 mg caffeine), one at onset, one in one hour as needed; maximal dosage, two per attack	Use of triptans	Severe reactions: myocardial infarction, myocardial or pleuropulmonary fibrosis, vasospastic ischemia Common reactions: dizziness, rash
Dihydroergotamine (DHE)†	4	1 mg IM, SC Maximal initial dose: 0.5 to 1.0 mg; can be repeated every hour to maximal dosage of 3 mg IM or 2 mg IV per day, and 6 mg per week Intranasal: one 0.5-mg spray in each nostril, followed by one spray in each nostril 15 minutes later; maximal dosage: four sprays (2 mg) per day	Triptans, beta blockers, antihypertensives, methysergide (Sansert), SSRIs, dopamine (Intropin), macrolides, nitrates, angina, CAD, clarithromycin (Biaxin), hypertension, myocardial infarction, peripheral vascular disease, pregnancy, renal impairment, sepsis, breastfeeding, ergot alkaloid sensitivity	Ergot toxicity, coronary vasospasm, cardiac events including angina, myocardial infarction, ventricular tachycardia or fibrillation, hypertension, adverse cerebrovascular events, localized edema, pruritus, sinus tachycardia or bradycardia, weakness in legs, nausea, vomiting, diarrhea, drowsiness, xerostomia, local injection reaction, numbness
Triptans‡				
Sumatriptan (Imitrex)	4	6 mg SC, repeated in one hour; maximal dosage, 12 mg per 24 hours 25 to 100 mg orally every two hours, maximal dosage: 200 mg per day Maximal initial dose: 100 mg Intranasal: 5 to 10 mg (one to two sprays) in one nostril; dose may be repeated after 2 hours to maximal dosage of 40 mg per day	Ergotamine, MAOIs, use within 24 hours of another triptan, hemiplegic or basilar migraine, pregnancy, impaired hepatic function, as prophylactic therapy, CAD	Nausea, warmth, vomiting, vertigo, malaise, headache, injection site reactions, chest pressure and heaviness
Naratriptan (Amerge)	3	1.0 to 2.5 mg orally every four hours to maximal dosage of 5 mg per day	Ergot-type medications, SSRIs, oral contraceptives, smoking, CAD	Dizziness, drowsiness, nausea, vomiting, fatigue, paresthesias
Rizatriptan (Maxalt, Maxalt MLT)	4	5 to 20 mg orally every two hours to maximal dosage of 30 mg per day	Ergot-type medications, SSRIs, other triptans, MAOIs, propranolol (Inderal), cimetidine (Tagamet), CAD	Tachycardia, bradycardia, throat tightness, closure
Zolmitriptan (Zomig)	4	2.5 to 5.0 mg orally every two hours to maximal dosage of 10 mg per 24 hours	Ergot-type medications, SSRIs, other triptans, MAOIs, CAD	—

IM = intramuscularly; SC = subcutaneously; IV = intravenously; SSRIs = selective serotonin reuptake inhibitors; CAD = coronary artery disease; MAOIs = monoamine oxidase inhibitors.

**—Efficacy = clinical impression of effectiveness on a scale of 1t o 4, with 4 being the most effective.*

†—*Avoid chronic use because of potential for peripheral vasoconstriction.*

‡—*Frovatriptan (Frova) and almotriptan (Axert) have been released since the article was researched, but generally offer no significant advantages or disadvantages to the triptans listed above. Eletriptan is in development.*

NOTE: *This table is not all-inclusive in treatment protocols, contraindications or adverse reactions. Physicians should consult current Physician's Desk Reference and other pharmacologic resources before prescribing.*[16-18,22]

Information from references 4, 16 through 18, and 22.

Various approaches exist for the management of migraine headaches. In the "step-care" approach, patients with acute migraine attacks are initially treated with the safest, least expensive therapies and progress to the more expensive migraine-specific medications, such as the triptans, only when the initial treatment fails.[24] In contrast, the "stratified-care" approach assigns treatment based on the severity of migraine-related disability, with the nonspecific therapies used in patients with little or infrequent disability, and the migraine-specific medications used in patients with moderate to severe disability. In a recent randomized trial, the stratified-care approach was found to be superior to the step-care approach.[25]

Nonpharmacologic Alternatives to Migraine Therapy

Because of the current popularity of complementary and alternative therapies, many patients may first request nonpharmacologic treatment. In their consensus guidelines, the U.S. Headache Consortium reviewed behavioral and physical treatments for migraine headaches. Based on available evidence, it appears that relaxation training, thermal biofeedback combined with relaxation training, electromyographic biofeedback, and cognitive-behavioral therapy may be effective in preventing migraines. Behavioral therapy such as relaxation or biofeedback may be combined with preventive drug therapy to achieve additional clinical improvement. Other modalities, such as acupuncture, hypnosis, transcutaneous electrical nerve stimulation, cervical manipulation, occlusal adjustment, and hyperbaric oxygen, have shown mixed results in reported studies but may be worth trying in patients who want to use medication only as a last resort.

