



HEADACHE

NEWSLETTER OF THE AHS COMMITTEE FOR HEADACHE EDUCATION

Dear Public and Members of the American Headache Society® (AHS):

Welcome to the Summer Edition of the Second Volume of the American Headache Society® Committee on Headache Education (ACHE) Online Newsletter. Our intent remains the same. We ask that medical providers and the public copy this Newsletter for whatever their purpose. Please encourage everyone in need of reliable information on headache to access this online via achenet.org under ACHE News 2010 Newsletters. Individual articles are available separately under Articles. Our pledge to provide commonsense articles we think is met by this month's articles. Let us know whether you agree or disagree using Contact on www.achenet.org.

In this installment headache experts tell us about critical to know migraine issues. These include information about migraine experiences and associations, including allergy and allergic rhinitis and alcohol sensitivity ...or not. We complete this issue with nerve block treatment available for headaches. Good Reading!

- 1) Alcohol and Migraine by Dr. Alessandro Panconesi
- 2) Allergy, Rhinitis and Migraine Headache by Dr. Vincent Martin
- 3) Migraine's House of Headaches...and Visiting the Neighbors by Dr. Robert Kaniecki
- 4) Nerve Blocks for Headaches by Joshua Tobin

The Editors are especially grateful to these expert headache specialists for their time, dedication to patients and excellent ACHE articles. This month's authors combined years of caring about patients add into the "elderly" age category. Yet each brings you very new ideas on headache care issues.

Every two years a new president of AHS takes the lead and the immediate past president takes over as ACHE Chairman for the next two years. This month we welcome the founder and decade long past chairman of ACHE, Dr. Fred Sheftell (NOTE: Thank you Dr. Taylor. Its good to be back! FS). In the coming year ACHE will transform under his gentle guidance and watchful eye. Comeback often and inform us of your needs. We wish you best health!

Fred Sheftell, MD FAHS
ACHE Chairman

Frederick Taylor, MD FAHS
Newsletter Editor

Alcohol and Migraine

Alessandro Panconesi, MD

Key Points

1. Alcohol is a migraine trigger, but its risk overstated.
2. Alcohol can provoke two types of headache in migraine patients: an attack within a few hours and a delayed hangover headache.
3. Migraine patients consume alcohol less often than the general public.
4. Although migraine sufferers consider red wine the principal migraine trigger, studies show that other alcoholic drinks are equally or more frequently the cause.
5. Alcohol and not a different constituent of the drink is probably the trigger.
6. A small dose of alcohol, such as a 5 ounce glass of good wine, can be consumed if it does not trigger migraine frequently. Drink in small amounts to the benefit of your heart but use caution with breast cancer risks.

How important is alcohol as a trigger of migraine?

Migraine patients consider many foods capable of triggering migraines. The food-trigger relationship is frequently equivocal. In fact, lists of triggers induce the migraineur to equate their migraine attack with a food just consumed. This is similar to crediting a new symptom to a drug they are taking at that moment. With full review the cause and effect may or may not be true.

A food may be likely considered a trigger of a migraine attack if: a) a strict time relationship

Continued on page 2

IN THIS ISSUE

- Alcohol and Migraine
- Allergy, Rhinitis and Migraine Headache
- Migraine's House of Headaches...and Visiting the Neighbors
- Nerve Blocks for Headaches

Continued from page 1

exists between the consumption and the start of headache, b) that this link is not occasional. From retrospective patient reports, it is very difficult to make sure a link exists. In fact, especially in the drug-new symptoms example, a possible link to other frequent triggers (stress, post-stress, fear, anxiety, menstruation, weather changes, etc) must be considered. When chocolate was studied to assess a chocolate trigger-headache link no connection was found with migraine and tension-type headache. Many consider alcohol to be a sure migraine trigger, but its importance is still debated.

In studies from different countries that collect data from the past, about one-third of migraine sufferers reported alcohol as a migraine trigger at least occasionally. In these retrospective studies only 10% reported a frequent link. Curiously, in some countries the connection was negligible (1.4 to 6.1% of patients). The degree of alcohol habits perhaps explains these differences. No sex differences exist in alcohol susceptibility. The great majority of studies show no differences between migraine with or without aura. No differences exist between migraine and tension-type headache. Cluster headache patients have higher alcohol sensitivity (about 50-80%).

In a forward-looking study (PAMINA) published in 2007 Austrian researchers examined a large number of factors related to migraine. After an advanced data analysis they found limited importance of nutrition, including alcoholic beverages in the precipitation of migraine. This work considered alcohol and other nutritional factors taken the day before onset of headache.

