



HEADACHE

NEWSLETTER OF THE AHS COMMITTEE FOR HEADACHE EDUCATION

Decreasing Brain Excitability with Migraine Therapy: Targeting Glutamate

Andrew Charles, MD

Key Points:

1. Uncontrolled brain activity may contribute to lack of migraine control.
2. Glutamate, one of the most important brain pain chemicals causes increased brain activity.
3. Blocking excessive brain activity without interfering with normal function could help control migraine.
4. A drug, not currently approved for migraine, may decrease excess brain activity and control migraine.

Although multiple preventatives for migraine are currently available, many sufferers haven't been able to find one that effectively reduces the frequency and severity of their migraine attacks. This may, at least in part, be due to excess brain activity, referred to as excitation, not adequately controlled by therapy. One promising area of research on new migraine treatments involves the chemical glutamate, one of the main neurotransmitters in the brain. A substance released by one nerve cell that allows it to communicate with another is a neurotransmitter. This communication or interaction occurs through a structure on the surface of the cell (or inside the cell), known as a receptor. Receptors selectively receive and lock onto specific substances, such as glutamate. Glutamate functions as an "excitatory" neurotransmitter, because when released it causes neighboring cells to become more active (excited).

Increasing evidence supports that excessive activation of cells in specific areas of the brain causes migraine. Special brain scans show that patients having migraine attacks may have waves of abnormal activity that spread across the surface of the brain (the cortex), as well as excitation of nerve centers deep within the brain (the brainstem). Both of these patterns of abnormal activity may involve the neurotransmitter glutamate.

Medications that stop glutamate nerve cell activity block waves of activity traveling across the brain surface in mice and rats that are very similar to those seen in migraine sufferers. Experimental studies also show glutamate receptors play a key role in the sensation of head pain, which occurs in brainstem nerve centers. These studies provide support for the use of glutamate receptor blockers for migraine therapy.

Welcome to the Newsletter of the American Headache Society® Committee for Headache Education (ACHE). In this first quarterly installment of 2009 we provide new and timely information written by leading headache experts. We intend the Newsletter to be copied as an educational handout in medical provider clinics. We encourage patients to access this Newsletter on line at www.achenet.org under ACHE 2009 Newsletters. Our pledge is to provide commonsense articles regarding headache diagnoses and proper therapies. We will focus on current treatments, but from time to time write of potential therapies on the horizon. Topics in this edition include Targeting Glutamate, Sinus Headache, The Migraine Prevention Diet, and What Parents can do to help their Child with Headache. 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 committee, we look forward to hearing from you.

Paul Winner, DO, FAHS Marcy Yonker, MD, FAHS
ACHE Chairman ACHE Vice-Chair

Frederick Taylor, MD, FAHS
Newsletter Editor

IN THIS ISSUE

- Decreasing Brain Excitability with Migraine Therapy: Targeting Glutamate
- "Sinus Headache" or Migraine
- Controversies in Headache Medicine: The Migraine Prevention Diet
- Headaches in Kids: What Parents Can Do to Help

Continued from page 1

The challenge is to block excessive glutamate activity without interfering with normal cell function. Memantine (brand name in the U.S. is Namenda) may accomplish this. Memantine inhibits excessive activity of glutamate receptors, but does not have significant effects on the normal function of these receptors. In rodent experiments memantine blocks the waves of brain activity that may be a trigger for migraine.

