THE EVERYTHING® HEALTHY LIVING SERIES

Migraines: Migraine Treatment and Prevention Options

The most important information you need to improve your health

adams media
A division of F+W Media, Inc.

The Everything® Healthy Living Series

Migraines: Migraine Treatment and Prevention Options

The most important information you need to improve your health

Adams Media, an imprint of Simon & Schuster, Inc.

Avon, Massachusetts

Contents

Introduction

For more than 10 years, millions of readers have trusted the bestselling Everything® series for expert advice and important information on health topics ranging from pregnancy and postpartum care to heart health, anxiety, and diabetes. Packed with the most recent, up-to-date data, Everything® health guides help you get the right diagnosis, choose the best doctor, and find the treatment options that work for you.

The Everything® Healthy Living Series books are concise guides, focusing on only the essential information you need. Whether you're looking for an overview of traditional and alternative migraine treatments, advice on starting a heart-healthy lifestyle, or suggestions for finding the right medical team, there's an Everything® Healthy Living book for you.

Migraines

Whether you've been diagnosed with chronic migraines, think you may have the condition, or care about someone who does, you'll find the Everything® Healthy Living series to be an important guide to improving physical and emotional well-being. The impact of migraine goes well beyond the attack period; it can have far-reaching repercussions at work and home, and it can affect every facet of your life, from the food you eat to the social activities you choose to participate in.

Migraine is a painful and debilitating neurological condition that costs Americans billions of dollars in health care spending, lost workplace productivity, and reduced quality of life. More than "just a headache," a migraine attack is a severe episode of prolonged head pain that is frequently accompanied by nausea, vomiting, visual disturbances, sensitivity to light and sound, sensory changes, and mental confusion. And migraine doesn't begin, or end, with head pain. A migraine attack is often

preceded and/or followed by a constellation of symptoms, and the entire episode may span a period of several debilitating days. This can result in significant disability for anyone experiencing frequent migraine episodes.

Migraineurs — those people living with chronic migraines — come in all shapes and sizes. While women are three times as likely to experience migraine as men, the condition can strike men and women, young and old. It's estimated that 28 million Americans have experienced a migraine headache. And more than half remain undiagnosed — either due to a misdiagnosis or a reluctance to seek help. Getting a proper diagnosis may well be the most challenging step of migraine care.

There is a wide spectrum of effective treatments available for migraine, from acute analgesics that treat an attack already in progress to prophylactic medications that prevent migraines from occurring in the first place. Some complementary therapies, including acupuncture and certain vitamins and herbal supplements, have also shown promise, as have biofeedback and progressive relaxation. And there are exciting and promising new therapies on the research horizon.

Knowledge is your most important tool in managing this condition. Documenting your migraines with a headache diary, identifying potential triggers that may be causing your attacks, staying abreast of new treatment and research developments, understanding your treatment regimen, and being a smart health care consumer all contribute to successful outcomes for the migraineur. Knowing how to find an experienced health care provider who will be a partner in your care is also key.

Living with a chronic condition can be emotionally difficult for both you and your friends and family. Migraineurs may experience depression or anxiety as a result of their condition, and healthy coping may become a challenge. This is why it's important to have a support network; again, knowledge makes things just a little easier. Share this book with those people that you care for so they can understand both the health and

lifestyle implications of migraine and get tips on how they can help you survive, and even thrive, with chronic migraine.

If you'd like to learn more about migraines, check out *The Everything® Health Guide to Migraines*, available in print (978-1-59869-411-6) and eBook (978-1-4405-2421-9) formats.

Acute Treatment Options

Migraine treatment falls into two categories — acute or preventative (also called prophylactic). Acute treatment is an analgesic, or pain-relieving, medication or therapy that is taken when a migraine begins. It is designed to stop or alleviate the pain and other symptoms of a migraine attack. When acute treatment fails to stop head pain, then a more potent rescue medication is required. It's important not to overuse either acute or rescue migraine medications, as overuse can cause more frequent, or "rebound" headaches.

Pain Relievers (Nonopioid)

Nonopioid analgesics are pain relievers that do not contain opioid, or narcotic, drugs. These drugs are recommended by the U.S. Headache Consortium as the first line of treatment for people with mild-to-moderate pain and disability from migraine. Nonsteroidal anti-inflammatory drugs (NSAIDs) are effective because they reduce inflammation and ease mild head pain. Aspirin, ibuprofen (Advil, Motrin), naproxen (Aleve), and ketorolac (Toradol) are all NSAID drugs. Acetaminophen is not an NSAID, but it is a nonopioid analgesic.

Caffeine is sometimes combined with nonopioid analgesics to relieve migraine pain, and in combination can boost the potency of these drugs by approximately 40 percent. Excedrin Migraine is a combination acetaminophen, aspirin, and caffeine formula. In addition, nonopioid analgesics are often combined with antiemetics, or antinausea, medication to reduce vomiting and stomach upset in migraine.

Essential

Liquid gel capsules or caplets, such as Advil Migraine, may be a better choice for fast head pain relief than standard tablets because the medication is predissolved and therefore is absorbed more quickly in the body.

Side Effects of NSAIDs

Because they are not addictive, nonopioid analgesics are frequently a first treatment choice for migraine headache. These medications should be used with caution, as they can have significant side effects. These include fluid retention (edema), nausea, vomiting, diarrhea, constipation, reduced appetite, heartburn, and fatigue. People with kidney problems, liver problems, asthma, heart disease, and ulcers should consult their doctor before taking NSAIDs for migraine, as these drugs can make these conditions worse. If you take NSAIDs, you should not drink alcohol, as this can increase your chance of stomach bleeding. Some NSAIDs can increase your sensitivity to the sun, so avoid prolonged sun exposure and use sunscreen when taking them.

Side Effects of Acetaminophen

Acetaminophen is often a preferred drug for mild migraine pain because it has virtually no side effects. However, if taken in large doses, acetaminophen can cause liver damage, so caution should be taken to stay within the recommended dosage. Many prescription and over-the-counter drugs, including some cough and cold remedies, contain acetaminophen — so always check with your doctor before combining other medications with acetaminophen because of the risk of accidental overdose. There are a number of drugs that interact with acetaminophen and with NSAIDs, so you should tell your doctor about all prescription and over-the-counter medications you take if he prescribes these drugs for your migraines.

Pain Relievers (Opioid)

Opioid pain relievers are narcotics, and because they can cause physical dependence and have many side effects, they are used with great caution in migraine treatment. They are only prescribed to rescue those patients who experience moderate to severe migraines, and usually only after other migraine medications have been used without success. It's important to note that there are currently no opioid drugs that are FDA-approved specifically for migraine relief. Most have general pain-relief indications, but many have been used in clinical trials and as an "off label" migraine therapy by physicians.

Opioids that may be prescribed for migraine treatment include butorphanol (Stadol), oxycodone (Oxycontin), morphine (Avinza, Kadian, MS Contin, MSIR, Oramorph, Rescudose, Roxanol), meperidine (Demerol), fentanyl (Actiq), levorphanol (Levo-Dromoran), propoxyphene (Darvon), and methadone (Diskets, Dolophine, Methadose). These drugs are available in either oral, suppository, injectable (i.e., intravenously or subcutaneously), or transdermal (i.e., skin patch) formulations. Butorphanol tartrate is available in a generic nasal spray form for faster pain relief. Codeine, the mildest opioid analgesic, is usually used in combination with acetaminophen or other nonopioid analgesics (Tylenol #3).

Question

What is "off-label" drug use?

When a doctor prescribes a drug for a use that has not been approved by the U.S. Food and Drug Administration in the drug's official labeling, it is called "off-label" use, which may be appropriate when it is backed by published medical literature or recommended by medical organizations or other government health agencies.

To prevent drug dependence and rebound headache, opioid analgesics should be used no more frequently than two days a week. Overuse of

opioids causes a patient to become physically dependent on the drug, and increasingly tolerant of doses, which have to be raised to achieve similar efficacy. When opioid use is stopped abruptly in someone who has become dependant on the drug, not only do headaches recur with increased severity but also symptoms of withdrawal can occur, including sweating, abdominal pain and nausea, vomiting, sweating, and diarrhea.

