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Updated 6/16/2009

Migraine – More than a Headache

by Drs. Michael Teixido and John Carey

Introduction

Migraine is a common clinical problem characterized by episodic attacks of head pain and associated symptoms such as nausea, sensitivity to light, sound, or head movement. It is generally thought of as a headache problem, but it has become apparent in recent years that many patients suffer symptoms from migraine who do not have severe headaches as a dominant symptom. These patients may have a primary complaint of dizziness, of ear pain, of ear or head fullness, “sinus” pressure, and even fluctuating hearing loss. Fortunately, treatment regimens long established for the treatment of “classic” migraine headaches are generally effective against these “atypical” symptoms of migraine.

How Common is Migraine?

There are currently 28 million Americans with “classic” migraine headaches. In a room with 100 people, 13 are likely to have migraine. This is as common as diabetes and asthma combined. The number of people suffering with atypical forms of migraine is unknown. Females are 3 times more likely to have migraine than males. Although any person can have migraine at any age, migraine is most common between ages 30 and 50. The peak incidence of migraine in females occurs at 35 years of age—at this age, 28% of all females have migraine headaches. The peak incidence of migraine in men occurs at 30 years of age—at this age, about 10% of all males have migraine headaches.

Migraine is a lifelong problem. It may start in childhood and disappear and reappear in new forms throughout an individual’s life. In general, there is a decrease in headache intensity and an increase in the incidence of atypical symptoms of migraine (vertigo, ear pain, bowel symptoms, etc) as patients mature. Migraine tends to run in families, so having a relative with migraine makes it more likely that you will have migraine as well.

Surveys show that only 48% of people with migraine headaches have had a diagnosis and are being treated for their headaches. Unfortunately, only 29% of US migraine sufferers are very satisfied with their treatment. This is usually a reflection of a lack of understanding of the nature of migraine and its treatment, or lack of commitment to effective treatments. We hope this material will help you to achieve better control of your migraine symptoms, whatever they are, and improve your quality of life.

How are People with Migraine Different?

Migraine is an inherited problem of ion channels in the brain. This may result in what is best described as a “sensitive brain”. Most individuals exposed to loud noise, bright light, or excessive motion can adapt to these strong stimuli within minutes, but in the brain of a "migraineur" (migraine patient), the strength of the stimulus continues to grow until a migraine crisis occurs. This lack of ability

to adapt to strong sensory stimulation helps us understand why so many patients have migraine headache or other migraine symptoms that can be provoked by bright light, excessive noise, strong smells, excessive motion, and painful stimuli.

What Happens During a Migraine Attack?

Abnormal electrical activity may occur in, on, and around the brain during a migraine attack. Areas of altered activity have been found on brain imaging studies in patients having migraine attacks. This activity is called "spreading depression," and it represents a wave of increased activity of nerve cells, followed by decreased activity. Originally it was thought that blood vessel spasms caused this abnormal activity, but more recently we have learned that this is not the case. The electrical disturbance is the primary event, and the blood flow changes are a response to the electrical disturbance.

The tendency to generate this electrical disturbance is probably enhanced by inheriting certain forms of the ion channels that set the electrical activity in these nerve cells. Ion channels are like chemical gates – they control the flow of sodium, potassium, and other elements in and out of nerve cells. Migraine may represent a set of biochemical abnormalities of these gates. In a sense, individuals with abnormalities are "primed" to generate this abnormal electrical activity. The addition of something else may push them over the edge and generate the electrical disturbance that underlies migraine attacks. This is where other triggers come to play a role: certain foods, weather changes, stress, hormonal changes, sleep disruptions, etc.

The electrical disturbance may cause very obvious symptoms. For example, spreading depression in the vision areas of the brain may result in unusual visual phenomena such as the appearance of spark-like bursts, wavy lines, blind spots, or even complete visual loss in rare cases. Abnormal cortical brain activity over other regions of the cortex can result in temporary confusion, inability to speak, numbness, or even paralysis of any part of the body. These symptoms, which occur due to electrical disturbances at the surface of the brain, typically are brief, lasting no longer than 20 minutes.

The electrical disturbance of migraine frequently involves deeper parts of the brain that are important processing centers for the senses. We believe that these centers become "hypersensitized." This means a person having a migraine who senses pain, motion, or sound will tend to have an exaggerated, distorted experience of the pain, motion, or sound that may be so intense that it is difficult to tolerate. A hallmark of migraine headache – rare but telltale when it happens – is allodynia, the experience of just simply touching the scalp or even the hair as intolerably painful. Light, sound, motion, or odors can also become intolerable. The patient may become so sensitive that he or she has no choice but to withdrawal to a quiet, dark place and sleep until the episode has passed.

