

Review Article

Various remedies for management of Migraine: A short review

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Abstract

Millions of people suffer from the neurological pain disease known as migraine. It is the most prevalent neurological condition that significantly affects the brain and as a result, the behaviours linked to recurrent migraine attacks. People need to think about migraines differently and adjust their mindset and strategy appropriately. There is a lot of evidence that migraines have a greater negative impact on health-related quality of life than osteoarthritis or diabetes. Complicated illnesses that require proper management contribute to some of the handicap experienced by headache sufferers. Migraine is a widespread, incapacitating disorder that affects predominantly adults and has a female predominance. Even though the migraine may show in a variety of ways, the most typical symptom is a unilateral, throbbing headache of moderate to severe intensity. Even while the understanding of route physiology is rapidly expanding, resulting to the creation of innovative treatments, the need for evidence-based migraine treatments, particularly in developing countries, remains unfulfilled. The historical Background, different kinds of headache, pathophysiology, diagnosis, and evidence-based approach to migraine management are reviewed in this article.

Keywords: Migraine, headache, neurological, pathophysiology

Introduction

The term "migraine" originally came from the term "hemicrania," which Galen of Pergamon used to describe a half-head. The Ebers papyrus has an early description of migraines that dates to around 1500 BCE in ancient Egypt. Writings from the Hippocratic School of medicine from 200 BCE documented the visual aura that may appear before the headache as well as a partial solace from vomiting. Louis Hyacinthe Thomas was the first to categorise migraines into migraine with aura (migraine ophthalmique) and migraine without aura in 1887 (migraine vulgaire) (Reed et al., 2010). Roughly 7,000 BCE Trepanation, which involves purposefully drilling holes into a person's skull, was common because it was believed to work by "letting evil spirits escape." William Harvey suggested trepanation as a migraine cure in the 17th century. While other migraine treatments have been tried, one that dates back to 1868 involved the use of a material known as fungus ergot, from which ergotamine was eventually extracted. The first triptan, Sumatriptan, was created in 1988.

Methylsergide was created in 1959. The meninges and blood arteries in the head were the source of the pain, according to a better study plan that was put forth during the 20th century along with efficient preventative methods. Three categories of headaches were established by Aretaeus of Cappadocia: cephalalgia, cephalaea, and heterocrania (Tepper et al., 2008).

A common chronic headache disorder called migraine is characterised by recurrent attacks that last four to seventy-two hours, have a pulsating quality, are of moderate to severe intensity, are made worse by normal physical activity, and are accompanied by nausea, vomiting, photophobia or phonophobia (Gorden et al., 2015). Because of the significant influence it has on the patient's quality of life (QOL), it is known as the seventh disabling. In kids and teenagers, it causes headaches the most frequently. Due to the toll that migraine has on children and their families, as well as the challenges associated with diagnosis and treatment brought on by phenotypic variation and potential differential diagnoses, paediatric migraine research is crucial (Tarasco et al., 2016).

A neurological condition called migraine is characterised by recurring moderate to severe headaches, frequently

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accompanied by a wide range of autonomic nervous system symptoms. The word is taken from the Greek ν (hemikrania), which means "pain on one side of the head," and is composed of the prefixes hemi (half) and kranion (skull). Although the term "migraine" is frequently used to refer to any severe headache, a migraine headache is the result of unique physiological changes in the brain that produce the recognisable pain and other migraine-related symptoms. A migraine headache can induce strong sensitivity to light and sound, odours, nausea, vomiting, a violent headache, and blurred vision. It can also create concentrated throbbing or pulsating in one area of the brain (Olesen et al., 2009; Brennan and Charles, 2010).

The third most common and seventh most common cause of impairment worldwide is migraine. Migraine is one of the top 20 causes of impairment in persons of all ages (World Health Report 2001, WHO). An estimated 190,000 migraine bouts occur daily in the UK (Steiner et al., 2003). A little more than one third (34.3%) of people who experience migraines encounter obstacles or discrimination at work (Robbins and Lipton, 2010).