Rescue Therapy

Because of their potential for physical dependence, opioids are usually reserved as rescue, or abortive, migraine therapies. This means that they are a second-line treatment that is used only when nonopioid therapies are ineffective and migraine pain is severe. If your migraines don’t respond to preventative therapies because they are infrequent and unpredictable, and they are moderately severe to severe in pain intensity, your physician may prescribe these drugs as a backup to nonopioid analgesics.

Side Effects of Opioids

Side effects associated with opioids include nausea, vomiting, forgetfulness, confusion, fatigue, constipation, and itching. They are sedatives, so should never be used before driving or operating machinery. Opioids should not be taken with alcohol, and they must be used with caution in people with reduced liver or kidney function. Because opioids depress respiration (decrease breathing rate), they are not a good treatment choice for anyone suffering from lung problems such as chronic bronchial asthma, emphysema, or chronic obstructive pulmonary disease (COPD).

Ergot Derivatives

Ergot derivatives (dihydroergotamine and ergotamine) are an older class of migraine medications. Because of the high incidence of side effects, especially nausea as an immediate side effect, complex vascular problems when used over the long term, and the availability of more effective

therapies, these drugs are typically only used in patients who have severe side effects or allergies to other migraine medication. Ergot derivatives only relieve the pain symptoms of migraine, while other symptoms associated with a migraine attack may linger. Ergotamine can actually prolong aura in patients who experience migraine with aura, and the drugs can also increase nausea and vomiting.

Alert

In March 2007, the U.S. FDA sent warning letters to twenty drug companies, instructing them to stop selling unapproved medications containing ergotamine tartrate for the treatment of migraine, including several popular ergotamine and belladonna combination drugs previously marketed for migraine prevention. FDA-approved ergotamine drugs were not affected by the action.

Fast-acting formulations of ergot derivatives are available in pills that dissolve under the tongue (Ergomar), injections (DHE-45), and nasal sprays (Migranal).

Side Effects of Ergot Derivatives

Ergot derivatives can cause troublesome side effects, including nausea, abdominal cramps, dizziness, and dry mouth. Like opioids, frequent use of ergot derivatives results in increased tolerance and physical dependence on the drug. Too much of the drug can also trigger rebound or medication overuse headaches. When ergot derivatives are prescribed, they should be taken no more frequently than twice a week.

Because these drugs cause blood vessel constriction, they can also cause a condition known as peripheral vasospasm, which can restrict arterial blood flow and cause ischemia (tissue death) and potentially gangrene. Signs of this less common but potentially serious side effect include leg cramps and coldness, numbness, or pain in the hands or feet.

Fact

Dexamethasone is a corticosteroid that is administered intravenously to treat intractable migraine (i.e., migraine lasting longer than seventy-two hours). While several published case reports note the drug's efficacy, clinical trials on the drug have found no significant benefits. Further research is needed to see if corticosteroids have a role in migraine care.

If you take triptans, you should not take ergot derivatives, as the combination can cause a serious drug interaction. And if you are a woman who is pregnant or nursing, or if you have a history of heart disease, severe high blood pressure, angina, coronary artery disease (CAD), reduced liver or kidney function, or peripheral vascular disease, you should not take ergot derivatives. People with mild high blood pressure or hyperthyroidism should consult with their doctor before taking these drugs.

Combination Formulations

Ergot derivatives are often combined with other medications to increase their efficacy and reduce side effects. Ergotamine and caffeine combinations are available in generic form and under the brand names Cafergot and Migergot. These formulations are available in pill or suppository form. Suppositories may be preferred when nausea and vomiting are severe.

Triptans

Triptans are a class of drugs known as serotonin receptor agonists. They were specifically designed as migraine therapy, and are the most commonly prescribe migraine medication today. Serotonin is a neurotransmitter, or brain chemical, that helps to regulate mood, appetite, sleep, and other brain/body functions. Triptans work by inhibiting the transmission of signals in certain nerve centers of the brainstem, and in doing so they seem to be able to terminate or reduce the complicated cascade of inflammation and vascular changes going on in the head that

are associated with migraine head pain and migraine-related nausea, vomiting, and photophobia (sensitivity to light).

Alert

If you take antidepressants, talk to your doctor before taking a triptan drug. Selective serotonin reuptake inhibitors (SSRI) and selective serotonin/norepinephrine reuptake inhibitors (SNRI) are antidepressants that interact with triptans, and a life-threatening condition called serotonin syndrome can occur, though rarely, in patients taking both drugs.

The triptans include sumatriptan succinate (Imitrex), zolmitriptan (Zomig), eletriptan hydrobromide (Relpax), naratriptan hydrochloride (Amerge, Naramig), rizatriptan (Maxalt), frovatriptan succinate (Frova), and almotriptan malate (Axert). These drugs are available in various formulations, including oral drugs, nasal sprays, and injections (depending on the type of triptan). The injectable form is frequently prescribed for those migraineurs who experience severe vomiting during a migraine attack.

When to Take Triptans

Triptan drugs work best when they are taken as soon as a migraine attack begins. Taking a triptan early also reduces side effects and decreases the chance of migraine recurring in the next twenty-four hours. Studies show that on average, triptans abort up to 80 percent of migraine headaches within two hours. Triptans can sometimes be used as a preventative, or prophylactic medication, particularly in the case of menstrual migraine.

Side Effects of Triptans

People who take an SSRI, SNRI, or monoamine oxidase (MAO) inhibitor should not take triptans without discussing risks carefully with their doctor, as these combinations can rarely cause serious and even life-

threatening interactions. Triptans should also not be taken with ergot derivatives (see previous section). Triptans can also cause some mild side effects including:

- Flushing of the skin
- Tingling of the skin
- Tightness in the chest and/or throat
- Drowsiness or fatigue
- Dizziness
- Muscle weakness
- Burning at injection site (for injectable sumatriptan)

People who have a history of heart attack, stroke, angina, or atherosclerosis should not take triptans because triptans can constrict blood vessels. These drugs are not approved for use in pregnant women or in children under age eighteen, although they are sometimes prescribed for adolescents on an “off-label” basis when other treatment methods fail.

Antinausea Medications

Nausea and vomiting are common features of migraine. Approximately 80 percent of migraine attacks are accompanied by nausea, and an estimated 30 percent are accompanied by vomiting. Antiemetics are drugs that treat nausea and vomiting. They are sometimes combined with analgesics, ergotamines, or triptans (although triptans have their own nausea-relieving properties). Adding an antiemetic to migraine therapy — either within a combination drug or as a separate medication — can help you keep oral medications down and ease stomach discomfort.

Antiemetics — What’s Available

Antiemetics are available in oral, injectable, suppository, and intravenous formulations. Oral formulations are most useful when they are taken early in a migraine episode, as vomiting later in an attack can

prevent proper absorption. Suppositories and injections are helpful if medicine is not staying down. Intravenous formulations of prochlorperazine (Compazine) or chlorpromazine (Thorazine) may be administered in a doctor's office, urgent care, or emergency department setting.

Prescription antiemetics include ondansetron (Zofran), promethazine (Phenergan), and metoclopramide (Reglan). Metoclopramide also stimulates the gastrointestinal system, providing the added benefit of improving the absorption of other analgesics. This results in faster pain relief when the drug is taken in conjunction with an analgesic.

Side Effects of Antiemetics

Drugs with antiemetic properties fall into several different pharmaceutical categories, so their side effects can vary. Some antiemetics, including promethazine, include antihistamines that can cause dizziness, drowsiness, and dry mouth. Prochloraperazine and chlorpromazine are both antipsychotic drugs that can cause these same side effects, along with constipation, chills, blurred vision, and nasal congestion.

One particular side effect of the antipsychotic drugs used as antiemetics, called acute dystonia, is uncommon but striking when it occurs. This consists of a sustained set of movements affecting the eyes or the head and neck or the limbs that can last for hours. It is a benign phenomenon, but can be quite distressing. Fortunately it is quickly relieved by anticholinergic medications such as diphenhydramine (Benadryl).

