



HEADACHE

NEWSLETTER OF THE AHS COMMITTEE FOR HEADACHE EDUCATION

Dear Members of the American Headache Society® and Public:

Welcome to 2010 and our Second Volume of the American Headache Society Committee® on Headache Education (ACHE) Newsletter. Our intent remains that medical providers and the public copy this Newsletter for educational purposes. We encourage everyone to access this on-line via achenet.org under ACHE News 2010 Newsletters. Our pledge to provide commonsense articles we think is met by the contributors in this volume.

In this Winter installment of 2010 experts inform us about critical to know caffeine and obesity issues for headache sufferers. Since we nearly all use Over-the-counter drugs a no nonsense discussion is offered here to inform the positive and negative. Finally, those with severe or frequent pain can be benefited by knowing something about why touch can hurt when it shouldn't. Good Reading!

- 1) Caffeine and Migraine
- 2) Migraine and Obesity: What You Should Know!
- 3) Acute Therapy: Why Not Over-the-Counter or Other Nonspecific Options?
- 4) Allodynia: When Touch Hurts But Shouldn't

The Editors are especially grateful to Drs. Robert Shapiro¹, Robert Cowan¹, B. Lee Peterlin², Luzma Cardona³ and Gretchen Tietjen⁴, as chief authors of these articles and for their time, expertise, their dedication to patients and ACHE. We also note our first contribution by a fellow³ of a Headache Medicine program.

Help improve future editions by contacting us at the website under ACHE/Contact with your constructive criticisms, topic suggestions and articles for potential publication. On behalf of the entire ACHE committee we wish you a healthy 2010.

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Caffeine and Migraine

Robert E. Shapiro, MD, PhD; and Robert Cowan, MD

Key Points:

1. Caffeine affects pain.
2. Acute treatment of headaches with caffeine is sometimes effective, but limit it to not more than two days per week.
3. For people who get migraine, caffeine taken 3 or more days per week for whatever reason, may lead to dependency and increase migraine frequency.
4. For those who have frequent headaches, avoidance of all caffeine is ideal, and at least until improvement in headache frequency is seen.

Migraine patients often report that a strong cup of coffee can stop some attacks. This is not surprising to hear. Caffeine is a key active ingredient in many headache medications including Excedrin™, Anacin™, Midol™, Darvon Compound™, Fioricet™, and Migranal™. Caffeine may aid in the body's absorption of these medicines, but can caffeine itself relieve headaches? Few research studies have examined this question, but the answer appears to be yes. Caffeine can provide some headache relief. For example, one small controlled study found that caffeine was better than placebo, and as good as acetaminophen, in relieving tension-type headaches.

So why not just treat your headaches with coffee? Unfortunately, caffeine's effects on the brain can vary tremendously depending upon how often you use it. With occasional use, it may provide modest acute headache relief as well as its characteristic satisfying sense of alertness and well-being. However, with daily or near daily caffeine exposure, the brain may develop a tolerance for the drug. This means, a given dose

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becomes less effective with repeated use. Dependency develops when the brain expects that an additional dose of caffeine will be coming soon. If that caffeine expectation is unmet, a withdrawal syndrome results which includes headache itself as a prominent symptom, along with fatigue, trouble concentrating, nausea, and other symptoms suggestive of migraine. An example of this withdrawal syndrome may be the "weekend migraine", where attacks tend to occur on Saturdays or Sundays associated with "sleeping in" and delaying the morning cup of coffee.

We don't fully understand the mechanisms underlying the different effects of caffeine on the brain. However, the specific targets of action of caffeine in the brain and nerves outside the brain are known. Caffeine affects the activity of a naturally occurring and necessary brain substance called adenosine. Adenosine levels in the blood go up during migraine attacks. Furthermore, adenosine when injected into a vein can trigger migraine attacks. Adenosine is widely available in the brain and can produce many effects including less brain electrical activity, temporary widening of blood vessels, and control of some aspects of sleep and movement. Adenosine acts by sticking to specific receptor molecules on the surfaces of some brain cells. Caffeine can block the action of these receptors and thereby stop the effects of adenosine. We do not know how these effects of caffeine result in acute anti-migraine and pain control actions.