1.4 to 2.2% of people in the population get chronic migraines. Less than 50% of migraine patients seek consultation, and at least 50% of people with migraine remain misdiagnosed and undertreated. Most cases of migraines begin between the ages of 15 and 24 and peak between the ages of 35 and 45. About 1.7% of 7-year-old children and 3.9% of those between 7 and 15 years old suffer from migraines, with boys experiencing them more frequently before puberty (Stovner et al., 2006).

From young children until moderate adolescents, headaches are more common overall. Boys are more likely than females to get migraines before they reach adolescence. Incidence and frequency rise as adolescence approaches and then fall until age 40. Over 90% of people in general report having headaches at some point in their lifetime, and 50% of people experience them annually. 7.7% of children and adolescents suffer from migraines. With a lifetime frequency of roughly 52%, tension-type headaches are more prevalent than migraines. 90% of migraine sufferers experience some level of headache-related disability, and of them, 50% experience severe disability and require bed rest. Migraines can range in severity. A quarter of migraine sufferers (25%) have four severe episodes each month, a half (48%) have one to four, and a third (38%) have only one (Wang, 2003).

Distinction between migraine and normal headache

Despite not truly being an illness, a headache is a discomfort in the head that appears randomly and at irregular intervals. The main distinction between the pain experienced by migraine sufferers and that of a typical headache is that, as opposed to the dull pain of a tension headache, 85% of migraine sufferers report a constant throbbing, pulsating, or pounding pain that is felt with

each heartbeat and feels like a knife is being thrust repeatedly into their head. As a result, it was believed that vasodilatation blood vessels in the brain would enlarge and press on pain-sensitive areas to induce migraines. However, researchers are unsure of the exact aetiology of migraines. Although migraines run in families, it is unclear why some family members only get migraines. Even while any severe headache is referred to as a "migraine," a migraine headache is the result of particular physiologic changes that take place in the brain (Olesen et al., 2009).

Types of Headaches

People with migraines in their family tend to get them frequently, and the pain can occur anywhere in the head and neck area. Numerous illnesses that are activated from the head and neck might generate headaches as a symptom. Because brain tissue lacks pain receptors, it is not responsive to pain. Depending on the reason and origin, pain is caused by pain-sensitive tissues in the head and neck, such as muscles, nerves, arteries, veins, subcutaneous tissue, eyes, ears, sinuses, etc. Two categories of headache exist (Brennan and Charles, 2009).

1. Primary headache
2. Secondary headache

Primary headache

These are the most typical types of headache. This group includes migraine, tension headaches, cluster headaches, and hemicrania continua. The most typical type of headache is one caused by tension in the neck and head muscles. This primary complaint is also accompanied with pulsing headache, brow discomfort, band-like tightness in the upper neck, nausea, and occasionally vomiting. Three hours to three days may pass between headache attacks. According to outdated views, migraine aura is brought on by cerebral vasoconstriction. According to a new idea, migraines are caused by the cerebral cortex's neuronal hyperexcitability, particularly in the occipital cortex (Magis et al., 2012).

Secondary headache

Issues in the head and neck might result in headaches. Some of them don't pose a threat. Subarachnoid haemorrhage, which results from a stroke in which blood builds up surrounding the brain, is what causes thunder clap headaches. Meningitis results in stiffness in the neck and a headache. Increased intracranial pressure brought on by a brain tumour, idiopathic intracranial hypertension, or cerebral venous sinus thrombosis causes headaches that are made worse by strain and positional changes. Giant cell arthritis, which results in inflamed blood vessel walls that

block blood flow, causes headaches with visual abnormalities. Angle closure glaucoma causes headaches, dizziness, nausea, and a feeling of having the flu while causing muscle weakness. Carbon monoxide poisoning can occasionally result in headache, nauseousness, and vomiting (Levy et al., 2009).

