

Major causes of Migraine headache

Zaad Ibrahim

Department of Pharmacology University of Karachi Pakistan.

Email: Zaadhim@gmail.com

ABSTRACT

This article is the major causes of migraine headache. A migraine is a primary headache disorder characterized by recurrent headaches that are moderate to severe. Typically, the headaches affect one half of the head, are pulsating in nature, and last from a few hours to 3 days. Migraines are believed to be due to a mixture of environmental and genetic factors. About two-thirds of cases run in families. A migraine can cause severe throbbing pain or a pulsing sensation, usually on one side of the head. It's often accompanied by nausea, vomiting, and extreme sensitivity to light and sound. Migraine attacks can last for hours to days, and the pain can be so severe that it interferes with your daily activities. Migraines, which often begin in childhood, adolescence or early adulthood, can progress through four stages: prodrome, aura, attack and post-drome. Not everyone who has migraines goes through all stages. There are many migraine triggers, but it is not clear why some people are prone to migraines and exactly what causes them to occur. There are several risk factors that make you more prone to developing migraines. Some people try to prevent migraine attacks using dietary supplements, herbal medicinal products or relaxation techniques. People who have very severe or very frequent migraine attacks also have the option of preventive medication or psychological treatment. There are a number of effective migraine treatments that are used for acute migraine attacks, including over-the-counter (OTC) and prescription medications. Many people have such severe or regular migraines that it makes their life difficult. Recurring migraines can really wear you down. Severe migraines can make it impossible to carry on day-to-day activities at home or at work, having a major impact on your performance and ability to concentrate.

Keywords: Migraine, causes, headache.

INTRODUCTION

The reach of migraine headaches spans the globe. Migraine is sometimes confused with other types of headache, such as tension headache. Those with migraines may not receive the correct diagnosis, adequate treatment, or proper support from family, friends, or coworkers. Migraine treatment usually consists of acute or abortive medications, whereas preventive medications are used by a minority of individuals with migraine. The triptans, or selective serotonin 5-HT_{1B/1D} receptor agonists, were approved for acute migraine therapy in the 1990s. The calcitonin gene-related peptide (CGRP) antagonists approved in 2018 are the first class of medications

specifically approved for migraine prevention, contrary to all the other migraine agents that are also used for other conditions [1].

A migraine is a primary headache disorder characterized by recurrent headaches that are moderate to severe. Typically, the headaches affect one half of the head, are pulsating in nature, and last from a few hours to 3 days. Associated symptoms may include nausea, vomiting, and sensitivity to light, sound, or smell. The pain is generally made worse by physical activity. Up to one-third of people affected have an aura: typically a short period of visual disturbance that signals that the headache

will soon occur. Occasionally, an aura can occur with little or no headache following it [2].

Migraines are believed to be due to a mixture of environmental and genetic factors. About two-thirds of cases run in families. Changing hormone levels may also play a role, as migraines affect slightly more boys than girls before puberty and two to three times more women than men [3]. The risk of migraines usually decreases during pregnancy and after menopause. The underlying mechanisms are not fully known. They are, however, believed to involve the nerves and blood vessels of the brain. Initial recommended treatment is with simple pain medication such as ibuprofen and paracetamol (acetaminophen) for the headache, medication for the nausea, and the avoidance of triggers. Specific medications such as triptans or ergotamines may be used in those for whom simple pain medications are not effective. Caffeine may be added to the above [4]. A number of medications are useful to prevent attacks including metoprolol, valproate, and topiramate. Globally, approximately 15% of people are affected by migraines. It most often starts at puberty and is worst during middle age. As of 2016, it is one of the most common causes of disability. An early description consistent with migraines is contained in the Ebers papyrus, written around 1500 BCE in ancient Egypt.

A migraine can cause severe throbbing pain or a pulsing sensation, usually on one side of the head. It's often accompanied by nausea, vomiting, and extreme sensitivity to light and sound. Migraine attacks can last for hours to days, and the pain can be so severe that it interferes with your daily activities. For some people, a warning symptom known as an aura occurs before or with the headache [5]. An aura can include visual disturbances, such as flashes of light or blind spots, or other disturbances, such as tingling on one side of the face or in an arm or leg and difficulty speaking. Medications can help prevent some migraines and make them less painful.

The right medicines, combined with self-help remedies and lifestyle changes, might help.

Symptoms of Migraine

Migraines, which often begin in childhood, adolescence or early adulthood, can progress through four stages: prodrome, aura, attack and post-drome. Not everyone who has migraines goes through all stages.

Prodrome: One or two days before a migraine, you might notice subtle changes that warn of an upcoming migraine, including:

- Constipation
- Mood changes, from depression to euphoria
- Food cravings
- Neck stiffness
- Increased thirst and urination
- Frequent yawning

Aura: For some people, aura might occur before or during migraines. Auras are reversible symptoms of the nervous system. They're usually visual, but can also include other disturbances [6]. Each symptom usually begins gradually, builds up over several minutes and lasts for 20 to 60 minutes.