Another element in migraine is the release of chemicals by the trigeminal nerve. This nerve supplies sensation to the entire face, scalp, lining of the eyes, nasal cavity and sinuses, teeth and gums, jaw joints, parts of the neck and ears, even shoulders. This nerve releases inflammatory peptides – the building blocks of proteins – into the tissues nearby. These peptides (CGRP, substance P, etc.)

can cause the local blood vessels to become "leaky," losing their serum into surrounding tissues. The tissues can even swell and become painful on this basis. Classic migraine headache may occur when branches of the trigeminal nerve going to the lining of the brain get inflamed. But painful throbbing headache may be associated with sensitization of the blood vessels around the brain by the inflammatory peptides. And if branches going to the sinuses are involved instead of those going to the lining of the brain, the symptoms may not seem like classic migraine headache, but instead may be sinus congestion and runny nose. These patients often feel that they have sinusitis, but scans show no anatomic abnormality of the sinuses.

Other symptoms of migraine activity in the brain may include retention of fluid, lethargy, nausea, fainting, anxiety, fever, and even seizures.

What is a Migraine Trigger?

A migraine trigger is any environmental, dietary, or physiologic factor that can provoke migraine activity in the brain.

Environmental triggers

Examples of environmental triggers include odors, bright lights, noise, and other excessive sensory stimuli. Painful stimuli that trigger migraine usually occur in the head and neck. The most common of these are neck injury and spasm, temporomandibular joint pain, and sinus pain. 40% of migraineurs are affected by weather changes. The mechanism of this trigger is not currently understood.

Food triggers

There are hundreds of potential food triggers for migraine. Comprehensive lists of foods which may contribute to triggering migraine can easily be found on the Web. In general, these foods fall into two main categories: 1) byproducts of food aging and 2) foods with chemicals similar to neurotransmitters our brains use. Byproducts of food aging are found in fermented products like red wine, aged cheeses, and yeast in fresh bread and yogurt. Foods with chemicals similar to our own neurotransmitters which may aggravate migraine are coffee, chocolate, MSG, and the nitrates used as preservatives in many of our prepackaged foods. Food triggers are not the result of allergy, but are direct chemical sensitivities.

There is a common misconception that if a person is sensitive to a food item, they will know it, because they will have migraine symptoms within an hour of eating the particular food item. In fact, some effects may come immediately or sometimes days later. Added to this confusion is the reality that many real food triggers may not cause migraine alone, but only in combination with other partial triggers, which together may provoke an attack of migraine headache or symptoms. For example, some migraineurs can eat chocolate or red wine alone with no problem, but will suffer a migraine attack if chocolate and red wine are taken together.

We generally recommend an initial dietary trial which avoids only the most common migraine triggers. If good results are not achieved within a few weeks, a comprehensive diet which eliminates all potential migraine triggers is recommended. It may take 6-10 weeks for a patient suffering from severe and debilitating migraine symptoms to respond, but most do. After an improvement in symptoms is achieved, suspect foods can be added to the diet one at a time to see whether they are an important trigger for that patient. Despite the difficulty of this kind of a trial, we have found that even the most severely affected migraineurs tend to respond and are generously rewarded for their efforts.

Physiologic triggers

Perhaps the most common trigger of migraine is stress. Patients commonly report increased symptoms when they are fatigued and suffer lack of sleep. Many other physiologic stresses can also trigger migraine, such as hunger, exercise, and pain. Some patients suffer migraine from sleeping too much, and cannot understand why most of their weekends are ruined by headaches or dizziness. Migraines are commonly triggered by hormone changes, like the drop in estrogen levels before the menstrual period or after menopause.

Treatment of Migraine

It seems easy to take pain medications or abortive medications such as narcotics or triptans to suppress symptoms, but when taken frequently, these can worsen the problem by causing rebound symptoms more intense than the original attack. It is typical for patients to get themselves into a vicious cycle, resulting in decreased functioning at work and at home with the expected emotional consequences before treatment is sought. The best treatment results will be obtained by those patients who work to understand what migraine is and how migraine is affecting their lives. This allows a teamwork approach with the physician and better outcomes.

The mainstay of treatment for migraine headache and atypical migraine symptoms is **trigger identification and avoidance**. This requires education about migraine triggers and the use of a migraine diary in which the patient is asked to record their symptoms and the probable trigger for that particular episode. Unlike many environmental and physiologic triggers, dietary triggers can be avoided. In general, an attempt to improve lifestyle by reducing stress, improving sleep habits, and adding regular exercise are beneficial. When done maximally, many patients will obtain near complete freedom from their migraines with this treatment alone.