What is the interval from alcohol consumption to the start of headache?

Alcohol can trigger a migraine attack within a few hours (30 min to 3 hours). This is the typical headache induced by alcohol. Another type is the delayed alcohol-induced headache (DAIH). This

hangover headache appears in the next morning after alcohol intake. At this time the blood alcohol level is falling and reaches zero. The symptom of headache is present in 2/3 of subjects with alcohol hangover. The DAIH can be experienced by anyone, but people with migraine are more susceptible. Furthermore, migraine patients can develop headache with the ingestion of modest amounts of alcohol. All alcoholic drinks can provoke either immediate or delayed headache.

Alcohol consumption in migraine

Since alcohol can trigger a migraine attack, in a sense only a small number of migraineurs should drink alcohol. Population-based studies performed in various countries (US, Scandinavia, Netherlands, Japan, Italy) show that fewer migraine sufferers consume alcohol than those without headaches. Moreover, the more alcohol consumed the less likely the drinker reported migraine and non-migraine headache. This fact may be explained by sufferers of headache giving up alcohol since it is a trigger factor for their headache attacks. However, an Italian study seems not to support this explanation. In this study only a very small percentage of non-alcohol consuming female migraineurs reported that alcoholic drinks were a trigger. They concluded that this fact could not explain the large difference in alcohol consumption between migraine and the general public.

Is alcohol or another component of the drink the headache trigger?

Red wine is typically considered the most likely alcoholic drink trigger. In 1988 Littlewood and colleagues showed that 300 ml or 10 ounces of red wine but not vodka with an equivalent alcohol content provoked headache in red wine sensitive migraineurs. Migraineurs not sensitive to wine and non-headache controls did not have headaches triggered. They suggested that red wine contains a migraine-provoking agent that is not alcohol. Some studies in France and Italy report white wine as the major

culprit. However, there are reports of also spirits, sparkling wine and beer triggering headache. Wine does not need to be ingested in large quantities to produce headache. In wine sensitive patients the time between drinking red wine and developing headache varied from 30 min to 3 hours. Only one or two glasses at most need be ingested.

The fundamental question still remains to be made definitely clear. Is alcohol or another component of the drink responsible for triggering headache? It remains difficult to answer this question. To provoke a migraine attack a combination of factors may be necessary. These may include a given blood/brain alcohol level with degree of brain sensitivity along with the presence or not of other triggers. Perhaps this combination activates the pathways necessary for headache to become active. Otherwise, if alcohol per se is not directly involved in producing headache, a substance present in the different alcoholic drinks seems responsible or facilitates the alcohol effect.

Some components of alcoholic beverages such as tyramine, phenylethylamine, histamine, sulphites, flavonoid phenols, have been considered possible triggers for migraine. This is due to their presence in various alcoholic drinks and the belief the drink is capable of triggering migraine. However this is not verified as studies are either negative or lack adequate proof to support their causal role.

Histamine is the substance most frequently mentioned. Some consider it an indicator of the wholesomeness of the food or food quality. Various foods such as fish, aged cheese, meat (sausage, salami), vegetables (eggplant, sauerkraut, spinach), contain much higher amounts of histamine than alcoholic drinks. In addition many foods, including alcohol, may release histamine from bodily sources known as mast cells. Histamine infused by vein is a time tested way to provoke a migraine attack. However, other than headache, many symptoms of so called "histamine intolerance" are not characteristic of a

Continued on page 3

Continued from page 2

migraine attack. That antihistamine drugs do not prevent red wine headache further fails to support histamine as a critical trigger.

The same observations made on histamine are valid for sulphites. Much higher amounts are found in many foods compared to wine. These include dried fruits, chips, raisins, soy sauce, pickles, and juice fruits. So called "sulphite sensitivity" provokes asthmatic responses rather than headache.

Tyramine is a naturally occurring monoamine which is not able to cross the blood-brain barrier. It is responsible for the so called "cheese effect." Its triggering relationship to migraine has been the most extensively studied. The studies have generally shown negative results. Considerable tyramine is found in most meats and fermented foods, many condiments and figs, red plums and raspberries among others. Tyramine is nearly impossible to avoid it's so widely distributed in foods. In addition, the tyramine content of wine is negligible (1-2 mg/L) in comparison with the tyramine doses utilized in oral challenge studies (100-200 mg).