In daily caffeine users, caffeine has less of an effect on brain action and blood vessel size. Caffeine withdrawal may lead to a significant increase in blood flow in the brain. This is due to an increase in blood vessel size as a result of stretching or dilation. These chronic effects of caffeine are likely a result of changes in the numbers, types and change in function of adenosine receptors active on brain cells. These changes may contribute to caffeine tolerance and dependency.

Caffeine is the world's most popular drug and coffee possibly second most valuable product after oil. Up to 90% of Americans of all ages consume some caffeine daily with more than 50% consuming coffee daily. More than 50% average 300mg per day with an average daily dosage for all consumers of about 200mg. One report estimates nearly 95% of Brazil's population consumes caffeine daily, whereas only about 63% of Canadian adults do so. The average dietary caffeine consumption in some Scandinavian countries is more than 400 mg per person per day. It is not hard to reach 200-300mg of caffeine daily since a standard 8-ounce cup of coffee made by the American drip method contains between 125 and 250mg of caffeine. A 12-ounce can of Coca Cola contains 34mg. Also, the usual 'cup' of coffee for many individuals is often actually 12 or even 16 ounces and sometimes more.

Do not underestimate the power or potency of caffeine. Caffeine dependency can occur after as little as 7 days of exposure. 100mg per day can sustain dependency. In fact, many individuals can avoid caffeine withdrawal symptoms by as little as 25mg - the equivalent of about 2 tablespoons of most "gourmet" coffees. Carefully controlled studies show that caffeine doses as low as about 10mg can be reliably noticed by particularly sensitive people. These studies also show that more than 30 percent of people can feel the effects of 18mg or less.

Is "decaf" coffee OK? According to a US Department of Agriculture rule, 97.5 % of caffeine must be removed from coffee in order for it to be called decaffeinated. Therefore, the starting potency of coffee is very relevant to the final potency of decaf. University of Florida researchers have measured up to 6.9 mg caffeine per 8 oz of Starbucks brewed decaffeinated coffee and up to 15.8 mg caffeine per 1 oz shot of Starbucks decaffeinated espresso. So only a couple of cups of decaf a day might still have a

considerable effect on some people.

Studies of caffeine dependency and tolerance show that daily caffeine users are actually more motivated to consume it to avoid withdrawal symptoms, than to experience the lift that its stimulant properties may provide. Caffeine's combination of a punishing syndrome of withdrawal, along with a rewarding sense of wakefulness, has made coffee, tea, and chocolate, some of humanity's best-loved foods. One might say that caffeine-producing plants have succeeded in motivating humans to cultivate them widely and with very great care.

Not everyone consuming daily caffeine is equally likely to develop dependency and withdrawal syndrome. Studies indicate that genetics make some people more likely than others. Scientists do not know whether the inherited tendency to experience caffeine withdrawal syndrome relates to the genetic factors that cause migraine. However, chronic daily headache (CDH) patients are much more likely to use daily dietary caffeine and/or prefer caffeine-containing headache medications. Moreover, people who occasionally experience migraine attacks are at a higher risk of developing CDH when they also consume caffeine daily too. In one study, consumers of 100mg caffeine daily had nearly 3 times higher likelihood of developing CDH than those drinking less. This association is particularly notable for young women - a group already at greater risk for migraine and the march or progression to daily headache.

In summary, caffeine may lead to the development of medication-overuse headache (so-called "rebound" headache). As such, patients should limit caffeine use as recommended for other acute medications for migraine. This use should not exceed two days per week. The unwelcome news is that patients with a history of severe or chronic migraine should consider eliminating caffeine entirely, at least for several months. This typically needs to be done with removal of other overused painkillers and the addition of further

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preventive management of headache. Removing caffeine alone is rarely enough to solve the problem. For patients with high daily caffeine intake, this reduction in use should be achieved over a gradual taper of days or even weeks to limit the impact of withdrawal syndrome. If you elect removal in a "cold turkey" manner, you may suffer severe migraine attacks which are more difficult to bring under control. Once migraine attacks are no longer frequent, caffeine might be reintroduced, but limited to no more than two days per week, if at all. For some people, it seems that any amount of caffeine can trigger or worsen migraine. A headache log or diary helps to determine if resuming caffeine leads to more headaches.