Metoclopramide increases gastrointestinal motility, so it may cause diarrhea in some people. In rare cases, long-term use of metoclopramide can cause tardive dyskinesia — involuntary tremors or muscle spasms that persist even after the drug is no longer used.

Fact

The newest class of migraine drugs under development is known as oral calcitonin-gene-related peptide (CGRP) receptor antagonists. These drugs work by blocking the CGRP neurotransmitter, a pain-related brain chemical that is elevated during a migraine attack. Trials have shown that these drugs are similar in efficacy to triptans and may have fewer side effects.

Avoiding Rebound Headaches

Overuse of some acute migraine medications can result in more frequent, and sometimes more intense, headache episodes. This phenomenon is known as a rebound, or medication overuse, headache. Rebound headaches may turn into a chronic daily headache that is similar in nature to a tension-type headache, or they may be migraine headaches that occur with increased frequency.

All classes of acute migraine medications have the potential to cause rebound headache when used more than two or three times a week. Unfortunately, this perpetuates a vicious cycle — you take more medication to treat the ensuing headache.

Recognizing a Rebound Headache

It can be difficult to recognize a headache caused by medication overuse, particularly if you have always experienced frequent migraine attacks. Although any new patterns or symptoms of head pain should be evaluated by your health care provider, the following signs may be a red flag that you are experiencing rebound headaches:

- Your headaches have increased in frequency to daily or almost daily.
- You are taking more headache medication more frequently, and it’s less effective in relieving your head pain.
- Your headaches have changed in nature or severity (e.g., your head pain is a constant dull ache instead of a throb; your head pain is occurring in different places).

- Your head pain returns several hours after taking a dose of medication.

Treating a Rebound Headache

Once a rebound headache develops, the best way to treat it is to stop taking the medication that triggered it. Your doctor may recommend that you taper off the medication, or use a different drug type. Always consult with your health care provider before stopping a drug abruptly. It can take anywhere from a week to several months to completely break the rebound cycle, and your head pain may worsen before it improves. If you have become dependant on an opioid pain reliever, you may experience uncomfortable withdrawal symptoms. In some cases, your health care provider may recommend supervised drug withdrawal in a hospital setting. In most cases of simple nonopioid analgesic overuse, you can handle rebound treatment on your own with rest, relaxation, and cold compresses.

Bed Rest, Compresses, and Cold Packs

There are many, simple nonpharmaceutical treatments that you can begin at home at the first sign of an impending migraine. While they won't stop migraine pain completely, they can provide some relief while you wait for medication to take effect and can ease the discomfort of any breakthrough pain. They also have the benefit of being inexpensive and side-effect-free.

Rest is the simplest and most common of these pain-relief measures. An estimated 58 percent of all migraine attacks experienced by migraineurs between the ages of twenty and sixty-four result in some bed rest, and women spend an average of six hours in bed due to migraine compared to four and a half hours for men. The American Migraine Study found that roughly one-third of all migraineurs require bed rest during a migraine attack.

Bed Rest

Retreating to a dark, restful place when head pain begins is almost instinctual for many migraineurs. Since a migraine causes light and sound sensitivity and is relieved by sleep, it makes sense to unplug the phone, dim the lights, and crawl under the covers until the attack passes. If you have odor sensitivities, banish any scented candles or air fresheners from the area.

Lying down provides some minor relief from the throbbing vascular headache of migraine, which is made worse by physical activity. If at all possible, try and withdraw from the outside stresses of work and other responsibilities.

Compresses and Cold Packs

Most migraineurs find that cold compresses, or packs, are more effective than heat packs in easing head pain. Although there is no published research on the topic, this may be because cold reduces inflammation. There are many cold packs on the market targeted specifically for migraine pain relief.

A cold pack can be as simple as a washcloth soaked in cold water. Cold compresses filled with gel material hug the face closely, retain cold, and may be more comfortable than an ice pack on sensitive skin. There are also commercially available cold gel patches that adhere to the forehead and can be useful in soothing migraine head pain.

Biofeedback

Biofeedback is a nondrug therapy that has been extensively studied and proven effective in clinical trials to relieve migraine head pain, and in some cases, to prevent the occurrence of migraine. As the name implies, biofeedback is a system of monitoring your body’s biological signals, such as temperature, heart rate, and muscle tension, and learning how to regulate those functions through relaxation and visualization techniques. It requires formal training with a health psychologist, headache specialist, or

physical therapist. These health care providers often have special certification in biofeedback training.

Essential

Both The Association for Applied Psychophysiology and Biofeedback (AAPB) and the Biofeedback Certification Institute of America (BCIA) can provide references to certified biofeedback therapists in your area. Visit the AAPB Web site at *www.aapb.org* and the BCIA Web site at *www.bcia.org*.

When biofeedback is effective, it also gives you a sense of control and empowerment over your head pain, which provides an additional psychological benefit to dealing with migraine. It is also used prophylactically, along with relaxation techniques, to prevent migraine episodes in some patients.

Biofeedback is an ideal treatment option for children because it avoids the side effects of most migraine drugs, many of which have not been tested extensively in younger populations. And because, with regular practice, it is a lifelong skill, it may be more cost-effective than medication over time.

The Mind-Body Connection

The idea of controlling autonomic, or involuntary, bodily functions like heart rate and temperature may sound a bit new age or far-fetched to some. But medical doctors and psychologists alike have long recognized the connection between emotional well-being and physical health. Many physical functions are adversely affected by stress and anxiety, so using psychological techniques to reduce stress can have a very real impact on your health.

The physical impact of stress on the body is one that most people don’t often think about, but it has a tremendous impact on both migraine and overall health and well-being. When you are in a stressful situation,

the blood vessels in the brain and muscles dilate, or expand, and the heart rate and blood pressure rise increase your oxygen supply. Blood vessels near the skin and in your hands and feet dilate, or contract. All these physiological responses are designed to protect the body in circumstances of real danger — known as the fight or flight syndrome. For example, reduced blood flow near the skin means that you will bleed less if cut, and increased oxygen supply helps you to defend yourself or flee a dangerous situation. This biological programming has helped promote human survival for thousands of years.

The problem with the stress response is that in today's world, you rarely need to fight off the kind of life-or-death dangers we are physiologically programmed to deal with. Instead, regular everyday annoyances, such as traffic jams or too much to do at work can lead to what becomes habitual stress. Your body can become chronically "stuck" in a stress response state, which can contribute to major health problems — including headache and migraine.

Biofeedback Training

Biofeedback training can take anywhere from several weeks to several months to complete, depending on the frequency of the sessions and the training program. If you decide to try out biofeedback, you must commit to regular at-home practice of the techniques taught in training. This is critical to internalizing biofeedback skills and giving yourself the best tools available to treat and prevent migraine episodes. Your biofeedback therapist may provide you with special audiotapes or CDs and/or a home temperature sensor to help aid you in these sessions. She may also ask you to log temperature readings before and after you practice.

Fact

Some migraineurs who master biofeedback techniques may still require medications occasionally, but the frequency of need and the dosage is often reduced. But even if you find that you need a combination of therapies to effectively manage your migraines, biofeedback is still a useful skill for long-term health and well-being.

Training usually begins with an introduction to the equipment involved. Thermal sensors are attached to the fingers. Cold fingers indicate tension and restricted peripheral blood flow. Electromyogram (EMG) sensors or electrodes are placed on the body to measure muscle tension. A visual display and/or audible representation of these signals provides the "feedback," which a patient is taught to read and interpret. The feedback may be displayed on a computer screen, or it may be in the form of flashing lights, a numerical display, a paper readout, or a pattern of sounds.

Your biofeedback trainer will then introduce you to some basic relaxation, visualization, and breathing techniques. The breathing exercises typically involve deep breathing from the diaphragm. For relaxation and visualization exercises, your provider will put you in a comfortable seated or reclining position in a quiet space. The lights may be dimmed and temperature adjusted to make the environment more comfortable. Relaxation exercises, sometimes called progressive relaxation, teach an awareness of muscle tension and relaxation by focusing on tightening, and then relaxing, one muscle group at a time. Visualization exercises involve clearing your mind and picturing yourself in a safe, peaceful, and warm place where you are free of stress, relaxed, and comfortable. Your provider will serve as coach, talking you through these exercises.

