ENDLESS HEADACHE:

The Whats, Hows And Whys of

CHRONIC MIGRAINE

Over 6 million Americans may be afflicted by chronic migraine

Definition, Prevalence and Burden

For most people the term "migraine" conveys the image of severe attacks of debilitating head pain separated by periods during which the migraineur is headache-free. This is indeed the most common clinical subtype of migraine, accounting for about 80% of all cases, and over 30 million Americans are actively afflicted by episodic migraine. Episodic migraine may be further divided into low frequency episodic migraine, mid frequency episodic migraine and high frequency episodic migraine.

Many individuals with chronic migraine have a headache every day...

When headache frequency creeps above 15 days per month, however, the migraineur enters the unhappy realm of chronic migraine. While clinical definitions vary somewhat, the diagnosis of chronic migraine requires an established history of episodic migraine, which gradually has evolved into a much more chronic headache disorder. The specific diagnostic criteria are listed in the sidebar. Many individuals with chronic migraine have a headache every day, and many of them have constant headache.

Chronic migraine is not rare. Worldwide, 2% of the general population has chronic migraine. Do the math, and you can calculate that this translates to over 6 million chronic migraine suffers in the US alone. Surveys conducted by the Migraine Research Foundation and investigators from the Global Burden of Disease project have indicated that migraine is the third most common chronic medical disorder worldwide and responsible for a whopping 65% of all disability attributed to neurologic disorders. In the US, the cost of migraine (diagnostic testing, medications, ER visits, lost work-related productivity, etc.) is high: $36 million annually. Not surprising to those who live with the disorder or to those who treat it, chronic migraine accounts for a disproportionately high share of the disability, suffering and financial cost associated with migraine generally.

Cause

Each year 3% of migraineurs with episodic migraine undergo "transformation" of their periodic headache disorder into the quicksand-filled swamp of chronic

Chronic Migraine: Clinical Definition

- Established history of migraine
- Each month:
  consistently experiencing at least 15 days of headache lasting >4hours
- Each month: at least 8 days of headache...
  possessing features typical of migraine
  or
  responsive to treatment with a triptan or ergotamine

migraine. Why? Epidemiologic studies have found that the leading risk factor for such "transformation" is a progressive increase in headache frequency. In other words, more leads to more; headache breeds more headache.

So what, you say. Seems pretty obvious. It does indeed, but this clinical association offers some insight into the underlying biologic process that drives the transformation from episodic to chronic migraine.

The brains of migraineurs are genetically "hypersensitive". If the hypersensitive brain is subjected to frequent attacks of migraine on a chronic basis, that brain may become even more sensitive. This "chronic sensitization" prevents the migraine circuitry from switching to the "off" mode. The migraine circuit is always "on" and running; the chronic migraine sufferer usually – or always – is experiencing migraine symptoms.

Fundamentals of Treatment

Effective therapeutic suppression of chronic migraine will require stabilization of the hypersensitive brain, but effective treatment of chronic migraine cannot begin without a diagnosis. It's somewhat unsettling to learn that in one study involving chronic migraine patients who presented to specialists for evaluation of their headaches, barely more than one third received an accurate diagnosis. Not surprisingly, misdiagnosis delays initiation of appropriate treatment, and the longer chronic migraine patients remain untreated or inappropriately treated, the more difficult it becomes to extricate them from the swamp of pervasive headache. Studies using advanced imaging techniques have demonstrated findings that suggest patients who suffer chronic migraine for an extended time develop structural changes within their brains which may be irreversible.

Specifics of Treatment

Some individuals with chronic migraine improve spontaneously, experiencing a remission to episodic migraine in the absence of any specific medical intervention. Unfortunately, many others who suffer from chronic migraine are not so lucky. Left untreated, they will continue to struggle with frequent, daily or even constant headache. This is the population that needs - deserves – aggressive medical management.

Treating chronic migraine typically requires more than simply injecting BotoxA or taking a daily medication intended for headache prevention. Such treatment is definitely important, but it's only one component of a more complex management strategy.