It is important to emphasize that caffeine consumption is rarely the sole 'cause' of frequent headaches including migraine. However, it is a modifiable risk factor, unlike many other unavoidable migraine triggers. Caffeine is often a significant and overlooked contributor to the problem of frequent and chronic daily headache. Migraine sufferers should use caffeine less frequently or remove it entirely as one component of a program of therapies for success - and it requires no prescription.

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Migraine and Obesity: What You Should Know!

B. Lee Peterlin, DO

Key Points:

1. *Migraine and obesity affect more women than men.*
2. *Age changes the association between headache and obesity.*
 - a. *In younger individuals, (of childbearing-age), general (total body) obesity or belly obesity increase the risk*

of episodic headache

b. In older populations, total body or belly obesity do not increase headaches and migraine specifically

3. *Those with general obesity have a greater prevalence of high frequency migraine (migraines occurring 10-14 days per month) than those without.*
4. *The risk of becoming a chronic daily headache sufferer is greater in those with general obesity and episodic headaches. Risk is lower in those with episodic headache without general obesity.*
5. *The risk of chronic daily headache is greater in those with general obesity than those without.*
6. *Very limited data suggests weight loss and exercise may decrease headache frequency.*

Introduction

Migraine is more likely in women than in men and occurs most commonly in those of younger adult age. In addition, more women are obese than men. Specifically, although the presence of general or total body obesity (often estimated by the body mass index (BMI),) is about equal in both genders (31% of men and 33% of women), more women than men have belly obesity (42% of men and 61% of women). Recent research has shown an association between obesity and migraine in those of younger adult age.

First, in order to understand why migraine may be associated with obesity, it is important to understand how normal fat tissue is distributed and its role in the body. Fat tissue location changes based on a person's gender and age. Specifically, before menopause women deposit fat in greater quantities than men in the more superficial layer of body fat called subcutaneous adipose tissue. In contrast, perimenopausal and menopausal aged women deposit more fat in the deeper layer of body fat called visceral adipose tissue than younger women. Furthermore, men of all ages have more of the deeper visceral fat than women, with the visceral fat tissue representing 20% of total body fat in men compared to 6% in women.

These gender and age differences are important. The expression of proteins and the function of cells of the fat tissue differ based on whether they reside in the superficial or deep fat layer. Visceral fat tissue produces greater quantities of interleukin-6 (IL-6) than subcutaneous fat tissue. IL-6 is a proinflammatory cytokine which is a small protein released by cells that has specific effects on the interaction, communication or behavior between cells. In contrast, subcutaneous fat tissue produces greater quantities of leptin and adiponectin than visceral fat tissue. These two hormones have roles in feeding and inflammation.

In addition to age and gender differences, how obesity is measured or estimated is important to keep in mind. Excessive fat tissue in relation to fat-free mass results in the state of obesity. Obesity is best estimated by direct imaging of an increase in fat mass to fat-free mass. This can be done with CT or MRI. However, obesity is often indirectly estimated due to cost and practical limitations. Total weight and not just excessive fat often defines obesity. Total weight includes fat mass plus the weight of skin, organs, muscle and bone. A calculation using height and total weight often estimates general or total body obesity. This is known as the body mass index or BMI. You can calculate BMI on the Internet. Whether you calculate BMI using self report of height and weight or measured height and weight is important. Studies have shown that people, including migraineurs, underestimate their weight. Thus the use of self-report of height and weight can lead to under diagnosis of obesity. For example a person with a self-reported BMI of 28.5 will be identified as overweight but when height and weight are measured may actually have a BMI of 30 and fulfill criteria for obesity. Even with these drawbacks the BMI is a valuable tool for tracking large populations where direct measurements are not possible. Another method, waist size, estimates belly obesity. It is not rare for people to have only belly obesity without fulfilling criteria

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for general obesity based on the BMI. Both, the BMI and waist size estimate can be used to track population changes in obesity in a cost-effective manner.