Memantine is used for the treatment of Alzheimer's disease and, therefore, available for migraine prevention only "off-label." "Off-label" refers to the use of a medication for treatment of a condition that is different than the one for which it is FDA approved. Initial studies of the experiences of patients with memantine as a migraine preventive treatment are encouraging. Two preventative studies of memantine for migraine have been published – both showed promising results. Our group reviewed by survey the experience of patients with frequent migraine who had not had a satisfactory response to other therapies. 36 out of 54 treated with memantine for at least two months reported a significant reduction in estimated headache frequency and improved function. Side effects were uncommon and generally mild. The most recently published study is open-label by Bigal, et al. In an open-label study both patient and practitioner know what drug is being used. In 28 patients treated, monthly headache frequency was reduced from 21.8 days at baseline to 16.1 at 3 months. The mean number of days with severe pain was reduced from 7.8 to 3.2 at 3 months.; however, neither study was the kind of formal clinical trial that is required to definitively prove that a treatment is effective. Such a trial is known as a randomized controlled trial (RCT). This kind of formal study is clearly needed in order to establish whether or not memantine can be widely recommended as a treatment for prevention of migraine. Two successful migraine RCTs are required in the U.S. for the FDA to consider labeling any drug as "indicated for migraine." Until such time, many insurance plans refuse coverage of such therapy "as not indicated," but not all, given input from you and your practitioner. In the meantime, considering these issues and the early studies this may be a treatment worth discussing with your practitioner if other standard or conventional treatments have failed for prevention of migraine.

Memantine is generally very well tolerated --- a minority of patients experience side effects

that may include drowsiness, dizziness, or anxiety. Most, however, experience no adverse effects from the drug. At this time we do not know whether memantine will be proven to be effective in formal clinical trials and eventually approved for prevention of migraine. Regardless, however, initial laboratory and clinical studies indicate that targeting glutamate receptors represent a potential new approach to migraine therapy, and that this is an important topic for further investigation.

Andrew Charles, MD, Professor and Vice Chair, Director, Headache Research and Treatment Program, Department of Neurology, David Geffen School of Medicine at UCLA

"Sinus Headache" or Migraine

Susan Hutchinson, MD

Key Points:

1. *Migraine is commonly misdiagnosed as sinus headache.*
2. *Self-diagnosed sinus headache is nearly always migraine (~90% of the time).*
3. *Migraine is commonly associated with forehead and facial pressure over the sinuses, nasal congestion, and runny nose.*
4. *In the absence of fever, pus from your nose, alteration in smell, or foul smelling breath, you likely have a migraine headache.*
5. *Your diagnosis needs health practitioner confirmation for accuracy and best treatment.*

Sinus headache is a common complaint in the general population. But just what is sinus headache? Common symptoms include facial pain and pressure, nasal and sinus congestion, and headache. Numerous over-the-counter medications are marketed for these symptoms and reinforce the belief that this condition is common. However, sinus headache is not as common as you and others may think. How do we know that?

A very large population-based study, entitled American Migraine Study II, showed that many people who were diagnosed with migraine thought they had "sinus" headache. Significantly, there were almost 30,000 study participants; only about 50% who were diagnosed with migraine knew they had

migraine before the study. The most common misdiagnosis was "sinus" headache.

"True" sinus headache, more properly called rhinosinusitis, is rare and secondary to typically a viral sinus infection characterized by thick, discolored nasal discharge, possibly decreased smell or no smell, facial pain or pressure, and commonly fever. Any pain should resolve after completion of an appropriate course of antibiotics. If pain continues despite antibiotics, then your diagnosis should be reconsidered.

What is most "sinus headache?" It is migraine with sinus symptoms. A very large study involving almost 3000 patients was very important in evaluating the frequent complaint of "sinus headache." In this study, the participants had at least six "sinus headaches" in the six months prior to entrance into the study. They had never been diagnosed with migraine and had never been treated with a migraine-specific medication. What were the results? 88% of the participants were found to be having migraine headache and not sinus headache. Strict criteria from the International Classification of Headache Disorders were used to tell the difference between headache types. In addition to their common symptoms of facial pain and pressure and nasal and sinus congestion, sufferers often had the following symptoms we associate with migraine:

1. Nausea
2. Sensitivity to light and/or noise
3. Moderate to severe headache
4. Pulsing/throbbing pain
5. Headache worsened by activity

In this study, the almost 3000 patients with the complaint of "sinus headache" were taking lots of over-the-counter and prescription decongestants, antihistamines, nasal sprays, analgesics, and anti-inflammatory medications. However, there was a lot of patient dissatisfaction with their results. The dissatisfaction makes sense since many actually had migraine producing the sinus complaints.