Flavonoid phenols and tannins, both alike in character and action, are by-products of alcohol fermentation. These congeners, or alike minor chemical substances, give wine its distinctive character. Others known congeners include acetone, acetaldehyde, fusel oil and furfural. These alcohol by-products have been suggested as responsible for triggering migraine. Darker coloured drinks such as whiskey, brandy, red wine, have more of these by-products than lighter drinks such as vodka, gin, or white wine. However, certain studies on white wine and spirits suggested more frequent involvement than with darker drinks. Bourbon has 37 times more of these substances than vodka. Recently, it was shown to cause a worse hangover than vodka

increasing the intensity of the hangover felt. Bourbon did not appear to increase the risk for impaired performance, sleep disrupting effect, etc. The lack of a role for congeners in alcohol hangover was recently confirmed in an animal model of migraine.

Probably alcohol per se is the trigger of migraine. Increased artery size is the mechanism frequently suggested. This vasodilatation could explain the immediate headache provoked by high initial blood/brain levels. Vasodilatation cannot explain Delayed Alcohol Induced Headache as the symptom of alcohol hangover appears when alcohol levels decline to reach zero. If vasodilatation is not responsible for alcohol related headache, what other explanations might explain this effect? Perhaps an action on nerve transmitters involved in central pain control is responsible. Specifically, serotonin (5-HT) release must be considered. Population surveys show that illicit/recreational drugs such as MDMA/ecstasy (amphetamine derivative) and 'party pill' BZP/TFMPP (piperazine derivatives), both serotonin or 5-HT releasing drugs, provoke headache in a high percentage of users. Young adults use recreational drugs very commonly in combination with alcohol (90%). Controlled studies show that BZP/TFMPP provoke headache/migraine in 2/3 of subjects. Another piperazine derivative, mCPP is a nonselective serotonin activator. It is a liver produced by-product of trazadone, an often used sleeping aid. mCPP is extensively used to study altered serotonin nerve transmission and provokes migraine-like headache. This occurs in about 50% of subjects with oral mCPP. Migraine-like headache and many additional symptoms occur when given IV mCPP in research.

Should migraine patients avoid alcohol consumption?

Alcohol in low dose, especially of red wine, reduces the risk of cardiovascular disease. Migraine, specifically with aura or high frequency, increases the risk of some cardiovascular diseases. The unselective suggestion of alcohol abstinence for all migraine patients is not correct. In fact, patients with high

migraine frequency with increased risk of ischemic stroke may benefit from a low dose of alcohol. Certainly alcoholic drinks may trigger migraine and tension headache in some subjects. This is probably much less likely than that suggested by patient's recall. Moreover, it is frequently necessary to consume alcohol along with other factors (anxiety, stress events, emotions etc) to trigger a headache attack. Before alcohol is considered responsible for a migraine attack, the patient should review certain factors. These include careful recording of the intake of the amount of alcohol, the specific drink types, the frequency of induced-headache to the amount and type and the 48 hours prior to headache and any "situation" or "stress" prior to the alcohol intake. If you find consistent agreement among these factors and the headache, alcohol is possibly causing headaches. However, when the factors do not associate together consistently, or extremely rarely, abstinence is not necessary. Since alcohol is considered a risk factor for breast cancer, know your risk for this disease. Otherwise, drink that glass of good quality wine as a Greek comic poet suggested: "Three bowls only do I serve for the temperate: one for health, which they drink first, the second for love and pleasure, and the third for sleep. When this bowl is drunk up, wise guests go home. The fourth bowl is ours no longer, but belongs to violence, the fifth to uproar, the sixth to drunken revel, the seventh to black eyes, the eighth is the policeman's, the ninth belongs to biliousness, and the tenth to madness and hurling the furniture. (Eubulus ca 375 BC) "

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Allergy, Rhinitis and Migraine Headache

Vincent Martin, MD

Key Points:

1. *Allergic rhinitis increases the likelihood of having migraine headache and may also influence the frequency of attacks.*

Continued on page 4

Continued from page 3

2. *An allergic rhinitis diagnosis requires a positive allergy test. It also requires the presence of symptoms of rhinitis (e.g. sneezing, post nasal drip, runny nose, nasal congestion) upon exposure to that allergic substance. Just because you have positive allergy tests does not mean that you have allergic rhinitis.*
3. *Only specific testing for allergies establishes a diagnosis of allergy.*
4. *Early evidence suggests that the avoidance of food allergens may decrease the frequency of migraine attacks in some patients.*
5. *Few studies exist to determine if treatment of allergic rhinitis improves migraine headache.*

Introduction

It is easy to get the wrong idea about the relationship between allergy, rhinitis and migraine headaches. This is true more than for almost any other topic. Various viewpoints exist due to the fact that migraine headaches are diagnosed in 86-88% of patients reporting "sinus headaches". Sinus headaches are not an official diagnosis within the field of headache. Patients and providers often define sinus headaches by pain and pressure over sinus areas. Sinus symptoms such as congestion or runny nose happen in nearly half of all migraine attacks. This association between sinus and migraine headache leads many headache experts to believe that allergy and rhinitis play no role in provoking attacks of migraine headache. Recent research suggests this may not be correct.