Studies of Migraine and General & Abdominal Obesity

Multiple studies have evaluated ties between headaches and obesity. These studies have looked at the ties between obesity and episodic headache in general, chronic daily headache and specifically episodic migraine. The first study to evaluate the obesity and headache association showed that those who were obese and had episodic headache had a greater risk of becoming chronic daily headache sufferers than those who were not obese and had episodic headache. Several studies evaluating episodic headache or episodic migraine and obesity then followed. Overall these studies support that either general or belly obesity in those of younger adult age increased headache. Specifically, studies have shown that the risk of migraine or severe headaches increased almost 40% in women with either general or belly obesity and almost 40% increased in men with general obesity and 30% in men with belly obesity as compared to those who are not obese.

Prevalence is a medical term which represents the total number of cases of a disease in a given population at a specific time. Studies support that the prevalence of those with high frequency episodic migraine, (those with migraine headache on 10-14 days of each month,) is higher in those with general obesity estimated based on self-reported BMI. Specifically while only 4.4% of those without general obesity and 5.8% of those who were only overweight had high frequency episodic migraine, 13.6% of those who were obese with a self-reported BMI between 30-to 34.9 and 20.7% of those with severe obesity, (defined as a self-reported BMI of 35 or more,) had high frequency episodic migraine.

Obese older people, including women in menopause or entering menopause, do not have an increase in migraine prevalence. There appears to be no conflict regarding this data. However, questions remain about a connection between episodic migraine and obesity in younger people. Two general population studies found no tie between episodic migraine and obesity when obesity definitions were based on self-report of height and weight. In contrast, two small clinic-based studies and two general population studies have found an increased prevalence of episodic migraine/severe headaches in those with obesity. These latter two general population studies used data from the National Health and Nutrition Examination Survey (NHANES). Specifically, these studies showed an increased prevalence of migraine and severe headaches in those with general and belly obesity. Although the migraine diagnoses in these studies were self-reported as migraine or severe headaches, obesity was estimated using measured height and weight and waist size.

How can we make sense of studies that differ in results? Differences in study design may have contributed to the differing results. Specifically, studies which did not find a connection between obesity and migraine used self-report of height and weight to estimate BMI and obesity. Self report, as stated before, may cause an under-reporting of weight. This may have led to this lack of connection between migraine and obesity. These studies also included women of peri- and post-menopausal age which may also have contributed to the lack of association.

What Should We Believe About Migraine and Obesity

At present, based on the available data, we can confidently say that general or belly obesity increases the prevalence of episodic headache in those of younger adult age. In addition those who are obese and have episodic headache have a greater risk of developing chronic daily headache than those who are not obese.

We can also state that obesity may increase the prevalence of high frequency migraine. And finally, there is no evidence of an association between obesity and migraine in older individuals or in those of post-reproductive age. More young adult age studies are needed. These studies should use the International Classification of Headache Disorders criteria to diagnosis migraine and use measured height and weight to estimate obesity. These studies should determine if an association between migraine of any frequency in young adult age and obesity truly exists.

What's the Link between Migraine and Obesity?

How episodic and chronic daily headache links to obesity is not known. It is likely that pathways which overlap and regulate feeding and migraine play a role. One region of the brain involved in this pathway is the hypothalamus. The hypothalamus participates in the regulation of feeding and becomes activated during acute migraine attacks.

Serotonin and orexin are hypothalamic brain nerve chemicals known to regulate food intake. They appear to have a role in migraine or chronic daily headache. Adiponectin and leptin are predominantly fat cell produced hormones which have receptors in the brain. They have a role in inflammation and also appear to play a role in migraine or chronic daily headache. Further research into the role of these and other obesity-related proteins and chemicals may help us to understand migraine and lead to new treatment strategies.

Limited data exists on the role of weight loss and exercise in the reduction of migraine frequency. However one small pilot study suggests that aerobic exercise may decrease headache frequency, while another small study suggests weight loss with a low fat diet could help decrease headache frequency and intensity. Taken together, this data suggests that those who are obese and have episodic headaches or chronic daily headaches should avoid weight gain. Additionally, the provider and obese patient should consider options for migraine prevention that are not associated

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with weight gain. Also, the obese patient who suffers with headaches should attempt weight loss. Following these ideas will decrease the risk of obesity related disorders, (such as elevated cholesterol and heart disease,) and could help reduce headache frequency.