Tension headaches

The most typical sort of headache is a tension headache, which feels like a persistent pressure or discomfort all over the head, particularly near the temples or the back of the head and neck. They are less severe than migraines, rarely stop daily activities, and rarely result in nausea or vomiting. They can typically be treated with over-the-counter medications like aspirin, ibuprofen, or acetaminophen (Tylenol). These may result from the neck and scalp muscles contracting, possibly in response to stress as well as possible alterations in brain chemistry (Martin, 2010).

Sinus headaches

Inflamed sinuses, which are frequently caused by infections, can hurt. The existence of emission visible through a fiber-optic scope or symptoms, which are typically accompanied by a fever, can be used to identify it. Antibiotics can be used to treat sinus infection-related headaches, as well as antihistamines or decongestants (Martin, 2010).

Rebound Headache

Ironically, excessive painkiller use for headaches might result in rebound headaches. Aspirin, acetaminophen (Tylenol), and ibuprofen (Motrin, Advil) are a few examples of over-the-counter and prescription medications that contribute to this condition. One of the theories is that taking too much medicine may make the brain become stimulated and result in additional headaches. Another argument is that rebound headaches are a sign of withdrawal as the blood drug level declines (Holzhammer and Wober, 2006).

Triggering factors for headache (Radat, 2013)

- ✍ Changes in the weather and temperature, such as intense rain and sunlight.
- ✍ Strong scents like those from perfumes or paint.
- ✍ Tight-fitting hats, bands, and clips for the hair.
- ✍ Vigorous activities, such as sex.
- ✍ Bad posture during routine activities.
- ✍ Red wines and alcoholic beverages make headaches worse.
- ✍ Eating too much or skipping meals.
- ✍ Consuming coffee and smoking.
- ✍ Depression, excessive pondering, grief, and mental stress, due to medications like birth control pills.

✍ Not getting enough sleep.

Pathophysiology of Migraine

The exact reason why migraines occur is still not known. In the past, two distinct ideas describing the origin of migraine headaches were put forth: the vascular theory and the neural theory. Thomas Willis developed the vascular theory, stating that "all pain is an action violated" and contending that headache pain results from vasodilatation of the cerebral and meningeal arteries. The trigeminovascular system is now associated with migraine discomfort, according to the alternative neurogenic theory (Gasparini et al., 2013).

The other, more widely accepted explanation contends that the headache results from activation of the trigeminovascular pain pathway and that the aura is caused by cortical spreading depression (CSD), a wave of neuronal hyperactivity followed by an area of cortical depression. Atypical pain processing, peripheral and central sensitization, cortical hyperexcitability, and neurogenic inflammation all have a part to play in chronic migraine (CM). Another important element believed to be involved in the conversion of EM to CM is cortical hyper excitability (Gooriah et al., 2015).

Diagnosis

The history-taking process may be used to diagnose migraines, and other conditions can be ruled out with the use of orthopaedic tests, cranial nerve examinations, complete blood counts, urinalyses, and, if necessary, cerebral magnetic resonance imaging. There are no particular tests available to identify migraine. The medical history, a review of the symptoms, a physical examination, and a neurological evaluation ECT will likely be used by the neurology expert to make the diagnosis. If additional medical conditions coexist with the migraine, which is notable in terms of therapy, the patient should make sure that he is being treated for the appropriate disease before beginning any type of treatment. A correct diagnosis of migraines and effective treatment can assist to both guarantee that the remaining episodes are under control and prevent some attacks from happening. If the patient's physical examination is normal, brain imaging with an MRI and CT scans as well as a brain wave test (electroencephalogram [EEG]) are not required. The indications and symptoms of a migraine are used to make the diagnosis. If an examination and patient history do not support a migraine diagnosis, neuroimaging studies are required to rule out alternative headache causes (Brett et al., 2015; Cousins et al., 2011).