Research studies show how commonly sinus symptoms occur with migraine. Specifically, in one study, 45% of migraine patients had at least one symptom of either nasal congestion or watery eyes. Significantly, if the congestion is part of the migraine, it would be expected to resolve with the specific migraine treatment.

So, how do you know if your headache is migraine and not sinus? Ask yourself the following questions:

Continued from page 2

1. In the last three months, how disabling are your headaches; do they interfere with your ability to function? (Are you missing work; school; family activities?)
2. Are your headaches ever associated with nausea?
3. Are your headaches ever associated with sensitivity to light?

This is the ID Migraine Questionnaire developed by Dr. R. Lipton of Albert Einstein College of Medicine. If two of the above three criteria are present, migraine is likely 93% of the time. If all three are present a migraine diagnosis is 98% likely.

Take-Home Point: Go beyond the nasal and sinus congestion, the facial pain and pressure, and look for a headache associated with inability to function normally at work, school, home or social functions; nausea; sensitivity to light and triggers such as weather change; menses; and stress (all common provokers for migraine). Significantly, it is commonly thought that weather change often causes “sinus headache” when weather change is a common trigger for migraine.

If you feel that your sinus headaches could be migraine, ask your provider if a migraine-specific medication could be right for you. If so, try the migraine-specific medication for your next three “sinus” headaches. Look for the headache and associated symptoms to improve better than all the previous treatment you were taking. In some cases, a work-up may be done such as a CT scan of your sinuses to rule out a secondary cause such as sinus disease or simply to reassure you that the diagnosis is migraine and not a sinus problem.

In summary, most “sinus headache” is migraine with sinus symptoms. Knowing this can help get the right diagnosis and treatment. Ultimately, this can help free you from the recurring burden of failed headache treatment and disability!

Susan Hutchinson, M.D. Director-Orange County Migraine & Headache Center Irvine, CA

Controversies in Headache Medicine: Migraine Prevention Diets

Merle L. Diamond, MD and Dawn A. Marcus, MD

Perhaps the best migraine prevention diet is one that is as wholesome, fresh and unprocessed as possible, thereby eliminating many of the supposed chemical triggers for migraine. In addition, eat these foods in small portions spread throughout the day averaging 5-6 calorie-controlled portions. This eating behavior assists in preventing headache due to hunger, avoids large amounts of any supposed chemical trigger at any given time and finally fires up one's metabolism preventing weight gain, a likely factor contributing to risk of headache progression.

Patients who suffer from migraine attacks try to determine what they did wrong each time that a headache occurs—that is, they try to identify the triggers that put them at risk of having another episode. For many years, headache specialists have debated the possibility that certain foods cause the so-called “migraine threshold” to drop which allows a window of opportunity for migraine to start. Food triggers appear to be important in a minority of migraine sufferers, but other factors may be complicating an understanding of food triggers. For example, so many foods and beverages have caffeine which has clearly been associated as a trigger for headache in individuals with high caffeine consumption.

One of the most frustrating things for migraine sufferers is the inconsistency in which different suspected and even proven triggers precipitate an attack. There are many provokers for migraine, such as hormone changes and stress, while some believe specific foods. Perhaps a better way to consider food-specific triggers is the acceptance that when patients are at risk for migraine attacks, many factors may tip the scale in favor of a migraine including a particular food. Here we will specifically discuss the controversies about what is known regarding food specific migraine triggers.

What foods have been considered to trigger migraine in susceptible people?