Conclusion

Migraine and obesity are common disorders. Both belly and general obesity are shown to be associated with migraine or severe headaches. In addition, obesity increases the likelihood of episodic headache sufferers developing chronic daily headache. The association of obesity to migraine appears due to products produced in the hypothalamus and fat cells. Very limited research suggests weight loss and exercise may decrease headache frequency. As such, weight loss for overall health is a good idea. This may also reduce headache frequency in those migraineurs with either belly or general obesity.

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Acute Therapy: Why Not Over-the-Counter or Other Nonspecific Options?

Luzma Cardona MD

Key points:

1. *Over-the-counter (OTC) medications are appropriate choices to treat headaches if they work well and are not overused.*
2. *Prescription medicines developed for migraine are a better choice when over-the-counter medicines fail to relieve headache or OTC use is more than 2 days a week.*
3. *Read labels and be familiar with active ingredients.*
4. *Be careful with medicines that contain more than one ingredient.*

Most people with headache use over-the-counter (OTC) medicines at one point or another. This is because they are easy to obtain and their cost is low compared to prescription medicine. In fact, by the time the average patient reaches a headache specialist, they have tried on average more than two OTC treatments. OTCs are sometimes called “non-specific” medicines because they work for many different types of pain, not just migraine or other types of headache. Research shows that on average headache sufferers received 4.5 medicines over more than 10 years before receiving a medicine developed specifically for migraine from a health care provider. Table 1 lists some of the most commonly used OTC medications for headache and their active ingredients.

Table 1 Some nonprescription medicines commonly used to treat headache

Brand name	Ingredients (per tablet or capsule)
Aleve	Naproxen sodium 220mg
Advil	Ibuprofen 200mg
Bayer	Enteric coated Aspirin 325mg
Anacin	Aspirin 400mg, Caffeine 32 mg
Excedrin migraine	Aspirin 250mg, Acetaminophen 250mg, caffeine 65mg*
Excedrin tension headache	Acetaminophen 500mg, caffeine 65mg*
Tylenol regular strength	Acetaminophen 325mg
Motrin IB	Ibuprofen 200mg
Sudafed/Excedrin sinus	Pseudoephedrine or Phenylephrine

* A typical 8 ounce serving of brewed coffee contains at least 100mg of caffeine

Prescription medicines for headache fall into four main categories: 1) nonsteroidal anti-inflammatory drugs like aspirin, usually called “NSAIDs”; 2) morphine-like narcotic drugs, usually called “opioids”; 3) butalbital and isometheptene

mucate containing compounds and 4) triptan or ergotamine medications. Triptans and ergotamine-type medicines are particularly effective for migraine or cluster headache. Butalbital and isometheptene mucate products are still more commonly written than most headache specialists prefer. They have little to no proven evidence of benefit for migraine or headache in general. The other two categories of drugs, NSAIDs and opioids, are general pain relievers used for many different kinds of pain. Some NSAIDs are sold over-the-counter, but more are available, and in higher doses, as prescription drugs.

Concerns with OTC and Prescription Non-specific Agents

The combination of aspirin, acetaminophen and caffeine (commonly sold under the brand name of Excedrin) is a particularly popular medicine, especially among migraine patients. Interestingly, the products sold as Excedrin Migraine, Excedrin Menstrual and Excedrin Tension Headache contain identical active ingredients even though advertised for different conditions!

People with headaches frequently use OTC medicines containing decongestants, which are often sold to treat colds or sinuses. Heavy advertising encourages the belief that “sinus headache” is a common problem. Thus headache sufferers may believe that their headaches result from sinus problems. This is especially likely if their headache symptoms include forehead pain or facial pressure over the area of the sinuses. Research shows, though, that about 90% of these people have migraine, not sinus problems. Patients do not realize that the decongestants in these “sinus” medicines cause blood vessels to shrink. This action can to some extent help migraine pain.