Confirming allergy - Tests

Tests performed by your allergist, ENT or primary care provider can confirm allergies. These tests include skin testing and blood work. Skin tests are the most common. Skin prick tests use tiny amounts of allergens (e.g. cat hair, dust, mold, and pollens) placed on the skin. For a large number of tests the tester uses the back. Testers also use the forearm or upper arm. The tester then pricks or stabs the skin so the allergen goes under the skin surface. A positive is development of an allergic reaction. This reaction is

usually swelling and redness at the site. Positive results usually occur within 15-20 minutes. An intradermal skin test involves an injection of allergen under the skin. TB (tuberculosis) skin testing is an example. It is less reliable for allergies due to many false positives. Lastly, allergens taped to the skin produce a skin reaction in 24 to 48 hours similar to that seen with the other methods. Blood work measures protein levels to identify specific allergies. These are antibodies to a specific allergen. These tests are called RAST or immunocap tests.

Food allergens are identified by positive skin prick testing or blood work. Once food allergens have been identified it is necessary to undergo a food elimination diet to confirm that it is causing headaches. This involves the removal from the diet of presumed food allergens causing symptoms. They are then added back typically one by one. If symptoms improve with elimination and reoccur with reintroduction of the food then you have a true food allergy.

How common are allergies?

One or more positive allergy tests indicate that a person is "allergic". Thirty to forty percent of the public has one or more positive allergy tests if they undergo allergy testing.

What is allergic rhinitis?

A positive allergy test in a person with rhinitis does not mean that person has allergic rhinitis. Patients with allergic rhinitis must have allergies noted on allergy testing. They must also have rhinitis symptoms such as sneezing, nasal congestion, runny nose or post nasal drip. These symptoms must occur when exposed to the allergen. For example, if a patient had a positive allergy test to cat hair and experienced rhinitis symptoms when exposed to cats then the patient has allergic rhinitis. One in five people in the United States have allergic rhinitis.

Migraine and allergic rhinitis

Several studies report that migraine headaches are more common with allergic rhinitis than in those without the diagnosis. One study found that migraine

headache occurred in 34% of those with allergic rhinitis. Only 4% of patients without allergic rhinitis had migraine. Other studies have found that migraine headache is 2-3 times more common with a diagnosis of allergic rhinitis.

Allergic rhinitis might also affect the frequency of attacks. Health care spending for the treatment of migraine headache tends to increase during allergy seasons. A recent allergic rhinitis study found a dramatically increased frequency of migraine headaches in patients younger than 45 years of age with greater than half of their allergy tests positive. The peak time for development of allergies is under age 45. This could suggest that allergy provokes migraine most when there are lots of allergies and plays a greater role in younger than older patients.

Migraine and food allergies

Several small studies have shown that avoidance of foods allergens leads to a decrease in the frequency of migraine headache. A recent study conducted in 30 patients found that avoidance of foods to which they were allergic reduced migraine attacks by 29%. There are several problems however with use of diets to avoid food allergens. Testing of food allergens often involves 200 or more foods. As a result positive tests are common. This leads to elimination of many foods from the diet. In fact, one study identified 24 avoided foods per individual. Removal of all the possible food allergies from ones diet can often prove quite challenging. Many of the positive food allergy tests are staples of the Western diet (e.g. wheat, dairy, eggs, seafood, and nuts). It can be difficult to avoid these for long periods of time. Total avoidance of all of these foods typically leads to a nutritionally unhealthy or unbalanced diet. Therefore, one should speak with a healthcare provider or dietician before starting such a diet.

How might allergies provoke migraine attacks?

There are several ways that allergy

Continued from page 4

could affect migraine headache. First, there is an association between inflammatory reactions and allergies. The inflammatory reaction causes the release of chemicals such as histamine, prostaglandins, leukotrienes and serotonin. Leukotrienes are fatty molecules of the immune system of interest here because they contribute to inflammation in asthma and allergic rhinitis. All of these chemicals can trigger migraine headaches. Second, allergic rhinitis leads to nasal congestion. This could activate nerves in the nose that could provoke attacks of migraine headaches. In addition, nasal congestion makes it difficult to breathe at night, which might lead to sleep apnea that could cause headache. Third, allergy worsens symptoms of depression and anxiety. This could affect the number of migraines and the way that they are experienced. Research shows that patients with depression compared to those without depression perceive their migraine attacks as more severe and disabling. With improvement of depression headache severity and disability also improve.