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REFERENCES

1. National Headache Foundation. NHF headache facts. Retrieved April 2002, from: www.headaches.org/factsheet.html.
2. Rasmussen BK, Jensen R, Schroll M, Olesen J. Epidemiology of headache in a general population—a prevalence study. J Clin Epidemiol 1991;44:1147-57.
3. Lipton RB, Stewart WF. Migraine in the United States: a review of epidemiology and health care use. Neurology 1993;43(6 suppl 3):S6-10.
4. Ramadan NM, Silberstein SD, Freitag FG, Gilbert TT, Frishberg BM. Evidence-based guidelines for migraine headache in the primary care setting: pharmacological management for prevention of migraine. U.S. Headache Consortium. Retrieved April 2002, from: www.aan.com/public/practiceguidelines/05.pdf.
5. Hu XH, Markson LE, Lipton RB, Stewart WF, Berger ML. Burden of migraine in the United States: disability and economic costs. Arch Intern Med 1999;159:813-8.
6. Cady RK. Diagnosis and treatment of migraine. Clin Cornerstone 1999;1:21-32.
7. Bartleson JD. Treatment of migraine headaches. Mayo Clin Proc 1999;74:702-8.
8. U.S. Headache Consortium publishes migraine headache treatment guidelines. Retrieved April 2002, from: www.aafp.org/clinical/migraine.
9. Classification and diagnostic criteria for headache disorders, cranial neuralgias and facial pain. Headache Classification Committee of the International Headache Society. Cephalalgia 1988;8 Suppl 7:1-96.
10. Moore KL, Noble SL. Drug treatment of migraine: part I. Acute therapy and drug-rebound headache. Am Fam Physician 1997;56:2039-48.
11. Frishberg BM. The utility of neuroimaging in the evaluation of headache in patients with normal neurologic examinations. Neurology 1994;44:1191-7.
12. Frishberg BM, Rosenberg JH, Matchar DB, McCrory DC, Pietrzak MP, Rozen TD, et al. U.S. Headache Consortium. Evidence-based guidelines in the primary care setting: neuroimaging in patients with nonacute headache. Retrieved April 2002, from: www.aan.com/public/practiceguidelines/02.pdf.
13. Gronseth GS, Greenberg MK. The utility of the electroencephalogram in the evaluation of patients presenting with headache: a review of the literature. Neurology 1995;45:1263-7.
14. Matchar DB, Young WB, Rosenberg JH, Pietrzak MP, Silberstein SD, Lipton RB, et al. Evidence-based guidelines for migraine headache in the primary care setting: pharmacological management of acute attacks. U.S. Headache Consortium. Retrieved April 2002, from: www.aan.com/public/practiceguidelines/03.pdf.
15. Silberstein SD. Practice parameter: evidence-based guidelines for migraine headache (an evidence-based review): report of the Quality Standards Subcommittee of the American Academy of Neurology. Neurology 2000;55:754-62.
16. Dooley M, Faulds D. Rizatriptan: a review of its efficacy in the management of migraine. Drugs 1999;58:699-723.
17. Stark S, Spierings EL, McNeal S, Putnam GP, Bolden-Watson CP, O'Quinn S. Naratriptan efficacy in migraineurs who respond poorly to oral sumatriptan. Headache 2000;40:513-20.
18. Mathew NT, Kailasam J, Gentry P, Chernyshev O. Treatment of nonresponders to oral sumatriptan with zolmitriptan and rizatriptan: a comparative open trial. Headache 2000;40:464-5.
19. Jones J, Pack S, Chun E. Intramuscular prochlorperazine versus metoclopramide as single-agent therapy for the treatment of acute migraine headache. Am J Emerg Med 1996;14:262-4.
20. Coppola M, Yealy DM, Leibold RA. Randomized, placebo-controlled evaluation of prochlorperazine versus metoclopramide for emergency department treatment of migraine headache. Ann Emerg Med 1995;26:541-6.
21. Jackson CM. Effective headache management. Postgrad Med 1998;104:133-47.
22. Tfelt-Hansen P, Saxena PR, Dahlof C, Pascual J, Lainez M, Henry P, et al. Ergotamine in the acute treatment of migraine: a review and European consensus. Brain 2000;123(pt 1):9-18.
23. Diener HC, Kaube H, Limmroth V. Antimigraine drugs. J Neurol 1999;246:515-9.
24. Matchar DB, McCrory DC, Gray RN. Toward evidence-based management of migraine. JAMA 2000;284:2640-1.
25. Lipton RB, Stewart WF, Stone AM, Lainez MJ, Sawyer JP. Stratified care vs step care strategies for migraine: the Disability in Strategies of Care (DISC) Study: a randomized trial. JAMA 2000;284:2599-605.