Education - We already have stressed the importance of accurate diagnosis. Once your headache disorder has been identified as chronic migraine, make the effort to learn the implications of that diagnosis and how the disorder can best be managed. The Internet is teeming with headache sites, and far too many are little more than a blatantly commercial pitch for an improbable migraine "cure". Fortunately, there are a number of excellent resources available to supplement what is presented here in *Migraineur,* and two of the most reputable are the National Headache Foundation and the American Migraine Foundation. The Allergan-sponsored site at mychronicmigraine.com offers both detailed information on the topic of chronic migraine and instruments you can use to assess how much chronic migraine is affecting your quality of life.

Triggers and aggravators - There are migraine triggers, and there are migraine aggravators. Triggers are stimuli that provoke an attack of acute migraine, and the link between the two is usually obvious (order a glass of red wine, and before the glass is half-finished your migraine has activated -see Doctor On Call in this issue). It's obviously best to avoid those triggers which invariably cause you to experience a severe migraine, but not all triggers are avoidable. If an abrupt change in barometric pressure tends to trigger your migraine, there's not a lot to be done except be aware you're "at risk" and treat early if an attack begins. Aggravators differ from triggers in that they chronically increase your susceptibility to migraine. Stress is the most common migraine aggravator, and making an active effort to reduce the stress which permeates your day-to-day life can go a long ways towards reducing the burden imposed by chronic migraine.

Exercise - Stress reduction does not necessarily require sessions with a psychotherapist. Research has demonstrated that regular aerobic conditioning is independently correlated with remission of chronic migraine. This does not mean you should plan to run a marathon next weekend, especially if your lifestyle has been sedentary.

Start with a realistic conditioning program that you are likely to stick with, and use your heart rate to guide you. If you have a pre-existing medical condition that might influence your ability to pursue aerobic conditioning, check in with your medical provider before starting your program.

It's recommended that you exercise within 50 to 85 percent of your maximum heart rate (MHR) for at least 20 to 30 minutes to get the best results from aerobic exercise. The MHR (roughly calculated as 220 minus your age) is the upper limit of what your cardiovascular system can handle during physical activity. The table at right shows estimates of target heart rates for different ages. To engage in moderate activity, strive for a target heart rate between 50-70% of your MHR; with strenuous activity your target heart rate should fall between 70-85% of your MHR. To check your heart rate during exercise, place two fingers over your carotid artery on your neck next to your windpipe and count the number of beats you feel for 10 seconds. Multiply this number by 6 to calculate your heart rate.

Age	Average MHR	Target HR moderate aerobic exercise 50-70%	Target HR strenuous aerobic exercise 70-85%
20	200 bpm	100-140	140-170
30	190 bpm	95-133	133-162
35	185 bpm	93-130	130-157
40	180 bpm	90-126	126-153
45	175 bpm	88-123	123-149
50	170 bpm	85-120	120-145
55	165 bpm	83-116	116-140
60	160 bpm	80-112	112-136
65	155 bpm	78-109	109-132
70	150 bpm	75-105	105-128

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Acute therapy - As mentioned earlier in this section, having a headache tends to yield yet more headaches, and this is especially true if the headache is severe and prolonged. As the trend continues, one headache begins to merge into another, and then one day - voila! – welcome to the swamp of chronic migraine. To reverse that process, treat your acute headaches aggressively. Treat early. If you are using a medication to treat the headache, use one appropriate to the intensity of the headache, and use an appropriate dose.

There is an old adage pertaining to the treatment of acute migraine: three aspirin and a cup of coffee taken early are often more effective than intravenous morphine administered late.

Medication overuse headache - In what seems a contradiction to the "treat aggressively" mandate, it may be important to avoid overusing medications intended to treat acute migraine headache. While the whole concept of medication overuse headache (popularly known as "rebound" headache) recently has been challenged, most headache subspecialists agree that chronic overuse of virtually any of the prescription or over-the-counter medications commonly administered to treat acute migraine headache can reinforce and worsen chronic migraine.