Treatment of allergies for headache

Few studies exist to determine if the treatment of allergies or allergic rhinitis decreases the frequency of migraine headache. Nasal steroids decrease symptoms of obstructive sleep apnea that can lead to headaches upon awakening. Monteleukast or Singular® is a leukotriene inhibitor or blocker used as an asthma and rhinitis medication. The largest migraine study assigned patients to receive daily monteleukast or placebo (sugar pills) for several months. It did not prevent migraines, but was not specifically studied in migraine subjects with rhinitis or in those with allergies. Therefore, its effect on migraine headache in allergic rhinitis patients is uncertain. Anecdotally, the author has noted some improvement of headaches in patients with allergic rhinitis with use of nasal steroids,

antihistamines and monteleukast. However, the response is quite variable in clinic patients.

Allergy shots are injections of small dosages of allergens given on a weekly basis to decrease allergy symptoms. Early studies from the 1960s and 1970s found that allergy shots reduce headache attacks (not migraines) in patients with allergies to dust, pollens and cats. A more recent study in patients with allergic rhinitis found a 50% reduction in the frequency of attacks of migraine in patients receiving allergy shots as compared to those not receiving shots. Most of the studies had small numbers of patients and none randomly assigned patients to allergy shots or placebo (sugar pills). Therefore, these results are preliminary and we do not currently recommend allergy shots for the treatment of headache disorders till more studies are done.

Summary

Allergic rhinitis increases the likelihood of having migraine headache and may also influence the frequency of attacks. Early evidence suggests that the avoidance of food allergens may decrease the frequency of migraine attacks in some patients. There are few studies to determine if treatment of allergic rhinitis improves migraine headache.

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Migraine's House of Headaches... and Visiting the Neighbors

Robert G. Kaniecki, MD

Key points

1. *Migraine patients experience a range of different headache types.*
2. *Understanding these different migraine types may lead to better medication decisions.*
3. *Issues with mood, nerves, sleep, bowel function, or pain are common in migraine.*

4. *It is critical to discuss these issues during your appointments --- a better understanding of you and your concerns result in a more complete diagnosis and treatment program.*

Visualizing Your Migraine House and Neighborhood

Any problem becomes easier to solve when you have more information. The more letters you see when completing a crossword puzzle, the more likely you are to finish the word or phrase. This is also true for playing "Hangman", or watching Wheel of Fortune, The more pieces in place in the jigsaw puzzle, the easier the others seem to fit. Migraine headaches are no different. The most skilled headache providers will seek to uncover and understand your various headaches. To do so, you must understand that your "migraine house" is full of a number of headache versions. It is also critical to you and your provider to understand that your "migraine neighborhood" is home to other important headache-related medical issues your provider should know.

Your Migraine House

Typically migraine headache is characterized by episodes of pain which impact our lives due to the "S" trio: **S**everity of pain, **S**ensitivities to light/noise/odor, and **S**ickness with nausea/vomiting. A full-blown migraine is not difficult to recognize. This would occupy the "great room" of the *migraine house*, due to its importance. The worst attack is important to address during your office visit because it generally leads to the greatest impact on life through missed work, school, family or social events. This is the headache that often requires aggressive care involving prescription acute and preventive medications. Commonly their severity requires home injection or nasal spray options. Unfortunately, the patient-provider discussion unfortunately often ends here. Although this particular version of migraine pain may be critical to your well-being, the migraine house is so much bigger!

Most migraine sufferers report "other" headaches as well. These make up the smaller but often more numerous rooms

Continued from page 5

of your migraine house. They are milder episodes of head pain which often lack any of the “S” trio (severity, sensitivity, sickness) and therefore are not considered “migraines.” These “regular headaches” occur so commonly that I would place them in the kitchen and bedroom of the *migraine house*. These are places where folks tend to spend a great deal of time. These are often labeled “stress” or “tension” when the neck is involved or when the pain is “tight” or “like a vice.” Many seem to associate these with a stressful day. Some patients will refer to these headaches as “sinus” if the face is involved or if the discomfort is “pressure.” This headache may be more akin to the kitchen as the kitchen is so often remodeled and this diagnosis so often leads to surgeries. Over time many providers and sufferers have come to think of these as separate rooms outside the migraine house. However, research has shown that such “regular headaches” usually are not different from migraine. They actually are versions of migraine itself. The migraine rooms are not separate. One actually flows into another with each a critical component of the migraine house. If “sinus” and/or “tension” migraine are occurring more than 5-10 times per month seek expert care. If the treatment applied fails to completely and quickly terminate the episodes the majority of the time, a change in treatment should be sought. Overuse of headache or decongestant medication is one of the most common reasons for difficult migraines. This “rebound effect” is yet another source of milder headaches.