A baseline finger temperature and EMG reading is taken before relaxation and breathing exercises. Once you are hooked up to the equipment, you can see what state of relaxation your body is in and monitor changes as you practice relaxation, breathing, and visualization. A rise in hand temperature indicates that you are increasing the blood flow in your hands (your peripheral circulation). This may be the mechanism that

helps to reduce or prevent migraine head pain by diverting excess blood flow from the brain. Muscle tension can also contribute to or exacerbate head pain, so learning to relax muscles through biofeedback can also be helpful in migraine treatment.

Fact

Some studies have indicated that neurofeedback, which is biofeedback that uses an EEG to measure brain waves via sensors placed on the head, may be useful in identifying and perhaps preventing the cortical spreading depression associated with the onset of a migraine attack.

Biofeedback ultimately teaches you how to end that habitual stress response and relax mentally and physically. When the feedback monitors tell you that you have increased your hand temperature or reduced your muscle tension, you have tangible evidence that the technique is effective. That feedback may also serve as a psychological “reward,” which can make relaxation more emotionally fulfilling and easier to attain over time.

Prophylactic Medications

If your migraines are frequent, significantly impact your daily life, or your acute medications just aren't working well enough for you, your doctor may prescribe a prophylactic, or preventative, medication. As of early 2008, the FDA had approved four drugs for migraine prophylaxis — topiramate (Topamax), divalproex sodium (Depakote), propranolol (Inderal), and timolol (Blocadren). Classes of drugs that have demonstrated promise as migraine preventatives include antiepileptics (AEDs), antidepressants, beta-blockers, calcium channel antagonists, and NSAIDs. It's important to note that prophylactic migraine medications may not eliminate your need for acute medications completely.

Antiepileptic Drugs (AEDs)

Antiepileptic drugs, sometimes called antiseizure or anticonvulsant drugs, are a class of medications used in the treatment of epilepsy and other brain-based disorders. They are thought to prevent migraines by increasing levels of the neurotransmitter GABA, which helps to suppress the spreading cortical depression (abnormal electrical activity in the visual cortex of the brain) that triggers a migraine attack. In clinical studies, several AEDs have demonstrated an ability to reduce both the frequency and intensity of migraine attacks.

While there are a number of AEDs prescribed as migraine preventatives, only divalproex sodium valproate (Depakote) and topiramate (Topamax) have been approved for this use by the U.S. Food and Drug Administration. Other AEDs that are not FDA approved but are sometimes prescribed "off-label" for the prevention of migraine include gabepentin (Neurontin), carbamazepine (Tegretol), phenytoin (Dilantin), and lamotrigine (Lamictal).

Alert

If you suffer from hemiplegic migraines, a severe but rare type of migraine with aura that causes weakness or paralysis on one side of the body and can result in coma, your doctor will recommend prophylactic medication. Calcium channel blockers are effective prophylaxis.

If you and your doctor decide that one of the AED drugs are a good choice for you, you will be started on a low dose that is gradually titrated, or increased, in order to minimize side effects and find the optimal dosage level. This may occur over a period of weeks or even months. When starting on an AED, it's important to maintain your headache diary carefully so you can gauge how effective the treatment is and document what side effects, if any, you are experiencing.

Side Effects of AEDs

Fatigue, paresthesia (tingling of the hands and/or feet), and dizziness are common side effects of Topamax. So are gastrointestinal issues such as nausea and diarrhea, and related weight loss. Other less common side effects include depression, anxiety, insomnia, vision problems, and difficulty concentrating.

A rare but serious side effect of Topamax is a condition known as metabolic acidosis, where bicarbonate levels in the blood become elevated. Symptoms include hyperventilation, irregular heartbeat, fatigue, loss of appetite, and mental confusion.

Side effects of Depakote may include hair loss, nausea and vomiting, weight gain, weakness, dizziness, tremor, and sleepiness. Depakote is a central nervous system (CNS) depressant, so it should not be taken with other CNS depressants, including alcohol. Increased levels of ammonia in the blood can occur in some people taking Depakote, which can cause lethargy, vomiting, and a change in mental status. The drug may also cause

thrombocytopenia, or a low blood platelet count. Periodic blood tests may be required to monitor for these conditions in patients taking Depakote.

Some side effects of AED drugs can mask the presence of other health conditions. Always tell your doctor about any side effects you experience in conjunction with your migraine medication, whether you're just starting out on the drug or have been taking it for some time.

Who Should Not Take AEDs

If you have existing kidney or liver problems, AED drugs may not be an appropriate treatment choice for your migraines. People with urea cycle disorders should not take Depakote because of the risk of hyperammonemic encephalopathy, excessive levels of ammonia in the bloodstream that lead to swelling of the brain. Depending on the drug you are prescribed, you may have to undergo regular blood tests to ensure that your liver function and/or blood values remain healthy.

AEDs should not be used during pregnancy if at all possible. For example, Depakote ingestion during pregnancy has been associated with neural tube and other birth defects.

If you already take prescription drugs, supplements, or over-the-counter medications for migraines or to treat other health conditions, make sure your doctor is aware. AEDs may interact with these substances, causing serious side effects or affecting the potency of one or more drugs. For example, barbiturates, or combination analgesics containing barbiturates, can interact with valproate and potentially cause serious neurological complications.

Antidepressants

Clinical studies have found several antidepressants to be useful in migraine prevention. They are thought to prevent migraines by regulating the levels of serotonin, norepinephrine, and other neurotransmitters in the brain.

Amitriptyline (Elavil, Endep) is an antidepressant and antianxiety medication that was also one of the earliest and most-studied migraine prophylactics. Amitriptyline is a tricyclic antidepressant, an older class of antidepressant drugs. Other tricyclics have been studied for migraine prevention, but amitriptyline is the only one that has been proven effective in controlled clinical trials. It is considered a first-line drug in migraine prophylaxis.

The other, newer, antidepressant drug that has shown some efficacy in migraine prevention is fluoxetine, or Prozac. Fluoxetine is a selective serotonin reuptake inhibitor drug, so should be used with caution, if at all, in people who are taking triptans because of the risk of serotonin syndrome.

Side Effects of Antidepressants

Tricyclic antidepressants cause a number of troublesome side effects, including dry mouth, dizziness, nausea, constipation, weight gain, anxiety, photosensitivity (i.e., sensitivity to sunlight), and fatigue. Orthostatic hypotension, a sudden drop in blood pressure when changing position, may also occur. Less common but potentially more serious side effects can include loss of libido, blurred vision, high blood pressure, and increased heart rate. If taken in too high of a dose, TCAs can cause seizures, stroke, or heart attack.

Fluoxetine can also cause nausea, weight gain, anxiety, insomnia, and fatigue, although these side effects often lessen or disappear over time. In some people, the drug may more rarely cause skin rashes, increased blood pressure, seizures, and vasculitis.

Antidepressants should never be abruptly stopped (i.e., “cold turkey”) because doing so can cause dizziness, headache, muscle aches, nausea, and anxiety.

Who Should Not Take Antidepressants

If you take an MAO inhibitor, you should not take TCAs or fluoxetine because of the risk of a life-threatening drug interaction. Any MAO inhibitor must be stopped two weeks prior to starting these antidepressants.

Essential

The antidepressant drug classes serotonin reuptake inhibitors (SSRIs) and selective serotonin/norepinephrine reuptake inhibitors (SNRIs) can cause serotonin syndrome when taking in conjunction with triptan drugs. Symptoms of serotonin syndrome include irregular heartbeat, increased body temperature, hallucinations, and fluctuating blood pressure.

Antidepressants should be prescribed with care and monitored closely in patients with liver, kidney, or heart disease. Certain antidepressants are not recommended for use in people who are recovering from myocardial infarction (heart attack).