There are multiple foods that are thought to possibly trigger a migraine attack. Nearly all foods have been generated by patient self report and almost none have any scientifically valid backing from high quality studies. The most commonly reported food triggers are alcohol (33%) and chocolate (22%). Although the majority of headache sufferers cannot identify specific food triggers, headache

patients are often given a broad recommendation to monitor their headaches after eating foods that historically have been thought to contain possible headache-triggering chemicals, such as tyramine (e.g., cheeses), beta-phenylethylamine (e.g., chocolate), and nitrates (e.g., processed meats). In actuality, there have been no studies or only negative trials for headache provocation for cheeses, chocolate, dairy products, soy isoflavones and vegetables. Processed meats containing high levels of nitrites and nitrates may be highly predictable migraine triggers in some individuals. Yet, only one patient has actually been studied with the result suggesting very pure nitrates at high dose (pharmaceutical grade) induce attacks while dietary nitrates and nitrites may in susceptible individuals. Some foods can cause the blood vessels to dilate (expand) and so create the early changes seen in migraine attacks. Some foods contain a significant amount of *tyramine*--an amino acid that can provoke the early blood vessel changes typical of migraine. While the most heavily studied chemical trigger the majority of studies on tyramine fail to support this role. In most of these studies the placebo rates where unusually high. Medina and Diamond used diets low, median, and high in tyramine with no difference between groups, although improvement in all. Foods that are high in tyramine include aged cheeses, nuts, beans, yogurt, bananas, and citrus fruits. Elimination of most of these foods long-term are likely to have a deleterious effect on health and cannot be broadly recommended. Certain alcoholic beverages, especially red wine and beer, are frequently cited migraine triggers. Two well known Italian researchers recruited 307 volunteers with migraine without aura to complete a questionnaire every time they consumed alcohol. No correlation was found between alcohol consumption and migraine attacks. Stressful events and onset of migraine were positively related.

Food additives have been linked to migraine attacks. Monosodium glutamate (MSG) is probably the best known of this group, and has been demonstrated to cause rapid cramps, diarrhea, and a horrible migraine in 10% to 15% of migraineurs. While some may consider it unnecessary, it is reasonable to note that no scientific studies have actually studied MSG in migraineurs. Interestingly, in self-identified MSG sensitive non-migraineurs, MSG related symptoms were only slightly more frequent in those receiving MSG than those on placebo. Some spices as well as garlic and onion have been labeled as possible triggers of migraine attacks, yet no studies support this.

Continued from page 3

Accused food triggers for migraine in susceptible individuals

Selected food trigger items may include:

- Alcohol, specifically red wine
- Aspartame sweetener
- Beans and other tyramine-containing foods
- Caffeine (often found in foods, beverages, and medicines)
- Cheeses and yogurt
- Chinese food or other soups and foods containing MSG
- Chocolate
- Processed meats (containing sulfites-eg, bacon, sausages, salami, ham)
- Vitamins and herbal supplements (some contain caffeine or active ingredients that can make headaches worse)

Is there such a thing as a migraine prevention diet?

Diet may be important for some headache sufferers but not for others. Almost half of headache sufferers report that fasting will trigger a headache. Some patients try to eliminate from their diet anything listed as a potential trigger, but the list of foods that may trigger migraine can be exhaustive. Therefore, dietary restriction of all migraine triggers for any extended length of time is likely unhealthy.

A rational and useful approach about migraine and diet needs to focus on learning the facts and being smart. Patients should invest some time in learning about which foods are potential triggers for them, and then they can try to limit their consumption, especially during high risk times. Over time, it is possible to become skillful in identifying migraine triggers and avoiding these selected foods at those times when their risk of migraine is high. For example, at certain times in the menstrual cycle, many women experience more frequent headache attacks.

Paying attention to your diet when trying to identify potential foods that trigger migraine can also be a useful tool in understanding the importance of a healthy diet and regular meals for maintaining a healthy headache hygiene and improved lifestyle. Assessment of eating habits and identifying food triggers may be facilitated by using a headache diary, which the patient completes on a daily basis.

It is much easier to find a headache trigger if you examine, within 24 hours, the events that occurred on the day of the headache. Several research studies have proven that avoiding foods thought to trigger migraine does not improve chronic headaches. A study by Drs. Diamond and Medina compared headache activity when migraine sufferers followed one of several diets. One diet restricted patients from eating supposed headache-trigger foods. The other diet required patients to eat those same foods. Interestingly, headache activity improved on both diets. This suggests that a particular food is not likely to be a trigger; rather, following a scheduled diet may be therapeutic. In other words, feeling that you have control over your headaches will improve your headaches. It also suggests that no single food is a trigger for all headache sufferers.