At times, symptoms may be so constant that individual events and their triggers cannot be easily identified. In these cases, it may be helpful to give **medications to elevate the threshold** above which migraine triggering in the brain occurs. These may be medications originally used for blood pressure control, depression, or seizures which have been found to be easily tolerated and very good at preventing frequent migraine attacks. When this is successful, the breakthrough attacks which do occur are usually easily attributed to some

particular trigger or aggravating factor, which can then be avoided. It may take 6-8 weeks to respond to a medication, and it is not uncommon for a patient to have to try more than one medication. Patients requiring medications to elevate migraine threshold can realistically expect a 50-80% reduction in symptom intensity and frequency.

If after maximizing the benefits of trigger identification and avoidance and medications to elevate the threshold of migraine, breakthrough headaches are still occurring, **medications to abort acute attacks** may be prescribed. There are now excellent medications which can help improve migraine symptoms both deep in the brain and those painful symptoms associated with sensitized blood vessels around the brain. These new medications are called triptans. Because they can cause rebound, they should not be used more than 6-8 times a month. Doctors' opinions may vary on this.

Some patients will have occasional severe headaches which can be aborted effectively with triptans without the risk of rebound. These patients should always be on the lookout for an increase in headache frequency and intensity that are the first signs of rebound. Long term treatment of acute headaches with narcotics generally leads to increasing medication needs and must be considered very cautiously, especially in patients with histories of chemical dependency.

Migraine and Meniere's Disease

There is increasing interest among ENT physicians in the connection between migraine and Meniere's disease. Meniere's disease is a disorder of the inner ear characterized by episodic fullness, tinnitus (ringing), hearing loss, and vertigo whose cause is poorly understood. While the prevalence of migraine in the US population is 13%, the prevalence of migraine in patients with Meniere's disease is 56%, and the prevalence of migraine in patients with bilateral Meniere's disease is 85%.

It has recently been discovered that the tiny blood vessels in the inner ear are innervated by branches of the same nerve that innervates the intracranial blood vessels severely affected in migraine attacks. Electrical stimulation of this trigeminal nerve has caused fluid changes in the inner ear which could affect it severely enough to cause a problem like Meniere's disease. Many patients with migraine and Meniere's disease who are treated effectively for migraine have experienced an improvement in their Meniere's symptoms.

Migraine and Vertigo

25% of migraineurs experience vertigo along with their other migraine symptoms. In many patients seen at our balance center, vertigo is the predominant feature of their migraine. We typically find that they have had more classic migraine headaches at some time in the past, or have a family history of migraine. Migraine symptoms of new onset in a patient with no personal or family history of migraine can also occur. This is particularly common after head injury or whiplash with chronic neck symptoms. Neck symptoms and spasm tend to increase weeks to months after an initial whiplash injury, causing headache and

associated episodes of vertigo. These symptoms are generally not associated with pressure in the ear or hearing changes and may originate in the brainstem from faulty central processing of balance information from the inner ears. This may explain why many patients with migraine associated vertigo do not respond to vestibular suppressant medications such as meclizine or diazepam, which work only in the inner ear and vestibular nerves, but not in the brainstem. These patients are often best treated with physical therapy to decrease neck muscle stiffness and pain, medications to decrease neck muscle stiffness and pain, as well as traditional migraine therapy.

Migraine and Otalgia (Ear pain)

Up to 40% of migraineurs report sharp ear pains which last only seconds. These may occur infrequently and spontaneously between migraine headaches. Ear pain has many causes, including infection and Eustachian tube problems in the ear, TMJ, and referred pain from the extensive lining of the throat. Migraineurs who present to the doctor with ear pains frequently complain that their ears are hypersensitive to touch, to wind, and to cold. When an otolaryngologist has ruled out all of these other causes of ear pain in a patient with a history of migraine, migraine treatment is often effective in eliminating the pain.

Migraine and Sinus Pressure

A great deal of confusion exists among patients and their physicians regarding the source of symptoms of facial pressure. While facial pressure is indeed a cardinal symptom of sinusitis, up to 45% of migraine patients report attack-related “sinus” symptoms, including tearing, runny nose, and nasal congestion. In migraine, these symptoms are caused by a strong outflow of nerve signals normally associated with migraine, but which causes swelling of the mucous membranes in the nasal cavity and sinuses. These symptoms may last only a few minutes or hours during the migraine episode. Sinus symptoms caused by colds or sinus infections tend to last for days.