When OTC agents work reliably and are not overused, they can be the only treatment some people with headache require. In some cases, though, OTC medicines may actually make headaches worse or lead to other problems. Most

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OTC medicines are suspected of causing Medication Overuse Headache (MOH) if taken more than 2 days a week. Caffeine-containing medicines appear especially likely to cause MOH. The box describes common characteristics of MOH.

What is Medication Overuse Headache (MOH)?

- Sometimes called “rebound” headache
- Too frequent use of pain medicines for any reason can lead to rebound headache.
- Most likely to occur in people who are already prone to headache
- The location and type of pain may vary and do not help much in diagnosing the cause
- Headaches due to medication overuse begin or worsen along with steady or increased use of the overused drug
- Medication overuse headache improves when you stop the overused medicine(s)

Over-the-counter and prescription medications that contain more than one ingredient are a special worry. Table 2 summarizes several concerns. People often use more than one OTC or prescription with similar ingredients. For example, some medicines for “sinus” headache contain acetaminophen. People may use this “sinus” drug along with other medicines advertised for pain, which also contain acetaminophen. This can occur with other ingredients as well. A prolonged headache for which someone takes repeated doses of medicine is a particular worrisome situation, since it could lead to an unintended overdose. This is an especially serious problem with acetaminophen. In fact, liver damage from acetaminophen overdose is the leading reason for liver transplants in the United States.

Tables 2A and 2B Comparison of OTC & prescription non-specific to more specific migraine drugs

2A

Characteristic	Nonspecific OTC & Prescription
Price	Inexpensive
Drowsiness	May cause drowsiness
Risk for damage to bowels or kidneys	Moderate to High when overused
Types	Combination OTCs Combination prescription drugs Narcotics/Opioids Butalbital compounds Isometheptene mucate

2B

Characteristic	Migraine- Specific (Prescription US, Behind the Counter in some Countries)
Price	Expensive
Drowsiness	Typically do not cause drowsiness
Risk for damage to bowels or kidneys	Low
Types	Triptans Dihydroergotamine Ergotamine-type medications

Table 3 summarizes additional things to consider when deciding if over-the-counter medicines or non-specific prescription drugs are a good choice for treating your headaches. As a general rule, it is time to visit your doctor or other medical care provider to discuss more specific options when OTC medicines are not reliably effective. Indications of ineffectiveness include partial instead of complete pain relief, multiple side effects, requiring medicine more than two days a week or the need to take many doses before achieving headache relief.

	Probably okay to use*	May not be okay
Pain relief	Good: pain is alleviated or greatly improved	Minimal: mild or partial relief of pain
Consistency / reliability	Good: works all the time	Variable: sometimes does not work , can't predict effect
Side effects	Few or none	Multiple or long-lasting
Frequency of use	Never more than two days a week	More than two days a week on average
Duration of use	Never more than listed on the label	Sometimes more frequent than listed on the label
Your general health	No major health problems or daily medications	Health problems such as ulcers, kidney or liver troubles; taking lots of medications for other conditions

* It is always a good idea to check with your health care provider about any medicines you are taking, even OTCs. You may have other conditions that affect whether these medicines are right for you.

Customizing Your Treatment

The types or doses of medications that are included in some combination drugs do not always make sense. For example, there is no particularly good reason to mix aspirin and acetaminophen to treat a single headache, since they work against pain in a similar way. Experts have long suspected-ed that this mixture is particularly dangerous to the kidneys. Yet Excedrin contains both of these drugs plus caffeine. Acetaminophen, which is common to many OTCs and prescription drugs is contained in the most common opioid prescribed, known as Vicodin™ (hydrocodone). A recent review of a long term study, known as the frequent headache study, reported on medicine use. For past use, chronic daily headache was associated with OTC/caffeine combination products and narcotics/ opioids and less with aspirin or ibuprofen. Lastly, the dose of certain medicines, such as caffeine, in some

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combination products may not always be ideal to treat headache. Prescription butalbital combination analgesics (BCA) are an example.

If a combination of medicines is truly desirable, you get more flexibility by buying the ingredients separately. Then you can combine the single-ingredient medicines in just the right way for a particular headache. For example, you might decide to use caffeine and aspirin to treat a headache. Your choices include using a fixed combination product such as Excedrin, Anacin, or Fiorinal – but they may contain additional ingredients that you do not need, or doses that are not right for you. On the other hand, with just a bit of effort you can customize your treatment, perhaps using a caffeine tablet and aspirin.