Two common food items have been tested in several studies. An aspartame study showed only a modest worsening of headache in subjects who consumed huge amounts of aspartame (the equivalent of 12 cans of diet cola or 32 packets of sweetener daily) for one month. In another controlled trial of aspartame, only those “very sure” of their aspartame sensitivity reported increased headaches despite enormous doses of aspartame. In an in-hospital study with a very tightly controlled diet, headache was experienced in 1 of 3 aspartame consumers while just less than 1 of 2 experienced headache in the placebo group. In a study of chocolate as a trigger, eating even large amounts of chocolate didn’t trigger headaches when patients couldn’t tell if they were eating chocolate--even for individuals who believed chocolate was a headache trigger for them.

If both clinical experience and research studies show that eating certain foods will not trigger headaches, why do patients and doctors believe that it is important to avoid eating such foods? Unfortunately, it is very difficult for both patients and doctors to determine why headaches occur at certain times and not others. In some cases, there may be a number of possible headache trigger factors. Patients then need to sort out which provoker was the important one. For example, you may have a hectic day at work and miss lunch. Late in the afternoon, you feel weak and stressed. So you grab a chocolate bar from the vending machine to eat as you race through the rest of your day. What triggered your headache? Was it the chocolate or the fasting or the stress or all or

none of these? In addition, chocolate craving often occurs with menstrual periods, another common headache trigger. Finally, chocolate craving may be part of a pre-headache warning or prodrome (the first stage of the attack, before an aura or headache). When you satisfy that craving, you may falsely blame the headache on the chocolate.

How can you tell if a food is a trigger for your migraine?

- Eating a certain food should trigger a headache within 12 to, at most, 24 hours.
- Limit the food of concern for 4 weeks and monitor your headache frequency, severity, and response to treatment using a headache diary.
- If there is no change in your headaches, then, that food alone may not be the trigger.
- Caution—do NOT restrict all possible trigger foods from your diet for an extended period of time. This is not likely to be helpful, and too much concern about avoiding foods may be another stress, as well as decrease your enjoyment of mealtime.
- Restrictive diets should not be tried or followed during pregnancy. These diets are not likely to be helpful and may prevent adequate nutrition for both mother and fetus because of the reduced consumption of calcium-rich and vitamin-rich foods.
- Restrictive diets should NOT be used in children and adolescents because of doubtful benefit and significant social disruption. Prohibiting the child from sharing a chocolate Easter basket with his siblings or the teenager from attending a pizza party can significantly add to the social stigma of having headaches.

Keeping a headache diary and following your lifestyle factors along with diet may help you identify patterns to your headache. Onset of menstrual cycles, work stress, sleep routine changes, and fasting may all be confounding what is thought to be a food trigger for headache. In a systematic and careful way, you can test these triggers one by one to see if any of them are a trigger for you. Soon you will learn that some of the foods you were concerned about are not triggers for you headaches and you can resume your normal diet and start enjoying your foods again. OR you can simply eat wholesome, fresh foods as unprocessed as

Continued from page 4

possible in small amounts throughout the day.

Merle L. Diamond, MD, FACEP. Associate Director, Diamond Headache Clinic; and Clinical Assistant Professor, Department of Family Medicine, Rosalind Franklin University of Medicine and Science/Chicago Medical School, Chicago, IL.; Dawn A. Marcus, MD. Associate Professor, University of Pittsburgh Medical Center, Pittsburgh, PA.

Headaches in Kids: What Parents Can Do to Help

Paul Winner, DO, FAAN

Be Prepared for these Four Simple but Critical Steps:

Step 1: Describe in detail what your child experiences, how often and for how long.

Step 2: Ask for a specific diagnosis, such as migraine, not just headache.

Step 3: Get in writing a treatment plan you agree with, understand and can follow.

Step 4: Request a follow-up visit and what to do if the treatment is not working.