One head pain which occasionally frightens patients is the “ice pick headache.” This is like a dark attic or “off limits” basement in the migraine house. This headache gets its name from the sudden onset of severe, sharp, localized head pain. This pain generally last seconds in duration. It is as if someone stuck, and thankfully removed, a knife from the skull. These are now called Primary Stabbing Headache by

headache specialists. “Jabs and jolts” or “needle in the eye” are versions you may have read of in the past. Occasional episodes do not warrant medical attention. Multiple episodes per day probably do. An increase in frequency over days-weeks always darkens the room and is worth a call to your provider. Although technically non-painful, the drawing of the migraine house would be incomplete without reference to aura. Aura is the experience of brain symptoms lasting generally a few minutes to an hour, usually visual in nature. Although most will describe lights, lines, shaped objects, flashing, or distortions of vision, some patients can experience numbness, tingling, speech disturbances, dizziness, and weakness. Aura is like the highly specialized modern media room. Few have them, but the space is stimulating to the senses. Aura is experienced by the minority, estimated at 1 in 4 migraineurs. Usually aura comes before headache. Auras also occur during or even without headache. Most aura patients suffer other headaches without aura.

The Migraine Neighborhood

Headache scientists and clinicians agree that the “migraine brain” is very sensitive by nature. This increased sensitivity can be due to genes, since many patients appear to inherit this tendency. Others begin to suffer from migraines after any trauma to the head or neck. The migraine neighborhood is first and foremost described by a fence of variable height or sensitivity. When the sensitive brain is overwhelmed by excessive internal or external stimuli or “stressors” a migraine attack may result. In this case the neighborhood is not controlled by the fence as it is not high enough. Emotional stress, menstrual cycles, weather fronts, and certain foods may all be reported as triggers. Even between such episodes migraine sufferers may report sensitivity of their senses: light, noise, odor, motion, and temperature sensitivities are all common. In addition to these, migraine patients display other sensitivities which might rise to the level of life impact. These sensitivities include mood, nerves, sleep, bowel/bladder function, and body

pain control. There are many factors which destroy the fence protecting the migraine house from the neighborhood. Mood disorders are among the most common overlooked non-headache conditions requiring management in a headache practice. They amount to the recurring severe weather in the neighborhood. Although patients may believe they are depressed *because* they suffer from migraines, the relationship is not that simple. Like the sensory sensitivities outlined above, the migraine brain possesses the biological tendency towards developing depression. This is so even when the migraines are relatively quiet ... or before they've even developed at all. In addition to depression, bipolar disorder (commonly known as manic depression) is more common among migraineurs. We also find that generalized anxiety and panic attacks are more frequently seen in migraineurs. With more headache episodes, the more likely a mood disorder is present. The more frequent the headaches the more sensitive the brain. This is similar to the more rooms in the house the taller it is likely to be and the greater the risk of a lightning strike. The sensitive brain spirals out of control with combinations of pain, fear, anxiety and depression. This is not unlike the shorter the fence the more we worry about potential threats from the neighborhood to our security. Finally, many will describe being a “type A” personality, prone to being hurried or worried.

Beyond these mood and simple personality traits migraine patients can display sensitivities of sleep, bowel function, and body pain control. Insomnia is often due to the anxiety and vice versa. Many migraine sufferers report being “light sleepers,” and others describe significant concerns with either falling asleep or staying asleep. Irritable bowel symptoms such as diarrhea and constipation are more common in the migraine population. “Gut sensitivity” sometimes begins early in life as infantile colic. Finally some report issues with unusual pain in the muscles or joints. In the extreme these may be labeled as fibromyalgia. Indeed, the migraine neighborhood is busy and disturbing.

Continued on page 7

Continued from page 6

Conclusions

Describe all these headache types, and discuss with your provider how often they require treatment. Review any concerns you have with mood, nerves, sleep, bowel function, or body pains as well. Review your *migraine house* and *migraine neighbors*. Try to explain your condition is 200 words or less. The more concise the information provided, the better a provider can make a full diagnosis. That provider should then share that diagnosis with you and design a program to help you. The better you describe and concisely outline your migraine home and neighborhood, the better the planners design will be to address all your needs, concerns and potential fears.