Management of migraine treatment

There are three different levels of migraine treatment –

1. Treatment that serves as a preventative measure against attacks.
2. Prompt treatment for an attack after it occurs.
3. Remedy for acute treatment that was determined to be unsuccessful or inappropriate.

Depending on how frequently and how long a migraine occurs, different treatments are available. The therapies offered are diverse and vary from person to person due to the complexity of migraines. Numerous prophylactic drugs stop migraine attacks from occurring when headaches are severely impacting. Preventive drugs may be necessary if a person regularly has headaches or if the headaches regularly last for many days. These can be prescribed daily to lessen the frequency, severity, and duration of migraine headaches. There are numerous different drugs that have been proven to work. Preventative medicine for migraines is often taken for three to eighteen months. The majority of the time, this treatment significantly reduces (Tepper and Tepper, 2010; Lay and Broner, 2009).

Therefore, in certain situations, these medications can help to disrupt a migraine cycle. When using preventative medicine, it is vital to completely document any migraine attacks that occur. This will help the doctor determine whether the drug is reducing headache frequency. However, given that they frequently produce chronic headaches, various medications with combinations of codeine or caffeine-containing medications have come under intense suspicion. OTC analgesics frequently fall short because they are administered too late in the migraine attack cycle. Because the digestive system slows down during a migraine episode, less of the medication is absorbed in the stomach, rendering the medication ineffective. Taking medicine as soon as a migraine attack begins is advised if one can identify the warning indications (Peterlin et al., 2009).

Pharmacological treatment

a) Abortive therapy for migraine

The use of analgesics wisely while taking into account a patient's profile, the severity of their headache, and any potential side effects is one of the fundamentals of abortive therapy for migraines. This allows for both quick and long-lasting headache relief (Tepper et al., 2002).

5-HT_{1B/1D} receptor agonists

Triptans work by inhibiting nociceptive neurotransmission, dilating painfully dilated cerebral blood vessels and the production of vasoactive neuropeptides by the trigeminal neurons. These actions are all mediated by 5-HT (1B/1D)

receptors. There are many different triptans on the market, including sumatriptan, almotriptan, eletriptan, frovatriptan, naratriptan, rizatriptan, and zolmitriptan. Eletriptan, followed by rizatriptan, has the highest headache response rate and safety profile among the triptans. To avoid the formation of a drug overuse headache, it shouldn't be used more than twice or three times each week. They should not be used by people who have cerebrovascular disease or cardiovascular disease (Thorlund et al., 2014).

Other Analgesics

Because it is inexpensive, widely available, and has few adverse effects, paracetamol is often the first choice for patients with migraines when NSAIDs are either inappropriate or intolerable. Even while paracetamol has a better reaction than a placebo, it nevertheless has a lower NNT than other analgesics for pain. If 10 mg of metoclopramide is added to paracetamol, the results are comparable to sumatriptan (Deery and Moore, 2013). 1000 mg of aspirin is equivalent to 50 or 100 mg of sumatriptan in the treatment of acute migraine attacks. Aspirin and 10 mg of Metaclopramide together can lessen nausea and vomiting. Aspirin has fewer side effects than sumatriptan. Although only a small percentage of people get total headache relief, ibuprofen 400 mg in soluble form is effective at reducing the intensity of migraine headache discomfort. Only a small percentage of patients who receive oral diclofenac potassium 50 mg have pain-free reactions, but it is an effective treatment for acute migraine. The majority of adverse effects are minor, brief, and occur at a similar rate to placebo. Clinically, using 500 mg of naproxen by itself is not very effective in treating migraine headaches (NNT:11 for pain free response at two hours). In an emergency situation, 20 mg of metoclopramide is equivalent to 6 mg of sumatriptan via SC. Opioids are one of the options for controlling the severity of a migraine attack in an emergency situation, but their use is limited to people for whom other first-line medications are contraindicated due to the risk of deteriorating quality of life, concurrent psychiatric co-morbidities, and the development of habit (Tabbie et al., 2013; Deery et al., 2016).