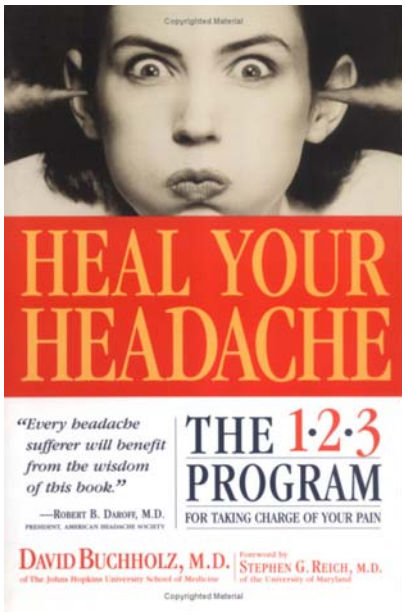
Sinus pain, which feels like pressure, is also commonly associated with migraine, and may be the only “headache” experienced in a migraine. In migraine, symptoms tend to last minutes to hours rather than for days, as in sinus infections. 50% of migraine patients report that their headaches are influenced by weather.

Where can I Learn More about Migraine?

Several websites provide valuable information. Dr. Timothy Hain maintains an excellent website on vertigo and imbalance disorders at www.dizziness-and-balance.com. A website specifically devoted to migraine-associated vertigo can be found at www.mvertigo.org.

In addition, we typically recommend that my patients read the book, *Heal your Headache the 1-2-3 Program* by David Buchholz, MD. This book provides a comprehensive diet plan composed completely of foods that do not trigger migraine. It is much easier to follow this diet than to be suspicious of every food

of every food you have in your cabinet at home or that you see in the supermarket. It also teaches and emphasizes the concepts of rebound and the additive character of migraine triggers. Patients who have severe migraine-related vertigo may not be able to read a whole book because of their condition. They will benefit greatly from reading the book together with a family member who can help them to stay on track and to understand all the concepts in the book.



Those patients who do love to read and who have very atypical manifestations of migraine often find great comfort in the experiences of Oliver Sacks, MD, in his book, *Migraine*. Dr. Sacks is an extremely insightful neurologist with a gift for writing and who himself had migraine at age 2. He has collected an astonishing series of patient stories with both common and extremely unusual symptoms, all attributable to migraine mechanisms.

Treatment Guidelines for Physicians

For treatment we first encourage a strict migraine control diet, eliminating common migraine culprits including chocolate, wines, caffeine, certain cheeses, monosodium glutamate (MSG) as well as less frequently recognized problem foods containing yeast (yoghurt, sourdough, freshly made bread), nuts, and nut products. Glutamate can occur in foods not only through the addition of MSG, but also by hydrolyzing (breaking down) proteins. So labels that include "hydrolyzed casein," "hydrolyzed yeast extract," etc., are likely to include glutamate.

We also encourage a regular sleep schedule and aerobic exercise program. Patients are also counseled to avoid vasoconstrictive medications such as psuedoephedrine, and to minimize the use of triptans, which may cause rebound symptoms.

When patients follow these guidelines and still have migraine-associated symptoms, we emphasize prophylactic medications in preference to the "quick fix" agents such as fiorinal, triptans, narcotics, or steroids. Effective prophylactic medications are chosen based on the patient's other medical problems and tolerance of side effects. Some suggested regimens follow:

Calcium channel blockers: Diltiazem CD 120 mg/d increasing as tolerated to 240-480 mg total/d, often in two divided doses. Constipation and hypotension are the most common side effects, but this is often the best-tolerated regimen.

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Updated 6/4/2009

Antidepressants: Nortriptyline starting at LOW doses (10 mg/d) and slowly increasing to 50-100 mg at night. Higher doses (100-200 mg) may occasionally be needed. Levels can help guide therapy. Dry mouth, weight gain, and sedation are the most common side effects. Patients with poor sleep often benefit the most from these agents.

Selective serotonin reuptake inhibitor (SSRI) agents have less proven benefit in migraine control. We have found mixed agents helpful, such as venlafaxine (Effexor). The full starting dose of Effexor XR 37.5 mg can have prominent serotonergic effects, including, on occasion, panic attacks. But the Effexor XR 37.5mg capsules can be opened, and the dose divided in into two or three parts. Each part can be placed in a closed gelatin capsule and taken as a low starting dose once daily for a week. The dose can be gradually increased to the full 37.5 mg. As the dose is increased, the drug has greater effects on blocking norepinephrine reuptake, which may be the salient effect on migraine. So patience is necessary as a long time may be needed to reach a fully therapeutic dose. Heart rate and blood pressure should be monitored, as these can be dose-limiting

Beta-blockers: Propranolol LA 60 mg/d increasing as needed up to 160 mg/d. Reactive airway disease and diabetes are the usual contraindications. Depression may be worsened by beta-blockers. Nadolol has fewer such CNS side effects; it is started at 20 mg/d and increased as needed up to 120 mg/d.