Examples of migraine aura include:

- Visual phenomena, such as seeing various shapes, bright spots or flashes of light
- Vision loss
- Pins and needles sensations in an arm or leg
- Weakness or numbness in the face or one side of the body
- Difficulty speaking
- Hearing noises or music
- Uncontrollable jerking or other movements

Attack: A migraine usually lasts from four to 72 hours if untreated. How often migraines occur varies from person to person. Migraines might occur rarely or strike several times a month.

During a migraine, you might have:

- Pain usually on one side of your head, but often on both sides
- Pain that throbs or pulses
- Sensitivity to light, sound, and sometimes smell and touch
- Nausea and vomiting

Post-drome: After a migraine attack, you might feel drained, confused and washed out for up to a day. Some people report feeling elated. Sudden head movement might bring on the pain again briefly.

Causes of Migraine Headaches

There are many migraine triggers, but it is not clear why some people are prone to migraines and exactly what causes them to occur. There are several risk factors that make you more prone to developing migraines [7]. Women are more likely to experience migraines than men, and you are more likely to have migraines if you have a family history of the condition. Depression increases the risk of having migraines, although most people who have migraines do not also have depression. If you are prone to migraines, you are more likely to experience them in response to certain triggers. The most common migraine triggers include:

- Hormonal changes (such as those corresponding to menstrual cycle)
- Lack of sleep or jet lag
- Stress
- Bright lights
- Noxious or chemical odors
- Caffeine withdrawal
- Illness (such as iron deficiency anemia)
- Infection
- Hunger
- Medications
- Anxiety

The exact cause of migraines is unclear. They seem to be related to several physiologic alterations in the brain, which include vasodilation (widening) of the blood vessels in the brain, alterations of neurotransmitters in the brain, or changes in the electrical rhythm of brain activity [8]. All of these changes have been documented with migraines, but it is not clear which occurs first and why or how a migraine begins.

Risk factors

Several factors make you more prone to having migraines, including:

- **Family history.** If you have a family member with migraines, then you have a good chance of developing them too.

- **Age.** Migraines can begin at any age, though the first often occurs during adolescence. Migraines tend to peak during your 30s, and gradually become less severe and less frequent in the following decades.
- **Sex.** Women are three times more likely to have migraines.
- **Hormonal changes.** For women who have migraines, headaches might begin just before or shortly after onset of menstruation. They might also change during pregnancy or menopause. Migraines generally improve after menopause.

Prevention of Migraine

Certain sleeping patterns or other habits may increase the risk of developing migraines. The things that trigger migraines vary from person to person. Keeping a migraine or headache diary may help you get an idea of what triggers your migraines. The diary can be used to record things like how long and severe a migraine attack was, what was happening around the time the attack occurred, what you ate or drank beforehand, and what medicine you took. This will make it easier to find any links between migraine attacks and possible triggers [9]. The diary entries can also show whether avoiding a possible trigger, like red wine for example, actually helps to reduce the frequency and severity of migraine attacks.

Some people try to prevent migraine attacks using dietary supplements, herbal medicinal products or relaxation techniques. People who have very severe or very frequent migraine attacks also have the option of preventive medication or psychological treatment. This involves things like learning more about the condition or practicing techniques that can help to cope with stressful situations. Medications can help prevent frequent migraines. Your doctor might recommend preventive medications if you have frequent, long-lasting or severe headaches that don't respond well to treatment. Preventive medication is aimed at reducing how often you get a migraine how severe the attacks are and how long they last. Options include:

- **Blood pressure-lowering medications.** These include beta blockers such as propranolol (Inderal, Innopran XL, others) and metoprolol tartrate (Lopressor). Calcium channel blockers such as verapamil (Tarka, Verelan) can be helpful in preventing migraines with aura.
- **Antidepressants.** Tricyclic antidepressant (amitriptyline) can prevent migraines. Because of the side effects of amitriptyline, such as sleepiness and weight gain, other antidepressants might be prescribed instead.
- **Anti-seizure drugs.** Valproate and topiramate (Topamax) might help you have less frequent migraines, but can cause side effects such as dizziness, weight changes, nausea and more.
- **Botox injections.** Injections of onabotulinumtoxinA (Botox) about every 12 weeks help prevent migraines in some adults.
- **Calcitonin gene-related peptide (CGRP) monoclonal antibodies.** Erenumab-aooe (Aimovig), fremanezumab-vfrm (Ajovy) and galcanezumab-gnlm (Emgality) are newer drugs approved by the Food and Drug Administration to treat migraines. They're given monthly by injection. The most common side effect is a reaction at the injection site.

Treatment of Migraine

There are a number of effective migraine treatments that are used for acute migraine attacks, including over-the-counter (OTC) and prescription medications [10]. In severe cases, medication injections have also been effective. Some people experience migraine symptom improvement with complementary and alternative treatments (CAM), such as eating ginger or inhaling lavender oil. It is usually a good idea to try CAM treatments or OTC medications first. If these don't work, you can try advancing to the stronger prescription treatments only if the complementary and alternative medicine

(CAM) or OTC options don't effectively reduce your migraine symptoms, or if you can't tolerate the side effects.