Beta-Blockers

Beta-blockers are drugs that relax blood vessels and block the effects of adrenaline in the body. Traditionally used to treat heart disease, beta-blockers became recognized for their usefulness in the prevention of migraine in the 1970s. Those that are FDA approved for this use include propranolol hydrochloride (Inderal) and timolol maleate (Blocadren). Other beta-blockers that have been studied in migraine prevention and may be prescribed “off label” for the purpose, but are not FDA approved for this use include atenolol (Tenormin), nadolol (Corgard), and metoprolol (Lopressor, Toprol).

Propranolol is the oldest and most widely studied of the migraine prophylactic beta-blockers to date. It is also the least expensive of the first-line migraine preventative drugs (in its generic form).

Side Effects of Beta-Blockers

Potential side effects of beta-blockers include fatigue, sleep problems, depression, decreased physical endurance, and impotence. Propranolol and other beta-blockers decrease blood pressure and could cause dizziness and fainting in people with normal to low blood pressure as a result.

Fact

The FDA has not yet approved any medication for the prevention of migraine in children and teenagers. However, the Cochrane Review, an evidence-based review of available research on health care interventions, found that the beta-blocker propranolol hydrochloride and the calcium channel blocker flunarizine (available in Canada only) may be effective prophylactics for this age group.

Who Should Not Take Beta-Blockers

Migraineurs who have lung or breathing problems such as asthma and chronic obstructive pulmonary disease (COPD) should not take beta-blockers, as these drugs can cause breathing to deteriorate. They are also not recommended for use in people who have bradycardia (slow heart rate) or electrical conduction problems with their heart. Beta-blockers can interact with or impact the efficacy of a number of over-the-counter and prescription medications; make sure your doctor is aware of all the drugs you take to prevent dangerous interactions.

Calcium Channel Blockers

Like beta-blockers, calcium channel blockers are a class of medications traditionally used to treat cardiovascular conditions such as hypertension and irregular heart rhythms. They block the absorption of calcium into the heart muscle and vascular system, “relaxing” the cardiovascular system and increasing blood flow to the heart. They are also thought to regulate serotonin levels, which may explain their efficacy in migraine prevention.

Some studies have shown that verapamil (Calan) and nifedipine (Procardia) may be useful in the prevention of migraine. Other calcium

channel blockers, such as nimodipine, have demonstrated conflicting results. None of these drugs are FDA approved for use in migraine prevention.

Fact

Taken orally, the calcium channel blocker verapamil has shown promise in preventing hemiplegic migraine in several clinical studies. Case studies suggest that intravenous infusion of the drug may help to abort hemiplegic migraines already in progress.

Side Effects of Calcium Channel Blockers

Potential side effects of calcium channel blockers include constipation, edema (swelling), and low blood pressure causing dizziness or even fainting.

If you are prescribed a calcium channel blocker, you should not take it with grapefruit or grapefruit juice because these decrease the efficacy of the drug. Alcohol should also be avoided, as it can magnify some side effects and interfere with the activity of the drug.

Who Should Not Take Calcium Channel Blockers

People with certain preexisting health conditions should use calcium channel blockers under a doctor's recommendation and close supervision. Because there are more effective migraine prophylactics available, your doctor may recommend that you avoid calcium channel blockers completely if you have very low blood pressure, heart failure, or impaired liver or kidney function.

Pregnant women should avoid the use of calcium channel blockers because of the risk of birth defects.

Nonsteroidal Anti-Inflammatory Drugs (NSAIDs)

Nonsteroidal anti-inflammatory drugs (or NSAIDs) are considered a second-line preventative treatment for migraine. They are often recommended when preexisting health conditions make first-line treatments inadvisable, or when first-line treatments just aren't effective. They may also be useful to those who can't tolerate the side effects of antiepileptics, beta-blockers, and antidepressants.

For women who suffer from menstrual migraine, NSAID drugs are highly effective. The drugs are usually started about seven days prior to the start of the menstrual period and taken two to three times daily, depending on the drug and dosage.

Essential

Triptan drugs aren't typically used for the prevention of migraine — except in the case of menstrual migraine, where triptans have shown some efficacy as migraine prophylactics. Published studies of naratriptan (Amerge) and frovatriptan (Frova) show the drugs can prevent menstrual migraine in many women.

NSAIDs used for migraine prevention include aspirin (or acetylsalicylic acid), naproxen sodium (Aleve), and ibuprofen (Advil). Although many NSAIDs are sold as over-the-counter drugs, you should work with your health care provider to determine what kind and dosage of the medication is best for your particular situation.

Side Effects of NSAIDs

Some NSAIDs can increase your sensitivity to the sun, so avoid prolonged sun exposure and use sunscreen when taking them. Other side effects associated with NSAIDs include fluid retention (edema), nausea, vomiting, diarrhea, heartburn, and fatigue.

Taking NSAIDs with alcohol can increase your chance of stomach bleeding and should be avoided. If you take lithium, methotrexate, or any diuretics, NSAIDS can impact the therapeutic action of these drugs. Check

with your doctor about the possible interaction of NSAIDs with other medications or supplements you are taking.

Who Should Not Take NSAIDs

If you have stomach ulcers, asthma, heart disease, or kidney or liver problems, certain NSAIDs can aggravate these conditions. Anyone with an allergy to aspirin or to an NSAID should not take these drugs. Aspirin itself or nonaspirin salicylates should never be used in children or teenagers who have flu-like or viral symptoms because it can increase the risk of developing Reyes Syndrome, a rare but potentially fatal disease that can cause serious damage to the liver, brain, and other organ systems.

Because NSAIDs inhibit platelet function (decrease the ability of the blood to clot), they should be avoided in people who take other blood-thinning drugs (anticoagulants) or who are scheduled for surgery.

Angiotensin Blockade Agents

In addition to the beta-blockers and calcium channel blockers, a third type of heart drug, angiotensin blockade agents, has also shown great potential in migraine prevention. These drugs include certain angiotensin-converting enzyme (ACE) inhibitors, angiotensin receptor blockers (ARBs), and a subtype of ARBs known as angiotensin II receptor antagonists.

Angiotensin blockage agents work to balance fluid and electrolyte levels in the blood and are approved and prescribed for use in treating high blood pressure. As such, they may be a good treatment choice for migraineurs who also suffer from hypertension or prehypertension. It’s not yet fully understood exactly how these medications work to prevent migraine, but researchers have theorized that it may be related to their ability to block the action of angiotensin II, a chemical that constricts blood vessels.

Fact

A 2002 metanalysis published in the American Journal of Medicine found that among the 12,110 patients studied, the risk of headache was one-third lower in those patients taking an angiotensin II receptor antagonist than in those who did not.

In the early 2000s, two separate Norwegian studies found that the ACE inhibitor lisinopril (Zestril) and the ARB candesartan (Atacand) cut total days with migraine by more than half in study subjects. Other studies of the drugs have reached similar conclusions.

The angiotensin II receptor antagonist, olmesartan (Benicar), also showed very promising results in a 2006 U.S. study, with subjects reporting an 82.5 percent reduction in the frequency of their migraines and a 45 percent reduction in migraine severity.

Side Effects of Angiotensin Blockade Agents

Angiotensin blockade agents seem to have fewer severe side effects than some of the other prophylactic drugs for migraine. Commonly reported side effects are lightheadedness or dizziness, low blood pressure, fatigue, increased blood potassium levels, and a metallic or salty taste in the mouth.

Who Should Not Take Angiotensin Blockade Agents

Most people with impaired kidney function or liver disease should avoid angiotensin blockade agents, as should anyone with a known allergy to drugs in this class. Because of their ability to increase potassium levels in the bloodstream, these drugs should not be taken with potassium supplements or foods or medicines that are known to increase potassium (including potassium-fortified salt substitutes). They should also not be used with diuretics.

Some angiotensin blockade agents can increase side effects of the drug lithium, and anyone taking both of these medications should be closely monitored by his physician. These drugs may also interact with

other medications; again, always speak with your doctor about possible interactions with your current prescription and supplement regimen.