Flunarizine

In addition to having a mild antihistaminic, serotonin receptor blocking, and antidopaminergic effect, flunarizine is a calcium channel antagonist. For the first 21 days, the starting dose is 5 mg/day; after that, it is increased to 10 mg/day. Flunarizine frequently causes tiredness, sadness, and weight gain as side effects (Law et al., 2013).

Beta blockers

Although beta blockers including propranolol, atenolol,

metoprolol, and bisoprolol have demonstrated usefulness against migraine headaches, most data points to propranolol as having the most effectiveness. The initial dose is 20 milligrammes per day. Since unfavourable effects may manifest before the preventative effects and impede patient compliance, this must be increased gradually. Before evaluating the efficacy of the prophylactic, it should be continued for at least 3 months. For a full year after a successful preventative therapy, repeat it. After that, withdrawal can be tried, but to prevent tachycardia or hypertension, medicine doses should be lowered gradually (Talabi et al., 2013).

Tricyclic antidepressants

Amitriptyline hydrochloride is the tricyclic antidepressant of choice for treating migraines. To have the greatest therapeutic benefit, titrate the beginning dose up to 75 mg. Response to these medications often occurs four weeks after the commencement of treatment. They frequently cause drowsiness, postural hypotension, dry mouth, and weight gain as side effects (Stone et al., 2016).

Divalporex Sodium

When compared to a placebo, divalporex sodium lowers the frequency of migraine attacks (P=0.05). Divalporex Sodium has a starting dose of 500 mg/day and a maximum dose of 1500 mg/day. It frequently causes nausea, dizziness, and trembling adverse symptoms (Parsekyan, 2000).

Topiramate

Topiramate inhibits glutamatergic excitatory amino acid transmission while also enhancing GABA-evoked currents, blocking fast Na⁺ channels, and inhibiting carbonic anhydrase and voltage-gated calcium channels. It lessens the number of days with a migraine or other headache (topiramate -6.4 vs placebo -4.7, P=0.010). Its beginning dose is 25 mg per day, increasing by 25 mg every week until the maximum dose of 100 mg per day is reached. Paresthesia, weight loss, upper respiratory tract infections, and weariness are typical topiramate adverse effects (Lai et al., 2016).

b) Preventive therapy

Since migraine is a chronic condition that causes a great deal of discomfort, patients have a tendency to take preventative medication regularly, which can cause a headache from taking too much medication and turn an episodic migraine into a chronic migraine. Indication for migraine prevention treatment (Limmroth and Michel, 2001; Shank et al., 2000).

More than two headaches monthly but no more than eight.

Less frequent but longer-lasting (more than two-day duration) headaches or severe bouts that significantly impair function.

Abortive treatment for migraines is ineffective.

Treatments for severe episodes are intolerable, inappropriate, or overused (more than two times per week).

A migraine that causes hemiplegia or a protracted aura.

c) Home Remedies for Migraines

1. Peppermint: Peppermint has a soothing, antispasmodic, and anti-inflammatory impact that helps calm the nerves. Simply sip honey-sweetened peppermint tea. Iterate as necessary. One drop of peppermint essential oil, or a mixture of peppermint and lavender oils, should be massaged into each temple.

2. Cayenne Pepper: Due to its ability to increase blood flow and boost circulation, cayenne pepper is a fantastic natural treatment for migraines. Additionally, it includes capsaicin, a substance that functions as a natural analgesic.

3. Chamomile: Chamomile has calming, antispasmodic, and anti-inflammatory characteristics that help with migraine relief. Regular chamomile tea use can also aid in avoiding the issue.

4. Ginger: Ginger may work well for treating typical migraines. It suppresses prostaglandins, which influence hormones, stimulate muscular contractions, and control inflammation in blood arteries in the brain. It undeniably lessens motion sickness. Because there may be interactions between ginger supplements and blood thinners, use caution. The anti-inflammatory, antiviral, antifungal, and antibacterial properties of ginger are widely known. The advantages of ginger powder are comparable to those of the standard migraine medication Sumatriptan, but with fewer adverse effects.