Headaches occur at any age, from two to three years of age and older. The number of new severe headaches peak during adolescence. Headache symptoms in youngsters do not exactly mirror those in adults. As a result, youngsters often remain without a correct headache diagnosis for many years until the episodes take on an older age pattern. Severe adult headache with disability that lasts for up to a day, often with nausea, vomiting, and sensitivity to light and sound, is migraine.

Since children and adolescents can experience severe headaches and not be able to describe what they are feeling, it's important for parents to provide information. With a little background, careful observation, and creative questioning, you can get an idea about your child's headaches and seek the right diagnosis.

How headache differs in young people

Many children get headaches and many actually have migraine with or without aura. There are some noticeable differences in migraine when comparing clinical symptoms between children and adults. Specifically, in children:

- The headaches may be shorter, lasting only an hour or two. Frequently, they're over in less than twelve hours.
- The episodes don't occur as often. For example, they may happen only once a month, or every few months in the youngest.
- The headaches may go away after a period of a few months to years.
- The pain tends to be more bi-frontal (across the forehead) than unilateral (on one side of the head). As children get older, the pain tends to be more unilateral.
- When they're fairly young (2-8 years of age) and before they complain of headache, children may get other childhood migraine syndromes. The two most common are abdominal migraine and cyclic vomiting syndrome.
 - Abdominal migraine seems like migraine except instead of headache, children complain of stomach aches. The pain is vague or cramping around the belly button or all over the stomach.
 - Cyclic vomiting syndrome consists of episodes of vomiting with predictable repeat weeks later. These can be very dramatic and can lead to dehydration.

Since episodic abdominal pain or vomiting may be due to a gastroenterological problem, it's a good idea to have a gastroenterologist assess your child before initiating migraine therapies.

- Children may not report non-pain symptoms normally associated with a migraine episode, such as sensitivity to light or sound. (These symptoms may be inferred from their behavior.)

Piecing the puzzle together

Might your child have migraine headaches? One challenge parents and doctors face is figuring out what the children experience when they have an episode. If you ask them direct questions, such as, "Are you sensitive to light or sound?" they may not understand your question. Sometimes rephrasing the question or watching their behavior may help get a better understanding of potential headache symptoms. For example, a child

with light sensitivity may not want to play outside or watch TV because "the light is so bright."

Nausea is another symptom that's difficult for a younger person to identify or explain. Ask your child, "Are you nauseated?" and there's a good chance they won't understand your question. Even if you say, "Are you sick to your stomach?" they might not know what you mean. You may notice, however, that they simply do not want to eat or they may say that their stomach feels bad.

By watching your child's behavior, you also can help identify what your child may be experiencing when they have a migraine attack. For instance:

- Watch to see if they go into a quiet place to rest or even nap.
- Notice if they talk to you less than usual or have a mood swing.
- Watch for a change in their daily routine. They may not engage in their usual reading or television activities because their eyes hurt or focusing is more challenging.
- Be aware of when they resume their normal activities.
- Look for signs of nausea or stomach upset. To find out if they're nauseated, ask if they would like something to eat – especially their favorite food. If they refuse, they probably are experiencing nausea and having a migraine episode.

What to expect when you visit your medical provider

When a young person is diagnosed with migraine, it's important to understand that you are dealing with a benign (not dangerous) disorder. Migraine certainly is a serious problem, but there is usually nothing to fear. In nearly all instances, it is an episodic disorder that can be treated. When you visit your medical provider try to remember the following:

- Step 1: Be prepared to describe in detail what your child experiences, how often these episodes occur, and how long they last.
- Step 2: Ask for a specific diagnosis, such as migraine, cyclic vomiting syndrome, or tension-type headache, etc. You can start working with the

Continued on page 6

Continued from page 5

school nurse, teachers, coaches and other family members who spend time with your child.

- Step 3: Ask for a clear treatment plan with which you agree and obtain it in writing because you and the school will need to understand it completely so it is followed.
- Step 4: Ask, even insist, on a follow-up visit and what to do if treatment is not working.