By Robert G. Kaniecki, MD; Assistant Professor of Neurology, Director of the University of Pittsburgh Headache Center, University of Pittsburgh, Pittsburgh, PA.

Nerve Blocks for Headaches

Joshua Tobin M.D.

Key Points

1. A nerve block is an injection onto or near a nerve. It involves use of a syringe, a small needle, and medication to decrease or stop passage of nerve impulses.
2. Nerve blocks are a unique treatment for controlling headaches.
3. Most nerve blocks for headaches are done in the back of the head over the occipital bone and nerve. Any nerve on the scalp can be injected.
4. Predicting who will respond to a nerve block is tricky.
5. The medications injected include a local anesthetic and less often also a steroid.
6. Nerve blocks are generally benign, but there can be side effects.

Nerve blocks fill a unique role in headache medicine.

A nerve block is the injection of medication onto or near a nerve. With

certain methods used in occipital nerve blocks, only muscle may be injected. The purpose is to decrease the amount of information that the nerve passes from another nerve, muscle, ligament, bone or skin receptor into the central nervous system. To understand the unique role that nerve blocks fill in headache medicine, one must first understand the difference between “abortive” and “preventive” or “prophylactic” headache therapies. Abortive therapy is a treatment for a single headache. The intent is to make that particular headache go away now. It is not expected to do anything for the next headache. Overuse of abortive agents can actually lead to more and more headaches. Acetaminophen (Tylenol), ibuprofen (Motrin), and Excedrin Migraine are examples of abortive therapies. Preventive drug therapy is a medication taken daily to decrease headaches over time. Benefit usually takes several weeks to months. For example, a patient might hope of going a week between headaches instead of going two days between headaches. Nortriptyline (Pamelor), propranolol (Inderal) and topiramate (Topamax) are examples of preventive therapies.

Nerve blocks can be used to stop or abort a headache. Their effects, however, usually last longer than for a single headache. As a result, they are more than a simple abortive therapy. A typical duration of effect varies. Unlucky patients derive no pain benefit, but more commonly, headache relief lasts for days to weeks after the nerve block. However, the only way to use nerve blocks as a preventive therapy is to repeat them every 4 – 6 weeks. Most patients prefer not to do so.

Nerve blocks therefore fill a unique role in headache medicine. They are neither simple abortive, nor common preventative. They are commonly used as transitional therapy. This term means that they are used during the several weeks to months after starting a preventive agent, but before the preventive agent starts to work. They are also sometimes used as “rescue” therapy

when a patient’s usual abortive(s) don’t work.

Most but not all nerve blocks performed are regional occipital nerve blocks.

The most common nerve block for headache is the regional occipital nerve block (ONB). The occipital bone forms the back of the head. The occipital nerves arise from the upper neck and provide sensation to the back of the head. The exact site of injection varies from injector to injector. The general area is where the back of the head meets the back of the neck.

Almost any other nerve in the head that is close to the skin can also be injected. For example, the supraorbital nerve provides sensation to the forehead and top of the head. This nerve exits the skull just above the eyes. The injection site for the supraorbital nerve is generally in the forehead, at the eyebrow.

Predicting who will benefit from a nerve block can be difficult.

Occipital nerve blocks seem not to work for several primary headache disorders. Several published articles report poor results for tension headaches, paroxysmal hemicrania, and hemicrania continua. Yet, even the hemicrania disorders may respond. Providers frequently perform nerve blocks for the following conditions:

- Cluster headaches often appear as very severe stabbing poker-like pain in or around one eye. It lasts 15 minutes to 3 hours. These short lasting headaches typically occur 1-2 times per day for 4-6 weeks. The pain tends to make the sufferer move or bang their head. Occipital nerve blocks with lidocaine and steroids are proven to be effective for cluster headaches.
- Cervicogenic headache or cervical headache can be defined as one sided head pain that is triggered by neck movement or pressure on an occipital nerve. True cervicogenic

Continued from page 7

headache is highly associated with trauma to the neck/head. Chronic migraine often mimics this disorder (see next). Additional supportive findings are reduced neck range of motion or sensory changes in the back of the head. Occipital nerve blocks are proven to be effective for cervicogenic headaches, provided they are defined this way. However, response to occipital nerve block does not define the pain as cervical in origin.