Anticonvulsants: Sodium valproate 250-500 mg BID is usually well tolerated, but liver function tests and platelets should be monitored. Gabapentin at a low dose of 300 mg a day, with weekly escalating doses to a first target dose of 300 mg three times a day (900 mg total). Then it can be increased gradually to another target dose of 1800 mg total a day (in 3 divided doses), or until side effects (usually sedation) appear. It has the inconvenience of frequent dosing, but with a low adverse effect profile. Dosing adjustments are necessary for renal insufficiency, and the medication should not be used in children under 12 years old. Topiramate has recently been shown to be a very effective migraine prophylactic agent. It is started at 25 mg daily and increased weekly to a goal of 100-200 mg twice daily. Monitoring for metabolic acidosis and nephrolithiasis is recommended.

All patients are cautioned that migraine symptoms often do not respond quickly to these interventions. Great patience is required of the patient and physician as 6-8 weeks of diet changes or the full dose of any new medication may be needed before benefits are seen.

Anxiety, depression, and even panic attacks are frequent accompanying diagnoses in these patients. These diagnoses should be recognized and discussed. The choice of a prophylactic medication may also be influenced by these other conditions.

One of the best resources for migraine therapeutics currently available is Lawrence Robbins' *Management of Headache and Headache Medications*. It very clearly outlines strategies for first line, second line, and combination therapy for migraine and other headache types in an easy-to-use handbook format.

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The following website compiles many of the references related to migraine associated vertigo and has an active forum on the subject:
www.mvertigo.org

The Headache Center

Vitamins and Dietary Supplements

Certain vitamins and food supplements may provide a benefit in terms of headache prevention. Many unsubstantiated claims can be found on the internet and at health food stores. The best evidence exists for the agents below (published peer reviewed, randomized controlled trials, albeit small ones in some cases). Side effects are typically mild.

- B2/Riboflavin – up to 400mg / day
- Magnesium – up to 400mg 2x / day (diarrhea possible)
- Coenzyme Q_{10} – up to 100mg 3x / day (expensive)

- Butterburr (*Petasites hybridus*) extract, Petadolex brand (pyrrolizidine alkaloid free), 50–75mg twice a day with food (expensive)
- Feverfew (*Parthenium integrifolium*) 50mg+ per day (inexpensive)

- Melatonin – There is some weaker evidence that melatonin, a hormone that helps regulate sleep, may help headaches if 3–6 mg is taken an hour or so before bedtime. Significant side effects are rare. Probably most useful in treating cluster headaches.

There are a few companies that package more than one of the above vitamins / supplements into a single pill for convenience. One such product is “Migravent”, info. available at http://www.migravent.com.; another is “MigreLief”, info. available at http://www.migrelief.com. We do not specifically endorse any brand name item, nor do we have any financial interest in any of these products.

The Headache Center

Migraine Diet

Food may play a significant role in the frequency of your headaches. Although some migraine patients find that eating certain foods will provoke a headache every single time, the effect of diet may be less obvious. In general, the more "trigger" foods you consume, the more headaches you may have. The hope is that by avoiding these possible triggers, the better off you will be. Eating regularly timed meals, avoiding hunger, avoiding dehydration, and avoiding skipping meals is probably more important than the specific foods you do or do not eat.

Try following this list as strictly as possible for at least two months. If it helps, you may gradually add back your favorite foods one at a time, keeping track of your headaches as you do so.