Other Migraine Preventatives

Researchers continue to investigate new ways to prevent migraine, with some surprising results. Sometimes, medications and therapies that were thought to be effective only in easing the pain of an active migraine attack have proven themselves useful as migraine prophylactics. And other treatments have been discovered quite by accident from completely different fields of medicine.

Botulinum Toxin

Most people recognize Botox as a cosmetic surgical agent injected to reduce or eliminate fine lines and wrinkles in the skin (known clinically as "hyperfunctional facial lines"), though it has several other indications for the treatment of complex neurological and medical disorders. In the 1990s, when the drug was initially being studied as a cosmetic therapy, researchers noticed a decrease in the frequency and severity of migraine headache in some study subjects who were given Botox. This prompted further investigation into the use of the drug as a migraine treatment, and there are now dozens of published studies on the topic.

Botulinum toxin type A (BoNTA; Botox), is a neurotoxin that is cultured from the anaerobic bacterium Clostridium botulinum, an organism found in soil and water. Once cultured, the toxin is sterilized and vacuum-dried. It is mixed with saline and injected with a fine needle just under the skin, usually into the forehead. The toxin causes short-term muscle paralysis in the area it is injected into, and may have some impact on the nerve fibers that could explain its usefulness in short-term migraine prevention.

As of early 2008, Botox was not yet approved by the FDA for the treatment of chronic migraine, and Allergan (the manufacturer of Botox)

was completing phase III clinical trials of the drug for this use.

Botox has few side effects when administered in proper doses by a health care professional. The area surrounding the injection site can become weak if the toxin spreads. Although this is the desired therapeutic effect of the drug, it can be a problem if it spreads to the eyes (causing drooping), throat (causing difficulty swallowing), or other unintended areas.

Question

Will one series of Botox injections stop my migraines forever?

No known migraine prophylactic agent is 100 percent effective. And the effects of botulinum toxin on nerves and muscles are temporary, lasting four to six months before another treatment is necessary. Remember that Botox is not yet FDA approved for migraine prevention, so any use of the drug for this purpose is considered "experimental."

Double-Duty Drugs

Several of the analgesic drugs used for acute migraine pain are also sometimes prescribed, with varying success, for migraine prevention.

An older analgesic drug class that has some benefit in migraine prevention is that of the ergot derivatives. One such drug, methysergide (Sansert), is an oral tablet approved for use as a migraine prophylactic. Though it is not effective in treating migraines once they have begun, it is particularly effective as a prophylactic. Unfortunately, because of its side effects, some potentially quite serious with long-term consequences for kidney and cardiovascular function, methysergide is typically not a front-line choice for migraine prevention.

Question

Will any supplements help prevent migraines?

Feverfew (Tanacetum parthenium), magnesium, coenzyme Q10, and

vitamin B_2 (riboflavin) have all shown initial promise in clinical trials as migraine prophylactics.

Biofeedback, Take Two

Biofeedback — the practice of self-monitoring your body's biological signals and learning how to regulate them through relaxation and visualization techniques — is a proven therapy in the treatment of migraine head pain. It has also been studied as a migraine preventative. The effectiveness of the therapy may be due to the ability of biofeedback and relaxation therapy to reduce stress, a known trigger of migraines.

Because of the psychological benefits and lack of side effects of biofeedback therapy, it is an ideal treatment choice for children and pregnant women, for whom the risks of drug therapy are either too great, or unknown.

Alternative and Complementary Medicine

“Alternative” medicine isn’t so alternative anymore, with billions of dollars spent on supplements, acupuncture, and other untraditional therapies by American consumers each year. Alternative medicine, perhaps more accurately defined here as complementary medicine, is the practice of typically noninvasive, natural therapies and techniques used to complement, or enhance, traditional Western medicine. There are many promising therapies for migraine treatment and prevention that are outside of the medical mainstream, but there is also just as much junk science. Be an informed consumer, know what the science says, and work with your health care provider to select complementary therapies that count.

Vitamin B_2 (Riboflavin)

Most vitamins, minerals, and dietary supplements are relatively inexpensive when compared to prescription migraine drugs. And because they have been around considerably longer than most drugs, many have proven safety and low-side-effect profiles. This makes them a good alternative for migraineurs, especially those who can’t tolerate the side effects of prescription migraine drugs.

Clinical studies of vitamin B_2 or riboflavin, as a migraine treatment have pointed toward the efficacy of the vitamin in migraine prevention. Riboflavin seems to have little effect on the length of a migraine attack, but it can reduce the severity of a migraine attack and appears to have a significant impact on reducing migraine frequency in most studies. One trial found that doses of 400 mg daily for three months reduced migraine days by half. But yet another study indicated that a dose as low as 25 mg may have similar efficacy.

Fact

Riboflavin combined with beta-blockers (e.g., metoprolol, bisoprolol) may be an effective migraine prophylaxis. A study published in the journal Headache found that both treatments have similar levels of efficacy but work through different physiological mechanisms, and combining the two may result in better migraine prevention.

Further large-scale, long-term studies are needed to confirm the value of riboflavin therapy as a migraine prophylactic. But researchers seem to agree that riboflavin is best used as an adjunct, or companion, therapy to other migraine treatments. It is largely safe, inexpensive, and apparently effective with few side effects.

How It Works

Riboflavin helps to regulate cellular metabolism and increase energy production in the mitochondria of the cells. It has been theorized that migraineurs may have reduced energy activity within the mitochondria of the cerebral blood vessels, and this could be why riboflavin works as a migraine therapy.

Dietary sources of riboflavin include milk and dairy products, eggs, cereals, meats, and dark green vegetables. Riboflavin is light sensitive, and the riboflavin content of these foods quickly degrades with prolonged exposure to light (e.g., milk in a cardboard container may retain riboflavin better than milk in a glass bottle). Riboflavin deficiency is uncommon, and is usually a result of a diet that is inadequate in these riboflavin-rich foods. However, it can also be caused by certain gastrointestinal disorders and liver disease. And the condition rarely occurs on its own; it is usually in connection with other B-vitamin deficiencies.

Side Effects and Cautions

Side effects of riboflavin supplementation include upset stomach, diarrhea, and flavinuria — or dark yellow urine. Flavinuria is a harmless

side effect. Some people may experience an allergic reaction to riboflavin supplementation, indicated by a skin rash, breathing problems, or swelling.

Riboflavin can interfere with the efficacy of certain antibiotics and sulfa drugs, so tell your doctor if you are prescribed these medications while taking riboflavin supplementation — you may have to suspend your supplements temporarily.

Niacin

Niacin, also known as nicotinic acid or vitamin B_3, has been used intravenously and orally as both a preventative and an abortive treatment for migraine. There have been case reports suggesting niacin's effectiveness published in the medical literature, as well as a handful of small studies. Whether the usefulness of the drug was related to the action of the drug itself or to a placebo effect is unclear. Unfortunately, as of early 2008 there were not yet any well-designed, randomized, controlled trials of niacin as a migraine treatment.

Fact

A 2007 Belgian study found that thioctic acid (also known as alpha-lipoic acid) may be helpful in preventing the frequency of migraine attacks after three months of therapy. Further studies are needed to confirm whether or not this natural antioxidant is safe and effective over the long term.

How It Works

Researchers believe niacin may be effective in stopping a migraine because of its vasodilatory action (it opens blood vessels). This vasodilatory action may also cause side effects such as flushing of the skin, a warm sensation in the face or neck, and fainting or dizziness. Other reported side effects of niacin include itching, dry skin, and nausea. Many of these side effects appear when niacin therapy is first started or when dosage is increased, and then gradually decrease over time.

Magnesium

Unlike niacin, magnesium does have a few well-controlled, randomized trials indicating its efficacy in migraine prevention. One study of oral magnesium oxide supplementation found that a dose of 600 mg daily over twelve weeks significantly decreased the frequency of migraine attacks. Other small but well-designed studies have found that magnesium supplementation may also be a safe and effective prophylactic therapy for children, and for women suffering from menstrual migraine.

Intravenous magnesium sulfate has shown promise as an acute therapy for migraines in progress. One small 2001 study found that the treatment eliminated head pain in 86 percent of the patients studied. Another study of emergency room treatment in migraineurs found that intravenous administration of magnesium sulfate was just as effective in reducing migraine head pain as IV infusion of metoclopramide.