Complementary and Alternative Medicine (CAM)

The butterbur plant seems to be effective in some clinical trial results.⁸ Further CAM treatment options that may be worth investigating include feverfew (a plant), magnesium, coenzyme 10Q, and vitamin B2 (riboflavin).

Be sure to discuss these CAM choices with your doctor to see if one (or a combination) may work for you.

Over-the-Counter (OTC)

OTC treatments include non-steroidal anti-inflammatories (NSAIDs), aspirin, naproxen, and ibuprofen, as well as acetaminophen—which is not an NSAID.

Prescriptions

Triptans are prescription medications that are specifically indicated for migraines.⁹ They include Imitrex (sumatriptan), Relpax (eletriptan), Zomig (zolmitriptan), Amerge (naratriptan), Maxalt (rizatriptan), Axert (almotriptan), and Frova (frovatriptan)—all of which come in an oral form. Imitrex (sumatriptan) comes in formulations that can be taken orally, by injection, or by inhalation.

Other prescription medications used for treatment of acute migraine attacks include Fiorinal, Fioricet, Migranal (dihydroergotamine), Cafergot (ergotamine), opioids, steroids, Periactin (cyproheptadine), and Reglan (metoclopramide).

If you need to take a prescription, you and your doctor will work together to find the right one for your migraine attacks. Some of the prescription medications cause side effects, so your health and medical risk factors often determine whether you can take them or not.

For example, the triptans cause blood vessels to constrict (narrow), and they aren't recommended if you have cardiovascular disease [11] [12]. The opioids can be addictive and may cause severe constipation, so they aren't recommended if you have a history of drug abuse or if you have gastrointestinal problems.

CONCLUSION

Many people have such severe or regular migraines that it makes their life difficult. Recurring migraines can really wear you down. Severe migraines can make it impossible to carry on day-to-day activities at home or at work, having a major impact on your performance and ability to concentrate. Migraine attacks may happen at specific times - for instance, in the days leading up to a woman's monthly period. But they are often unpredictable, which can make it difficult to plan activities or stick to appointments. It's not just the attacks themselves that are so distressing that they affect people's ability to enjoy life,

but also the fear of having more attacks and worries about the consequences at home and at work. Negative feelings and thoughts can also lead to behavior that affects people's quality of life. For example, they might avoid activities that they would normally enjoy for fear of having a migraine attack. Cognitive behavioral therapy can help to change those negative thoughts and behavior. Some people try out this method to help them cope better with migraines. Others try relaxation techniques like autogenic training, where you learn how to enter a deep state of relaxation. And some find that exercise makes them feel better

REFERENCES

1. Anderson K, Anderson LE, Glanze WD (2010). *Mosby's Medical, Nursing & Allied Health Dictionary* (4 ed.). Mosby. p. 998. ISBN 978-0-8151-6111-0.
2. Armstrong C (2013). "AAN/AHS update recommendations for migraine prevention in adults". *American Family Physician*. 87 (8): 584-5.
3. Bigal ME, Lipton RB (June 2008). "The prognosis of migraine". *Current Opinion in Neurology*. 21 (3): 301-8.
4. Diener HC, Charles A, Goadsby PJ, Holle D (2015). "New therapeutic approaches for the prevention and treatment of migraine". *The Lancet Neurology*. 14 (10): 1010-22.
5. Gilmore B, Michael M (2011). "Treatment of acute migraine headache". *American Family Physician*. 83 (3): 271-80.
6. Gutman SA (2008). *Quick reference neuroscience for rehabilitation professionals: the essential neurologic principles underlying rehabilitation practice* (2 ed.). Thorofare, NJ: SLACK. p. 231. ISBN 9781556428005.
7. Liddell HG, Scott R. "ἡμικρανία". *A Greek-English Lexicon*. Archived from the original on 2013-11-08. on Perseus
8. Linde M, Mulleners WM, Chronicle EP, McCrory DC (June 2013). "Valproate (valproic acid or sodium valproate or a combination of the two) for the prophylaxis of episodic migraine in adults". *The Cochrane Database of Systematic Reviews* (6): CD010611.
9. Miller N (2005). *Walsh and Hoyt's clinical neuro-ophthalmology* (6 ed.). Philadelphia, Pa.: Lippincott Williams & Wilkins. p. 1275. ISBN 9780781748117.
10. Pryse-Phillips W (2003). *Companion to clinical neurology* (2nd ed.). Oxford: Oxford university press. p. 587. ISBN 9780195159387.
11. Stovner LJ, Zwart JA, Hagen K, Terwindt GM, Pascual J (April 2006). "Epidemiology of headache in Europe". *European Journal of Neurology*. 13 (4): 333-45.
12. Vos T, Abajobir AA, Abate KH, Abbafati C, Abbas KM, Abd-Allah F, et al. (GBD 2016 Disease and Injury Incidence and Prevalence Collaborators) (2017). "Global, regional, and national incidence, prevalence, and years lived with disability for 328 diseases and injuries for 195 countries, 1990-2016: a systematic analysis for the Global Burden of Disease Study 2016". *Lancet*. 390 (10100): 1211-1259.