Excedrin provides a reasonable amount of caffeine but the dose of aspirin or acetaminophen it contains is probably less than desirable for a difficult-to-treat migraine. In addition, you get exposure to a drug you didn't need to use with the combination associated with unnecessary risks. As another example, Anacin contains aspirin and caffeine, but the dose of the latter is lower than generally recommended for headaches. Fiorinal requires a prescription. It is one of several barbiturate combination analgesics (BCA). It contains a drug you might not need - butalbital - which can lead to drug dependence and addictive behavior especially with regular use. You will need two tablets to achieve the correct dose of caffeine, but the dose of aspirin will be lower than ideal despite the fact that you may be drowsy from the BCA. A published guideline states BCA should be avoided as there is no reason to choose such a combination product when a simpler and often less expensive analgesic is available. The alternatives may be safer by reducing potential for addiction, additive side effects or toxicities and with less risk to produce more frequent headaches.

Recent research suggest that only 5 days of butalbital combination analgesic

use per month in women risks creating chronic daily headache. Instead for these reasons, you may do better in treating your headaches by buying separate medicines and combining them in a way that is right for you. Caffeine supplements typically contain 200mg of caffeine per tablet. Many patients use 100mg (½ tablet) or take caffeine in the form of a 6-8 ounce cup of coffee. They may combine this with aspirin in a dose suggested by their health care provider. If you choose this option, be careful not to overuse either drug. In general, this means limiting the use of any medicine to a maximum of 2 days per week on average or 9 days per month at a recommended dose. More than this frequency of use suggests you need to strongly consider one or more form of prevention to get the job done right.

Getting the Job Done Right

Know the job is done right when using acute therapy by following suggestions of Migraine-ACT or Migraine-Assessing Current Therapy. This valid tool asks whether pain is gone with normal daily activity present within 2 hours. Also, are you comfortable with the treatment and can you go on with your day normally? Finally does it work consistently with one time treatment and done, not treat and retreatment needed. Consider these “the get the job done right” standard.

Conclusion

Whether you use over-the-counter or prescription drugs to treat your headaches, a good rule of thumb is to use the least amount of medicine needed to get the job done right. For most people, use of an adequate dose of a reliable medicine early in a headache minimizes the amount and type of medication needed. Headache treatment is generally more effective when it is taken before pain reaches a moderate or severe level. It is also important to know what is in your medications, in particular whether the same drug is in more than one of your medicines. Be careful with combination drugs. If you intend to use combinations, discuss with your doctor or health care provider whether your own

combination treatment is right for you.

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Allodynia: When Touch Hurts But Shouldn't

Gretchen Tietjen, MD

Key Points:

1. Allodynia is the experience of pain from a non-painful stimulation of the skin, such as light touch.
2. The type of migraine, the frequency and severity of attacks, and the number of years of the headache disorder relate to the presence and severity of allodynia.
3. Migraine and related pain conditions with allodynia have in common the process of central sensitization, characterized by over excitability of pain nerve cells in the brain and spinal cord.
4. Triptans are less effective in migraine attacks with allodynia.

Allodynia means “other pain.” It is a pain that results from a stimulus that is not normally painful. Anyone who has ever had bad sunburn has an idea of how painful even light touch can be. When the skin is sensitized, in this example from the sun, wearing a shirt or taking a shower can be very painful. Up to 80% of persons with migraine experience at least one symptom of allodynia during a headache attack. They may describe pain to touch, such as with resting one's head on a pillow, or with wearing a hat, earrings, or necklace. These are examples of “static” tactile or mechanical allodynia. An example of “dynamic” allodynia is pain from lightly brushing one's hair. Another is pain from shaving one's face. Yet another, thermal allodynia, refers to pain due to exposure to either warm or cold. Allodynia is not referred pain, although it can occur outside the area stimulated. It is also not hyperalgesia, which is a pain stimulus more painful than usual.