5. Apple Cider Vinegar: Apple cider vinegar, a nutritional powerhouse, helps lessen migraines. Additionally, apple cider vinegar helps with detoxification, blood sugar control, high blood pressure regulation, bone pain reduction, weight loss promotion, and constipation relief.

Apples: Consuming an apple as soon as you see the beginnings of a migraine episode will assist to alleviate the condition. Also, according to study, folks who enjoy the smell of a green apple may be able to lessen the severity of their migraines and cut the length of their attacks.

7. Feverfew: Another time-tested and reliable at-home treatment for migraines is feverfew. Parthenolide, a substance found in the herb, reduces inflammation and calms smooth muscle spasms. Additionally, it reduces pain by neutralising prostaglandins, which affect pain signals.

8. Lemon peel: Lemon peel is effective for treating migraines. Apply a paste made from ground lemon peel to the forehead. After allowing it to dry, rinse it with cool water.

9. Drink the concentrated form of fresh grape juice without adding water.

10. Beet, spinach, or cucumber juices mixed with 300 cc of carrot juice can be consumed on a regular basis.

11. Primrose oil: Applying primrose oil to the forehead can help treat migraines. It functions as a superb anti-inflammatory, preventing any type of blood vessel constriction.

12. Add garlic to your diet by either chewing a piece in its raw form or blending it with other foods.

13. Taking chamomile tea would be another successful strategy. This works well to lessen migraine occurrence.

14. Lukewarm water: Having an enema with lukewarm water is successful. It helps prevent migraines by cleansing the bowels, which removes toxins from the body.

15. Sandalwood powder: Create a paste by combining some powder with a few drops of water. Apply this paste on your forehead, then wait for it to dry. Once it has dried, cleanse it by hand rubbing.

16. Juice made from cabbage leaves: Cabbage leaves are effective at reducing migraine headache pain. Cabbage leaves should be compressed and placed in a cloth. For a while, place the cloth on your forehead. Remove the cabbage leaves once they have dried up.

17. Both headaches and coffee can benefit from it. Strong coffee can lessen the symptoms of a migraine.

18. Fish oil: Fish oil helps by constricting the blood vessels in your temples to minimise inflammation.

19. Butterbur: Also known as parasites, butterbur is the most potent "natural medication." Germany is where butterbur is farmed. Asthma and migraine discomfort are both much reduced, and it also soothes upset tummies. Even though it can only be purchased online, butterbur is secure.

20. Water: Water, without a doubt, is essential to how the body functions as a whole. Drinking enough of water and other nutritious fluids can help prevent dehydration, which can also cause migraine headaches. Water aids in making up for fluid loss brought on by nausea (Chaibi et al., 2011; Finocchi et al., 2012).

d) Ayurvedic remedies

According to Ayurveda, vata and pitta dosha imbalances are the primary cause of migraines. Therefore, methods that assist in redressing this imbalance are helpful in solving the issue. Some of the herbs that are advised are Brahmi, Jatamansi, Shankhpushpi, and Ashwagandha; however, for maximum benefits, they must be taken at the suggested dosage under the guidance of a skilled Ayurvedic doctor. Given the difficulty of treating migraine

headaches, it is crucial that people learn how to avoid them in the first place over time (Rockett et al., 2012).

e) Homeopathic remedies (Jansen et al., 2003)

1. Headaches brought on by potent odours like belladonna, lyco, coffee, ignatia, and phos

2. Chronic headaches: silica, nat mur, APIs, and sangunaria.

3. Pregnancy headache remedies: bell, gels, nux vomica, verat alb, and sepia.

4. Nat Mur, Sepia, Calcium, and Tuberculinum headache from reading.

5. Lac defloratum for migraines accompanied by nausea and constipation.

6. Igotia, sepia, cocculus, and kalicarb are remedies for headache from a carriage.

7. Calc phos, acid phos, nat Mur, lac caninum, and puls for headaches in schoolgirls.

8. Bell, theridion, citric acid, ignatia, and lac caninum for loud headaches.

f) Natural healing for migraines (Edelstein and Mauskop, 2009)