"Treat but don't overtreat" admittedly can be a tough balance to strike, and it's a particular problem for chronic migraine patients during the first weeks of implementing a management strategy. Any prevention therapy prescribed typically has not yet had sufficient time to begin reducing headache frequency, and the patient simultaneously is being told to treat acute headaches aggressively but to avoid overusing the very medications needed to treat those headaches. In what is probably the best compromise available, providers often advise patients to treat aggressively but to avoid overuse of any given class of acute medication. For example, use the triptans when appropriate, but restrict their use to less than 10 days total per month; on triptan "off days", use something from another class of medications (for example, a non-steroidal anti-inflammatory drug such as naproxen sodium). When it comes to the opiates/opioids (egs, hydrocodone, oxycodone) or butalbital-containing compounds, overuse may not only promote yet more headache but also reduce the effectiveness of certain therapies commonly prescribed to prevent headache. Use of these particular drugs is best avoided or, at most, kept to a bare minimum.

Headache Diary - To help establish your baseline headache burden and subsequently follow your response to the management strategy you and your provider have chosen, keep a simple headache diary. Courtesy of the Internet, there are a number of websites and apps which offer the option of charting your migraine electronically. However you choose to keep your diary, record the frequency of your "headache days", the maximum intensity of the headache suffered on those days (1= mild, 2= moderate but not incapacitating, 3= incapacitating), what medication (if any) you took to treat the headache and your response to that medication. If you tend to experience menstrual aggravation of your migraine, highlight those days when menses occurred.

Co-morbid disorders - "Co-morbid" implies that two different medical disorders occur in an individual more often than they would by a chance alone. Chronic migraine is co-morbid with a wide variety of conditions that range from obesity and hypothyroidism to depression, generalized anxiety disorder and panic disorder. Many individuals with chronic migraine have chronically disrupted sleep. While neither a mood disorder nor a sleep disorder is the primary cause of your chronic migraine, these disorders can worsen migraine and, in any event, deserve treatment in their own right.

Prevention therapy - What therapies are available for headache prevention in cases of chronic migraine? The answer: many. Which of these therapies possess a solid scientific evidence base to support their use in chronic migraine? The answer: very few. The mismatch is obvious; millions of individuals with a chronic disorder that imposes a significant burden on the public health, yet limited weapons available in the therapeutic arsenal.

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But limited does not mean none. Only a little more than a decade ago what we now routinely accept as "chronic migraine" did not even formally exist as a headache diagnosis. Despite this, effective therapies exist, and more are arriving shortly.

As mentioned earlier, onabotulinumtoxinA is FDA-approved specifically for prevention of headache in patients with chronic migraine. Although serial onabotulinumtoxinA injection therapy is by no means effective for all patients with chronic migraine (no therapy for migraine can claim that distinction), such treatment can substantially reduce headache burden in about half of those who receive it. For more regarding onabotulinumtoxinA, go to www.migraineurmagazine.com and link to the Winter 2017 issue: see Migraine Treatment of the Month.

Topiramate is a daily oral medication FDA-approved for migraine prophylaxis generally. In studies comparing topiramate with onabotulinumtoxinA for headache prevention in chronic migraine, topiramate has proven to be at least as effective as the injectable therapy for those patients able to tolerate the drug. A number of other oral medications known to be effective for headache prevention in patients with episodic migraine are often used to treat chronic migraine as well, but none have been studied as rigorously as onabotulinumtoxinA and topiramate.

Expected to arrive on the scene soon are the calcitonin gene related peptide (CGRP) antagonists, a new class of migraine treatment options which in the research setting have been shown to be safe, well-tolerated and effective in treating chronic migraine.

A Final Word

Chronic migraine is a prevalent, costly, underdiagnosed and undertreated headache disorder. If you appear to have chronic migraine, seek confirmation of the diagnosis and appropriate treatment from a knowledgeable medical provider. Don't let this common variant of migraine continue to suck the quality out of your life.

Management Plan for Chronic Migraine

- Know thine enemy! Get educated.*
- Avoid acute migraine "triggers"/minimize chronic migraine aggravators
- Start/stick with a "customized"** aerobic conditioning program
- Treat "break-through" headaches aggressively-minimize their severity and duration
- Beware of symptomatic medication overuse
- Keep a headache diary
- Seek treatment for any co-existing sleep or mood disorder
- Maintain ongoing follow-up with a headache provider.
- Start an appropriate medical therapy for migraine prevention...and use it appropriately

* National Headache Foundation, American Migraine Foundation, mychronicmigraine.com
**i.e., appropriate to your baseline level of cardiovascular fitness