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The severity of allodynia varies widely from person to person. You rate allodynia by the frequency that each symptom occurs and also by how many different symptoms are present. Headache related allodynia occurs more often in migraine than in tension headaches among headaches without a secondary cause. In persons with migraine, allodynia is more common in those with aura, with frequent headache attacks (chronic migraine), and with severe disabling headache attacks. Allodynia is associated with more disability when objectively measured by MIDAS (Migraine Disability Assessment Scale). The more years a person has migraine the more likely they are to experience allodynia. Women suffer from migraine and allodynia more often than men. Female reproductive hormones lower the intensity of the pain stimulus needed to produce pain. This process known as the pain threshold likely involves processes similar to allodynia. Research shows that being overweight or obese and smoking predispose to allodynia. Obesity is more common in persons with chronic migraine and this may account for the relationship to allodynia. Like female hormones, smoking reduces the pain threshold probably explaining its connection. A stressful childhood marked by emotional abuse increases the frequency of headache and allodynia as an adult. All these facts suggest allodynia is a risk factor for progression to worse headaches. These interesting clinical facts raise questions. Should we use allodynia as a marker for beginning prevention therapy? What causes allodynia? Does the presence of allodynia have an effect on migraine treatment?

Research suggests that allodynia in migraine results from a process within the brain and spinal cord, which make up the central nervous system. Scientists call this process leading to allodynia, "central sensitization". The process begins when sensory pain nerves, known as nociceptors, react to a sensory signal or stimulus. In the case of migraine, inflammation surrounding the blood vessels

on the brain surface plays a role. The nerve endings around the blood vessels send signals along the nerves to the central nervous system. This can result in the throbbing head pain of migraine. Acute pain treatment that works stops the signals coming in from the peripheral nerves. When these signals are not stopped the spinal cord and brainstem nerves continue to send their own signals and maintain the pain of migraine. Within as few as one to two hours of activity they become free of what started them in the first place. They become sensitized or hyperexcitable. This is central sensitization. As a consequence, even normal signals into the system, such as touch on the scalp and face, produce abnormal painful responses. The pain feels as if it is coming from the skin but is really the result of a mixed-up processing of sensory signals within the central nervous system. Frequent severe attacks of migraine, particularly migraine with aura, over a long period of time lead to an increased tendency for central sensitization. Allodynia is a manifestation of this central sensitization.

For most persons allodynia resolves when the migraine pain resolves. In some persons allodynia may persist long after the migraine headache subsides. If headaches become daily, allodynia may even become a daily continuous condition. So what, if anything, does allodynia mean in terms of treatment? Treatment effects are unknown for many drugs and treatments. Certain migraine-specific drugs, the triptans, are often less effective when tested in migraine attacks without allodynia. For this reason it is important to treat acute attacks early before allodynia appears. If possible treat before the pain begins to throb. Throbbing is a sign of peripheral sensitization. This process precedes central sensitization. Unlike central sensitization, peripheral sensitization is easy to stop by triptans

and other effective migraine therapies. Studies show that some medications work when allodynia is present. Ketorolac, a nonsteroidal anti-inflammatory drug, and dihydroergotamine work when injected with allodynia present.

People with migraine often experience other chronic pain conditions, such as fibromyalgia, irritable bowel syndrome, and chronic fatigue syndrome. Fibromyalgia is characterized by tender painful muscles above and below the waist. Like chronic migraine and chronic tension-type headache, scientists believe central sensitization also causes these chronic conditions. These disorders make up a group known as the central sensitivity syndromes. Migraineurs with allodynia are more likely to have these other pain conditions than those without allodynia, as might be expected. Even when these conditions occur without migraine, they may occur with allodynia. Furthermore, the severity of allodynia in migraine correlates with the number of different pain syndromes, offering further evidence that a common underlying cause may link these conditions together. It may be that if central sensitization develops with one condition, this predisposes a person to developing additional pain conditions. Depression and anxiety are also common in persons with allodynia-associated migraine and the other pain syndromes, but the cause for this link remains uncertain.

Allodynia arises from the brain. Stopping pain signals early can ward off allodynia. Preventing pain from coming again can ward off chronic allodynia. Tested treatments are less effective with allodynia so treat before it occurs. If allodynia occurs frequently use prevention to reduce risk of it occurring often.

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