Category	Foods to Avoid, Reduce, or Limit	Foods that are OK
Caffeine	No more than 2 servings / day. Do not vary the amount or timing from day to day. Coffee, tea, colas, Mountain Dew, Sunkist, certain medications (Anacin, Excedrin)	Decaffeinated coffee, herbal or green tea, caffeine-free sodas, fruit juice (see below)
Snacks / Desserts	Chocolate, nuts (peanuts, especially), seeds	Fruits listed below, sherbet, ice cream, cakes, pudding, Jello, sugar, jam, jelly, honey, hard candy, cookies made w/o chocolate or nuts
Alcohol	Avoid all, especially: ales, Burgundy, chianti, malted beers, red wine, sherry, vermouth. Note: some medications contain alcohol (Nyquil)	Non-alcoholic beverages
Dairy	Certain cheeses (aged or fermented): Brie, blue, boursault, brick, Camembert, cheddar, Emmenlalaer, gouda, mozzarella, Parmesan, Provolone, Romano, Roquefort, stilton, Swiss Buttermilk, chocolate milk, sour cream Eggs	Other cheeses: American, cottage, cream cheese, farmer, ricotta, Velveeta. Milk, yogurt Egg substitute
Cereals & Grains	Fresh breads and yeast products, fresh bagels, fresh doughnuts, yeast extracts, brewer's yeast, sourdough	Commercial breads (white, wheat, rye, multi-grain, Italian), English Muffins, crackers, rye, toast, bagels, potatos, rice, spaghetti, noodles, hot or dried cereals, oatmeal
Meats	Aged, canned, cured, or processed meats (bologna, pepperoni, salami, other pre-packaged deli meats), pickled meats or fish, salted or dried meats or poultry, hot dogs, sausages, jerky	Fresh / unprocessed meats, poultry, fish, lamb, pork, veal, lamb, tuna
MSG (monosodium glutamate)	Avoid in all its multiple forms: Soy sauce, foods containing "hydrolyzed protein products" or "autolyzed yeast", canned soups, bouillon cubes, Accent, meat tenderizers, seasoned salts. Pickled, preserved or marinated foods	Salt and other spices, butter, margarine, cooking oil, white vinegar, salad dressing (small amounts)
Sweeteners	Aspartame (Equal, Nutrasweet) (somewhat controversial)	Sucrose (sugar), high fructose corn syrup, sucralose (Splenda), saccharin (Sweet 'n Low)
Vegetables	Pole or broad beans, lima beans, Italian beans, lentils, snow peas, fava beans, Navy beans, pinto beans, pea pods, sauerkraut, garbanzo beans, onions, olives, pickles	Asparagus, beets, broccoli, carrots, corn, lettuce, pumpkins, spinach, squash, string beans, tomatoes– all those not listed
Fruit	Avocados, figs, papaya, passion fruit, raisins, red plums. Limit bananas and citrus fruit (orange, lemon, lime, grapefruit, tangerines)	Apples, berries, peaches, pears, prunes, fruit cocktail
Mixed Dishes	Beef stroganoff, cheese blintzes, frozen meals / TV diners, lasagna, macaroni and cheese, pizza	

Note that tyramine, nitrites, nitrates, and MSG are found in many foods and may be difficult to avoid. Learn to read labels.

While there are few consistent scientific studies of the effect of food on headaches, there is a general consensus about which foods may be important to avoid. The above list is drawn from various sources including the National Headache Foundation, journal articles, websites (http://www.kirchnerheadacheclinic.com/diet.asp) and books (such as David Buchholz's *Heal Your Headache: The 1-2-3 Program for Taking Charge of Your Pain*).

Common Food Triggers for Migraine

Accent seasoning
Aged meats
Anchovies
Autolyzed yeast
Avocados

Bacon
Bagels
Bananas
Beef jerky
Blue cheese
Bouillons
Breadcrumbs
Brewers yeast
Brick cheese
Brie cheese
Broad Italian beans
Broth
Buttermilk

Calcium caseinate
Camembert cheese
Canned meats
Carrageenan
Caviar
Champagne
Cheap buffets
Cheddar cheese
Cheese spread
Chicken livers
Chinese food
Chocolate
Clementines
Coffee
Coffee cake
Coffee substitutes
Cola
Croutons
Cultured items
Cured meats

Dark alcohol drinks
Dates
Decaf coffee
Decaf tea
Doughnuts
Dried fruits with sulfites

Enzyme modified items

Fava beans
Fermented items
Fermented meats
Feta cheese
Figs
Flavored snacks
Flavorings
Fresh beef liver
Fresh bread
Frozen yogurt

Garbanzo beans
Gelatin
Glutamic acid
Grapefruits and juice
Gravy
Gruyere cheese

Hams
Heavy alcohol drinks
Hot dogs
Hydrolyzed protein

Iced tea

Kombu (seaweed extract)

Lemons and juice
Lima beans
Limes and juice
Lentils
Liverwurst
Low calorie foods
Low fat foods
Lunchmeats

Malt extract
Malted barley
Maltodextrin
Marinated meats
Mozzarella cheese
MSG
Muenster cheese

Natural flavors
Navy beans
Nitrates
Nitrites
Nut butters
Nutrisweet
Nuts

Olives
Onions
Oranges and juice

Papayas
Parmesan cheese
Passion fruit
Pate
Pea pods
Pepperoni
Pickled fish
Pickles
Pineapples and juice
Pinto beans
Pizza
Pizza dough
Plant protein
Processed meats
Protein concentrates
Protein fortified items
Provolone

Raisins
Raspberries
Ready-to-eat meals
Red plums
Red vinegar
Red wine
Restaurant food
Rice protein
Romano cheese
Roquefort cheese

Saccharin
Salami
Salty snacks
Sauerkraut
Sausage
Seasoned salt
Smoked fish
Smoked meats
Snow peas
Sodium caseinate
Soft pretzels
Soups
Sour cream
Soy products
Soy protein
Soy protein concentrate
Soy protein isolate
Soy sauce
Stilton cheese
Sulfites
Sweet n' Low

Tea
Tenderized meats
Textured protein
Tyramine

Ultra-pasteurized items

Vegetable protein
Veggie burgers

Whey protein
Wild game

Yeast
Yeast extract
Yogurt

Acknowledgement: David Buchholz, M.D. *Heal your Headache: The 1-2-3 Program*.