In general, your youngster won't have to go through much testing to get the diagnosis of migraine. However, on a case-by-case basis, the practitioner may do further evaluation. For example, if you have an unusual history and/or the medical provider finds something when doing a physical examination on your child, the provider may want to obtain additional tests to rule out other possible causes of headache. These may include simple blood tests or Neuroimaging studies.

Treatment for young people

The approach to treatment depends on the level of disability a child or adolescent experiences. If the person experiences mild disability – they miss just an hour of class, don't have severe pain, or have only minimal associated symptoms – then the treatment can be as simple as reassuring them and making sure they get some rest. You can use mild analgesics, such as acetaminophen.

However, if the episodes cause moderate to severe disability, such as duration of pain for four or six hours, and prevent the child from staying in school or participating in his or her usual activities, your provider should recommend other medications or treatments. An over-the-counter, non-steroidal option, such as ibuprofen, may suffice at this point. If your child's headaches are not relieved within one or two hours by analgesics or combination analgesics, then you may need to consider migraine-specific medications, such as triptans or dihydroergotamine. These medicines are designed to relieve a headache within two to four hours, preferably as little as one to two hours. The triptan group includes tablets, nasal sprays, and an injectable form. Dihydroergotamine is available in nasal spray or injectable formats and when necessary compounding pharmacies can make other formulations. There are clinical studies on the use of

triptans and dihydroergotamine in children and adolescents, but they currently are not approved by the Food and Drug Administration (FDA) for use in younger than 18 years olds and therefore their use is "off-label."

Opiates or narcotics in children are not usually recommended because they cause sedation and may cause dependence if used too often.

A child or teen who is getting a headache one or two times a week should use preventive therapy – medication taken daily to prevent the onset of a migraine or non-drug behavioral approaches or better yet both. It is best for parent and child or teen to review the subject with their practitioner who will be familiar with the medications available and assess which one might prove optimal. It's important to remember that children and adolescents should limit acute pain treatment to two days a week. If your child feels a need for frequent dosing with headache medications, it could be a hint that something else might be wrong. Just as adults can begin to have chronic daily headache, young people can also. This is why it is important for all headache sufferers to monitor the frequency of headaches, the medications taken, and the response to treatment.

Non-pharmacologic approaches

Non-pharmacologic approaches can be used in all young patients and can be quite beneficial. The following regular lifestyle routines or habits may prove very helpful in your child:

- Make sure they sleep at the same hours nightly, if possible.
- Make sure that they exercise regularly as this reduces stress, anxiety, mood swings, and helps them keep their weight under control (all risks for increasing headaches).
- See to it that they eat on a regular schedule and don't skip meals. Low blood sugar may cause headache. Encourage fresh and unprocessed foods whenever possible.
- Commonly used supplements (magnesium, riboflavin, coenzyme Q10) and the herb butterbur (Pedadolex®) may be helpful in migraine prevention.
- Decrease caffeine intake from soft drinks and iced tea to one dose a day or less.

- Check to be sure that they drink plenty of water, particularly during the summer.

As a parent, one of the best solutions you can try is education – for yourself and your child. It's important for young people to know that they may have a significant problem, but that they are normal. Almost one out of five women and one out of 20 men suffer from migraine. Doctors understand some of the science behind it and have excellent treatments available today. In addition, there is great hope because extensive research is taking place in this age group.

Finding the right medical provider

If your child fails to control their headaches despite these steps, reassess each step and meet with your provider. Consider a second opinion to learn about possible alternative management. Often going to see a Pediatric Neurologist or Headache Specialist comfortable in caring for children with headaches leads to effective treatment. Preventive treatment reduces frequency and acute therapy stops a headache or at least blunts the pain within an hour or two. For the most part, children and adolescents respond well to the right therapy and need not suffer excessively.

Paul Winner, DO, FAAN. Director, Palm Beach Headache Center, West Palm Beach, FL; Clinical Professor of Neurology, Nova Southeastern University, Fort Lauderdale, FL. DrWinner.org