How It Works

How does magnesium work? The mineral helps to regulate serotonin and other neurotransmitter function, and promotes muscle relaxation, among other things.

Research suggests that migraineurs have lower levels of magnesium in the body than most people, which could explain the mineral's effectiveness in migraine treatment.

Essential

The best way to get essential vitamins and minerals is through a varied and healthy diet. The vitamins and minerals found in your food are better absorbed than supplements, taste better, and are cheaper in the long run.

A deficiency of magnesium can actually cause headache and sensitivity to light, which could explain its effectiveness in migraine treatment. Magnesium deficiency is not a common condition and occurs

most often in people who have a malabsorption problem (problems absorbing nutrients from food), in chronic alcoholics, and as a side effect of certain medications. People with a calcium deficiency may also have a related magnesium deficiency.

Side Effects and Cautions

Poor nutrition also has the ability to affect magnesium levels in the body. High sugar, fat, and phosphate intake through processed foods can affect the absorption of magnesium. Red meat, green leafy vegetables, and whole grain cereals are all good dietary sources of magnesium.

Alert

Some foods rich in magnesium may also be a trigger for migraine in some people. Almonds, cashews, soybeans, and seafood are all abundant sources of magnesium, but have been reported to trigger attacks in some migraineurs.

Oral magnesium supplements can cause gastrointestinal distress at high doses — including nausea, bloating, and diarrhea. When taken as a supplement at levels high above recommended dosage, magnesium can be toxic to the body. Symptoms of a magnesium supplement overdose include erratic heartbeat, skin flushing, dizziness, confusion, muscle weakness, and loss of consciousness. Excess magnesium taken in dietary form does not cause side effects because the body excretes it naturally.

Coenzyme Q10

Coenzyme Q10 (CoQ10) is a substance that is found naturally throughout the body and has also been synthesized in a supplement form. It is an antioxidant that plays a role in energy production of the cells, and the highest levels of CoQ10 can be found in the organ systems that consume the most energy (e.g., the heart, brain, liver, and kidneys). Levels of

coenzyme Q10 decrease with age and with the presence of some chronic health conditions, such as cancer, heart disease, diabetes, and others.

In supplement form, coenzyme Q10 appears to have some effectiveness as a migraine preventative. It is usually taken in a water-soluble formulation (e.g., a liquid gel capsule), and is prescribed in daily doses, sometimes divided (i.e., taken at intervals throughout the day).

Fact

A study of children and adolescent migraineurs published in 2007 found a CoQ10 deficiency in study subjects. When daily supplementation of CoQ10 was prescribed, migraine frequency and disability were both reduced.

Unfortunately, there are only a handful of studies on CoQ10 to date, and most are small or not scientifically rigorous. While larger, long-term trials of CoQ10 are needed, it is worth noting that studies to date have found that CoQ10 supplementation cut migraine headache days by more than half in some patients.

Side Effects and Cautions

There are few side effects associated with CoQ10, and those that have been reported are typically mild. These include mild nausea, light sensitivity, fatigue, and dizziness. Potential allergic reactions to the supplement include rash and itching. Most side effects resolve quickly without treatment.

CoQ10 can decrease blood pressure and blood glucose levels, so people with pre-existing hypotension (low blood pressure) and hypoglycemia (low blood sugar) should only use the supplement with caution under a doctor's care. The supplement may interact with some prescription and over-the-counter drugs, so always consult your doctor and/or pharmacist when adding it to your medication regimen.

Herbal Supplements

While herbal preparations have been used for thousands of years to treat everything from headache to the plague, the advent of formal clinical study on these herbs is relatively recent. As a result, the body of modern scientific literature — in the form of large, controlled, randomized, and long-term trials — is small on most herbal supplements in comparison to the body of literature on commercial prescription and over-the-counter drugs. This is attributable to several factors, including the large amount of research funding provided by pharmaceutical companies, and the differences in regulatory processes between drugs and supplements.

Several herbal supplements have been studied for use in migraine treatment, and the research data, though limited, provides some indication of their efficacy. Those herbs that have the most positive research results in relation to migraine treatment are described below.

Feverfew

Feverfew (*Tanacetum parthenium*, *Chrysanthemum parthenium*) is a medicinal herb that has been used to treat various ailments — including headache — for centuries. The feverfew bush, which is also known commonly as bachelor's buttons, is a fast-growing plant that has daisylike flowers when in bloom. The herb is native to Europe but is now widespread throughout North and South America.

Essential

The Federal Trade Commission (FTC) and the FDA are two good sources of information about disreputable supplement distributors and known health care scams. You can visit them online at *www.ftc.gov* and *www.fda.gov*.

While feverfew leaves are sometimes taken medicinally, commercial preparations of the supplement may contain leaves, flowers, and stems processed into capsule, tablet, or liquid extract formulations. Due to variations in plant varieties and manufacturing processes, the strength and

quality of feverfew supplements you may find at your local health food store can fluctuate widely (see the Smart Supplementation section that follows).

Studies of feverfew in migraine treatment have had mixed results. The herb may have some benefit as a preventative medication, but as is the case with most supplements for migraine prevention, there have not been enough large-scale, long-term, controlled trials to reach a definitive conclusion on the herb. In addition, several of the existing studies test not feverfew alone but in combination with another substance.

For example, a sublingual (under the tongue) compound of feverfew and ginger was used in one small study to treat head pain at the beginning of a migraine attack, and close to half of the subjects reported no pain two hours after treatment. And another study combined feverfew with the herb white willow (*Salix alba*) to produce a compound that reduced the frequency, severity, and duration of migraine after three months of daily supplementation.

Alert

If you have an existing allergy to plants in the daisy family, including ragweed, you may be allergic to feverfew. Signs of an allergic reaction include rash, itching, and swelling. In severe cases, an allergic reaction can slow or even stop breathing due to swelling of the airway.

But some research has determined that feverfew is not any more effective than placebo in managing migraine pain. Clearly, further research is necessary to determine whether feverfew holds promise as a migraine treatment. In the meantime, it may be an option for those who cannot tolerate the side effects of other prescription and over-the-counter medications.

Feverfew has a few potential but uncommon side effects, including nausea, bloating, canker sores, irritation of the lips and tongue, and

changes in sense of taste. Sudden withdrawal of the herb after long-term use has also been associated with sleeplessness, headache, anxiety, and muscle pain.

Butterbur

Butterbur (*Petasites hybridus*), also know as butterfly dock, bog rhubarb, and blatterdock, has been used for medicinal purposes since the fourteenth century. This perennial plant is small with large, rhubarblike leaves and spiky flowers, and has a large rhizome, or root, which is used in herbal preparations.

While butterbur has been studied extensively as a treatment for allergies because of its anti-inflammatory and antihistamine properties, less research exists on its role as a migraine treatment. Most studies involve an extract of the butterbur root taken in tablet form, known commercially as Petadolex. While further long-term, well-designed studies of the herb are needed, existing studies indicate that butterbur has some efficacy as a migraine preventative.

Question

Is butterbur a safe alternative for children?

A 2005 German study of over 100 children and adolescents studied the effectiveness and safety of butterbur in migraine treatment. Researchers found that daily supplementation with butterbur extract over a period of four months cut the frequency of migraine attacks in half for 77 percent of patients. Adverse events (i.e., side effects) were also low.

Like feverfew, butterbur is related to ragweed and can cause an allergic reaction in anyone with an existing ragweed allergy. The herb has not been studied extensively enough to document all potential side effects, but those that have been reported in conjunction with clinical trials include nausea, belching, and other mild digestive complaints.

Smart Supplementation

When you go to the store to buy a bottle of aspirin, there may be many brands on the shelf, but you can be assured that all are of a similar quality and strength (as indicated on the package). Dietary supplements, and especially herbal supplements, are a different story. The way an herb is grown, the parts of the plant used, the manner in which it is harvested and stored, and the processing and manufacturing methods used all play a part in the quality and strength of the supplement that ends up in your local store.