Practical Treatment of Migraine Michael Teixido MD

It is almost certain that a substantial percentage of the dizzy and other patients you see in the Otolaryngology clinic actually have symptoms attributable to migraine and will have more improvement with migraine treatment than with any other treatment. My treatment protocol is relatively simple. I use four primary drugs: nortriptyline, diltiazem or verapamil, propranolol and topiramate. In some cases of dizziness I will use low dose clonazepam but only if they have an actual symptom of a rocking sensation or severe anxiety that is a cause of their problem. I find that patients with rocking respond better to clonazepam than anything else.

The first part of treatment is **enrolling patients** in the idea that they do have a form of migraine, one that they have never heard of, but that you as a doctor recognize. They need to understand that their symptoms will respond to the same preventive treatments as migraine headache. We are not talking about abortive treatments but preventive treatments. The preventive treatment of migraine has 2 parts. One is reduction of migraine triggers, and the other is elevation of the migraine threshold for triggering of migraine. The medications are used to elevate the threshold. The reduction in triggers is done by eliminating or reducing migraine triggers in the diet as much as possible. I have a large “no list” of food triggers on my web site, and I tell people to try to reduce caffeine and to eliminate other foods present on the list to only once a week. There is also a “yes list” that is more practical to shop with. In addition, if they have a history of seasonal allergies and especially if they have a history of exacerbation of symptoms during seasons I have them do allergy testing. This has become an important part of treatment for some of my patients.

As far as medication goes the first “go to” medication is low dose nortriptyline, 10 mg capsules. Nortriptyline may work as well as it does in these patients because it has so many mechanisms of action: all tricyclic antidepressants are synthesized from an antihistamine base so has some antihistamine action. It is also a medium potency calcium channel blocker and sodium channel blocker, as well as an SNRI. In addition, it is anticholinergic; this is important because many chronic migraine sufferers have increased parasympathetic tone as a part of their migraine syndrome. This usually presents as low blood pressure and GI symptoms in young patients with otherwise healthy vascular systems. Nortriptyline is taken before bed; they and take 1HS the first week then 2HS after that. They are usually concerned by two things. One is the side-effect list which is horrendous but I assure them that the list was made by people who were taking 5-10 times their dose for depression, and that this dose is extremely small compared to that. Also they are concerned that it is an antidepressant and they don’t feel depressed. I have also reassured them that there should be no problem with it. Many patients are already taking an SSRI or other antidepressant and I have not had any problems in 20 years with a patient who was taking other antidepressants who then had serotonin syndrome because of taking low dose nortriptyline. Occasionally a pharmacist will raise a red flag to the patient so it is important to let them hear this reassurance from you first. Serotonin syndrome is very rare. I reassure them that if they feel bad on any medication they do not need my permission to discontinue it.

The response rate to nortriptyline is really high, over 60%, so it is the first go to medication. Twenty milligrams is the index dose of nortriptyline in this patient group, meaning if they are going to respond it it there will be at least some response at that dose. Almost all patients will notice they sleep better. If they have difficulty waking up in the morning with a slow start for an hour or two, I have them take it an hour or two earlier before going to bed. Once again, if they do not tolerate the medication for any reason I do not insist that they take it, and we move on to the next medication. If they come back and have had a substantial response, maybe 30-50% of symptom reduction, and they are tolerating the medication, then I have them increase to 30 mg

a night for 3 weeks and then, if needed, to 40 mg. I see them back in another 6 weeks. Generally, I see these patients every 6 weeks to check their symptoms. I also remind them of and discuss how they are doing with their diet at every visit. **The people who tend to respond the best to nortriptyline are middle-aged and older persons and especially older men.** Younger patients often report tiredness all day that can be limiting, so I tend to start with other agents in younger patients. Weight gain can be a problem with nortriptyline because of a carbohydrate craving. If patients do gain weight they need to be aware of calories and portion control.