- Cervicogenic chronic migraine is a type of chronic migraine with attacks of pain starting in the neck. Pain responded to either one or both sided ONBs in a recently reported study. Migraine, an especially common type of headache, usually appears as a moderate or severe pain on one side of the head. It usually is throbbing, lasts hours to days, and is worse with physical activity. Nausea, vomiting, or light and noise sensitivity may accompany migraine. While there is no definite proof that nerve blocks work for migraines, injectors frequently perform nerve blocks for migraine sufferers, because the blocks frequently work. Studies suggest that the occipital nerve must be tender to touch for the blocks to work.
- Post spinal tap headache goes by several names. These include post lumbar puncture headache or post-dural puncture headache. Post spinal tap headache is caused by puncturing the sac surrounding the brain and spinal cord during lumbar punctures or spinal anesthesia. Fluid leaking from the sac around the brain and spinal cord causes the headache. While not standard care, several authors reported occipital nerve blocks to be effective.
- Headache from overuse of abortive therapy is another possible use for nerve blocks. This use is unproven at this time. The hope is to decrease the pain associated with analgesic withdrawal.
- Occipital neuralgia manifests as stabbing pains in the back of the head. Compared to the prior disorders,

it is quite a rare diagnosis. By definition, it responds to occipital nerve blocks. Other problems can produce the same symptoms, however, such as arthritis in the upper neck and the prior disorders.

Many headaches do not fit into any one particular headache syndrome. Under these conditions, injectors use other features to predict who will respond.

These characteristics include:

- tenderness to palpation of the nerve reproduction of headache pain with palpation of the nerve pain in the distribution of the nerve
- allodynia, pain from non painful triggers such as light touch
- prior injection response
- neck pain or neck muscle spasms (for occipital nerve blocks)

Unfortunately, none of these typical features have been studied in well designed clinical trials, but in the absence of good clinical data, providers use these features.

Performing the nerve block

Injectors have yet to agree on the best way to do a nerve block. Injection methods vary from provider to provider. Methods vary. Differences exist for the exact place to inject and medication to use. All injectors use a local anesthetic. This is given alone or with a locally acting corticosteroid. Local anesthetics are numbing medications that deaden the skin. They also decrease nerve impulses passing along pain nerves. You may have had a local anesthetic injected for dental work in the past. Lidocaine and bupivacaine are two common local anesthetics used for headaches. Corticosteroids are strong anti-inflammatory medications which differ from NSAIDs (nonsteroidal anti-inflammatories). Examples include methylprednisolone, triamcinolone, and dexamethasone. Locally acting forms of these corticosteroids are used for nerve blocks. Many providers believe

that the local anesthetic produces the rapid onset of headache relief, like an abortive agent, and that the locally acting steroid produces the preventive like action of up to 6 weeks.

One clinical trial of occipital nerve blocks for a severe form of migraine called transformed migraine reported no significant differences in results with or without a low potency locally acting corticosteroid. Whether this finding means that locally acting corticosteroids don't really work is unclear however. Current studies only prove benefit for cluster headache patients.

Finally, there is some evidence suggesting that when nerve blocks are repeated over and over, each nerve block works better than the previous nerve block, raising the possibility that enough nerve blocks could cure some headaches or produce a more prolonged preventive effect.

Nerve blocks do have side effects, but they are few and generally mild.

Locally-acting steroids rarely cause undesirable cosmetic side effects such as nearby hair loss, loss of underlying fat, and loss of local skin color. In addition, frequent use may suppress the immune system and steroids might cause local infections known as abscesses. Therefore, given these side effects, many injectors prefer not to use steroids repeatedly or when injecting nerves on the face. Epinephrine is typically avoided. It is a drug used to limit bleeding by reducing blood flow in the artery. When used serious skin injury (death of the skin at the site of injection) may occur. The most common side effects of a nerve block include:

- Injection site soreness, which may last for a few days, and is probably an effect of the steroid.
- Numbness, which is a sign that the local anesthetic is working.
- Dizziness, if it occurs, it is usually mild.

Continued on page 9

Continued from page 8

Skull defects and prior brain surgeries present one serious risk for patients. Any injection through the defect into the nervous system can cause loss of consciousness for days. Inform your provider of any changes to your head from injury or surgery. Remind your provider of your skull defect at the time of any injection to ensure the best injection planning.

Inject When?

If you have cluster headaches, cervicogenic headaches, occipital neuralgia (rare) or a very tender occipital area consider a nerve block. If you have intractable migraines, consider a nerve block but find out if at least one of your occipital nerves is tender to touch. Find out if your insurance covers the nerve block beforehand, and if your insurance refuses to pay after it is done, whether you will be responsible for paying the bill. Think of questions and offer your worries and concerns. Expect empathy for your worries and clear answers to your concerns. If not given, either decline the blocks, or request referral to another injector. Make any allergies clear to the injector. Finally, let your injector know the results, both the good and the bad, at the follow up visit. If well tolerated and effective, a series of injections may provide further benefit.

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