Like prescription and over-the-counter drugs, dietary supplements are regulated by the U.S. Food and Drug Administration (FDA). But unlike drugs, supplements do not have to undergo any approval process before reaching the consumer market. As such, the quality of supplement products can vary widely.

Look for the designations “U.S.P.” (U.S. Pharmacopeia) or “NF” (National Formulary) on the label when selecting supplements. These indicate that the supplement manufacturer observes quality control and good manufacturing practices and that the product meets nationally recognized strength, quality, purity, packaging, and labeling standards as recommended by the FDA.

Fact

Legislation known as the Dietary Supplement Health and Education Act (DSHEA) was passed in 1994 in an effort to standardize the manufacture, labeling, composition, and safety of botanicals and supplements. The FDA is expected to fully implement these regulations by the year 2010.

Acupuncture

Acupuncture is a common treatment in traditional Chinese medicine (TCM) that has gained momentum in Western medicine. The therapy involves the placement of thin, disposable needles just under the skin,

which are targeted to locations on the body known as “acupoints.” The goal of acupuncture is to harmonize the energy flow within the body.

How It Works

The insertion of acupuncture needles stimulates an increase in pain-killing endorphins and serotonin levels in the blood and brain. Acupoints for migraine treatment will vary by patient and symptoms but include locations on the ears, face, forehead, neck, hand, or forearm.

In 2007, a randomized and controlled trial of acupuncture coupled with the migraine drug rizatriptan found that the acupuncture group had better outcomes than the group who took rizatriptan alone. And an earlier trial that coupled acupuncture with flunarizine had similar findings.

Another study of 300 migraineurs who underwent twelve sessions of acupuncture over a three-month period found that the therapy resulted in twenty-two fewer headache days per year, 15 percent less medication use, 25 percent fewer visits to the doctor, and 15 percent fewer sick days attributed to headache compared to those who didn’t have the treatments.

But not all the research on acupuncture in migraine backs its clinical efficacy. A large German trial found that what is known as “sham acupuncture,” which is a type of placebo involving the superficial and nontherapeutic insertion of acupuncture needles, is just as effective as regular acupuncture treatment.

Sham acupuncture was used as a placebo treatment in the control group (the group of study participants not receiving the treatment being studied) of the trial. The control group experienced levels of migraine pain relief similar to the group who did receive genuine acupuncture, indicating that it may have been the patients’ expectations for the treatment that produced the beneficial results, not the treatment itself. However, some acupuncture researchers have questioned the results of these trials, stating that even sham acupuncture stimulates nerve activity and hormonal changes involved in the relief of pain.

Cost and Safety

When performed by an experienced licensed acupuncturist, acupuncture is extremely safe. The needles used are disposable and the skin is swabbed with disinfectant prior to puncture, so the risk of infection is very slim. Needles are inserted just under the skin, so bleeding is minimal, if it occurs at all. The only side effect may be a slight burning sensation at the site of the needle entry.

Not all health insurance plans will cover acupuncture treatments, which can make it an expensive treatment option for some. However, given that studies have documented a significant decrease in both the amount of prescription medication and sick days from work among migraineurs who undergo the treatment, it may be even more cost-effective than traditional medical options for some.

Avoiding Quackery

Because the world of supplements and nontraditional medicine is more loosely regulated than mainstream medicine, there is more opportunity for consumer fraud and subpar or ineffective treatments.

The best way to get quality treatment is to find a quality, credentialed practitioner. Get to know the national professional groups and credentialing organizations for the type of practitioner you wish to see. You can also check with your local and state departments of health to ensure that an alternative practitioner is licensed to practice what he or she claims, and to check for any consumer complaints.

Alternative Practitioners

Health care providers that practice alternative or complementary medicine cover a broad spectrum of disciplines. They can range from “traditional” doctors like general practitioners, internists, and even neurologists who advocate the use of select complementary therapies when appropriate, to “alternative” providers like naturopaths, homeopaths,

acupuncturists, and practitioners of traditional Chinese medicine who specialize in these therapies.

> ***Fact***
> The designation OMD stands for Oriental Medicine Doctor, and signifies a health care provider who specializes in the practice of traditional Chinese medicine (or TCM). An OMD has undergone a doctorate-level degree program in TCM at an accredited university.

Board certification in a specific discipline is the best way to verify that a health care provider has the knowledge and experience to administer a particular therapy. Typically, most health care board certifications require many hours of training and study, followed by a rigorous examination.

Several medical organizations exist for the board certification of acupuncturists. These include the National Certification Commission for Acupuncture and Oriental Medicine (NCCAOM), American Board of Medical Acupuncture (ABMA), and the American Manual Medicine Association (AMMA). If a doctor or health care practitioner is board certified by one of these organizations, he will have these credentials:

- Diplomate in Acupuncture (NCCAOM)
- Diplomate of the American Board of Medical Acupuncture; or DABMA (ABMA)
- National Board Certified Practical Acupuncturist; or P.Ac., and the National Board Diplomate Acupuncturist, or Dipl.Ac. (AMMA)

In addition, practitioners are often certified at the state level. For example, in New York, you must be a licensed doctor or dentist and meet acupuncture education and training requirements to qualify for certification. Check with the health department or department of consumer affairs in your state to find out what the criteria is in your area.

A naturopathic physician (ND or NMD), is a doctor who specializes in natural medicine. Naturopaths avoid drugs and surgery and instead use a variety of complementary therapies, including herbs, acupuncture, bodywork, aromatherapy, and homeopathy. They also practice more "traditional" areas of care such as nutrition therapy and counseling. Preventative medicine is one emphasis of naturopathy, as is treating the "whole person," or holistic health care.

Alert

Not all naturopathic physicians are licensed or board certified acupuncturists. If you are seeking acupuncture from an ND, be sure to inquire about his or her credentials in the treatment first. Similarly, medical doctors (MDs) must also have licensing and/or board certification in acupuncture to administer the treatment.

The American Naturopathic Certification Board (ANCB) is the organization that board certifies practitioners in naturopathic medicine. The designation CTN (Certified Traditional Naturopath) indicates a naturopathic physician has received this certification. Many states also regulate the licensing of naturopaths; check with the department of health to find out the policy in your area.

What to Watch Out For

Perhaps you aren't seeing a complementary practitioner, but are interested in trying out a supplement, vitamin, or other alternative migraine treatment. Of course, it's always best to check with your primary care physician before trying any new treatment — even one touted as "natural" — since the medication you may already be taking can interact with even natural treatments. But there are some signs that the treatment you are considering may be a scam.

- **If it sounds too good to be true, it probably is.** Pills, powders, and juices that tout themselves as “miracle cures” should raise a big red flag. A cure is something we just don’t have for migraine disease yet.
- **Watch out for he said/she said.** Advertisements that are full of testimonials from “satisfied customers” and even doctors, but that lack hard clinical information and studies, are probably not backed by any scientific proof of efficacy.
- **Beware of one-size-fits-all claims.** If a product purports to treat everything from dandruff to diabetes, it is probably a scam. While some supplements and vitamins can be beneficial for multiple conditions, a laundry list of treatable diseases is a sign of a hoax.

Complementary therapies can be a wonderful addition to your migraine treatment regimen. With some basic consumer shopping smarts, a little research, and the guidance of your health care provider, you can use these “natural” treatments to your best advantage.

For more Adams Media ebooks, visit the Adams Media online bookstore by clicking on the logo below.

www.adamsmedia.com

Migraines: Migraine Treatment and Prevention Options contains material adapted and abridged from *The Everything® Health Guide to Migraines* by Paula Ford-Martin, technical review by Daniel H. Lachance, MD, copyright ©2008 Simon and Schuster, ISBN 10: 1-59869-411-1, ISBN 13: 978-1-59869-411-6.

Published by
Adams Media, an imprint of Simon & Schuster, Inc.
57 Littlefield Street, Avon, MA 02322 U.S.A.
www.adamsmedia.com

ePub ISBN 10: 1-4405-5108-1
ePub ISBN 13: 978-1-4405-5108-6

Library of Congress Cataloging-in-Publication Data
Is available from the publisher.