If they do not respond to nortriptyline I often will start **topiramate**. I give them 25 mg tablets and escalate by 25 mg a week to 50 mg b.i.d. In this way they can avoid most of the side-effects, then we taper up from there if needed. Only 25% of patients need more than 50mg bid. Some patients get up to 100 mg or even 200mg BID. A lot of these patients also have headaches, sometimes not severe but headaches nonetheless, and those disappear on treatment because even though they are mild they are migraine. I remind patients that they are fortunate their headaches are not “fully flowered”. When prescribing I remind patients that topiramate can cause numbness and tingling in the hands and feet, but that goes away if the same dose is maintained for a few weeks, a taste change and decrease in appetite that often causes modest weight loss, and in 20%, cognitive disturbance. Cognitive problems are the most common reason for discontinuation of therapy. Young women tolerate and accept it because of the prospect of weight loss so **I tend to start with topiramate in young women.** Trokendi is a new 24 hour version of topiramate that reduces cognitive side effects to only 4% but is not covered by some insurances. It is worth fighting for in patients who respond uniquely to topiramate.

The other 2 medications you need to know are the antihypertensives; the beta blocker **propranolol** and calcium channel blockers **diltiazem and verapamil** are useful for these patients.

Propranolol I start at 80 mg XR once daily and increase to 120 mg if they have a response that is incomplete. Some take 240mg. Watch for depression and weight gain, and warn athletes that it could limit peak athletic performance. Uncontrolled asthma is a contraindication as are calcium channel blockers. In my experience **Propranolol is the best tolerated and effective medication for young men.** The combination of beta and calcium channel blockade could be dangerous, is almost never used by cardiologists and is a hard no. If a patient is already on an antihypertensive medication, no problem; additional BP lowering of 10mm Hg can be expected by adding an additional agent.

Diltiazem I start with 120 mgXR and consider going up to 240 mgXR if they have a response. Verapamil is cheaper but has inconvenient TID dosing. I usually taper verapamil up by writing 80mg daily for 1 week, then BID for a week, then TID.

Patients worry about these drugs if they already have low blood pressure. These medications are usually OK even if the patient already has symptoms of orthostatic hypotension because their vasculature is already relaxed. A PCP has never called me upset that I started these meds when the patient is on other blood pressure agents. Only a few patients in 15 years have not tolerated meds because of hypotension.

Clonazepam I prescribe at 0.5 mg twice daily. It is often a good temporary add-on medication for patients whose symptoms are related to a significant life stress as a trigger and they are having difficulty coping. It can serve as a bridge while getting the help of a cognitive behavioral therapist. It is uniquely effective for symptoms of rocking dizziness but is usually prescribed after

trials of other classes of medication because it is a controlled substance. It should be avoided if there is a history of substance abuse. Clonazepam is GABA-ergic and long acting. It has more effect on central vestibular pathways than cholinergic agents like meclizine. I prescribe 0.5mg BID and instruct patients to start with ½ or even ¼ of a tablet BID, the smallest dose necessary to control symptoms. The group of patients who need this medication are quite severely affected and most tolerate 0.5BID with no reduction, and even an improvement, of work performance. Stopping the medication is a taper that halves the dose every 2 weeks until no longer practical. A sudden withdrawal after more than 2 months will generally result in 3-4 days of irritability and sleeplessness; it is uncomfortable but not dangerous.

Finally, I reassure patients that these medications are not forever. They may need them for a year, two or three both now and at future points in their lives. My rule is this: if they become asymptomatic for 6 months they should be asking the very reasonable question:"I wonder if I still need this medication?". We attempt to taper by 10mg every 2 weeks to see if symptoms increase. If not, keep going. Fifty percent of well controlled patients are successful getting off. A quarter find they still need it but at a lower dose, and a quarter find out right away that they need to continue as before. I often have patients on a maintenance dose attempt a taper prior to a 6 month follow up visit. We discuss the outcome and feel more certain we are on track when we make decisions in the context of the result of taper attempt. They accept the medication best if they know it is preventing symptoms.

Once you start treating these patients your practice will begin to transform: you will become the only practitioner who is able to find solutions for a lot of patients. Each year attendees from this course follow up with reports of the gratification they have experienced in applying this knowledge. If you would really like to feel comfortable prescribing all of these medications and would like to see all aspects of migraine management all the way to nerve blocks and Botox, I would suggest you come spend a day or two with me sometime in Wilmington, Delaware. You will see how we choose and exactly how we manage their medications. More importantly you will see lots of patients who are being treated successfully in this way for symptoms which may be receiving other care in your home practice. You will also see how allergy becomes an important part of managing these patients.

There is a lot of information on my web site: simply google Teixido and Patient Information http://www.entad.org/for-patients/patient-information-dr-teixido/. It has the diagrams and materials I show my patients, and the diet lists. All patients are emailed this link to my web site material as homework: http://www.entad.org/for-patients/patient-information-dr-teixido/migraine-more-than-a-headache/ Take a minute to look at it if you can.

All the best,

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