These items can come from a plant, bush, tree or flower and its seeds, stems, berries, roots, leaves, bark or flowers. FDA considered the following supplements: 1. Vitamins 2. Minerals. 3. Herbs. 4. Botanicals. 5. Amino acids. 6. Enzymes. 7. Organ tissues. 8. Glandular (relating to gland secretions). 9. Metabolites.

g) Natural Migraine Remedies

1. Butterbur for migraines. 2. Riboflavin / Vitamin B2 for migraines. 3. Vitamin B6. 4. Vitamin D and migraines. 5. Vitamin C. 6. Vitamin E. 7. Magnesium for migraines. 8. Potassium and migraines. 9. Migre Lief. 10. Fish Oil and migraines. 11. Co Enzyme Q10. 12. Petadolex for migraines. 13. Marijuana and migraines. 14. Peppermint oil for migraines. 15. Flax seed for migraines, Gingko Biloba. 16. Teas for migraines. 17. Feverfew and migraines. 18. Valerian for migraines. 19. Caffeine and migraines 20. Ginger root for migraines (Edelstein and Mauskop, 2009).

h) Diet and Migraine

There is no particular diet for migraines that relieves symptoms. Some migraine sufferers may find that recognising and avoiding their personal dietary triggers reduces the frequency of attacks. However, for those who are vulnerable, some meals can cause migraines. One of these foods is 1. red wine 2. Aged cheeses 3. Ingredients that preserve smoked meats (nitrates). 4. sodium glutamate

mono. 5. Sugar substitutes. 6. Includes chocolate. 7. Dairy items. 8. For certain people, alcohol might also cause migraines (Freeman, 2006).

i) Role of Lifestyle changes in Migraine Management (Martin, 2010)

1. Follow a regular eating and sleeping regimen.
2. Steer clear of foods that could bring on a migraine.
3. Drink plenty of water; dehydration has been shown to cause migraines in certain people.
4. Consistently work out.
5. Meditation and relaxation techniques have also been proven to be successful in reducing headache intensity and migraine frequency.

j) Devices and surgery

Biofeedback and neurostimulators are medical devices that have certain advantages in migraine prevention, particularly when standard anti-migraine drugs are contraindicated or when medication misuse occurs. Biofeedback may be effective for treating migraines because it helps patients become aware of specific physiological characteristics so they can control them and try to relax. When treating severe cases of intractable chronic migraines, neurostimulation employs implantable neurostimulators akin to pacemakers. In order to prevent migraines, a transcutaneous electrical nerve stimulation device has been approved in the US. For some patients whose migraines do not go better with medication, migraine surgery which involves decompressing certain nerves near the head and neck might be an option (Kung et al., 2011).

Future direction

The newly developed non-serotonergic, migraine-specific medicines lacking a vasoconstrictor action are known as CGRP receptor antagonists (CGRPRAAs), and it is predicted that they will be effective for individuals with vascular illness. Lasmiditan and other serotonin 5HT_{1F} agonists have demonstrated good efficacy and tolerance as a short-term migraine therapy. In the short-term management of migraine without aura, glutamate receptor antagonists have proven useful. It has been investigated as a potential treatment for chronic migraine to use neuromodulation by occipital nerve stimulation (ONS) with implanted leads. Trials are currently being conducted to determine the effectiveness of sphenopalatine ganglion stimulation as a potential preventative treatment for chronic migraine in light of the method's observed preventive impact in cluster headache (Uwe et al., 2015; Chain, 2014).

Conclusion

Migraine is a prevalent cause of headaches, and rapid diagnosis and

treatment can improve quality of life by preventing the development of chronic migraine. New armatorium targeting the various pathways are being identified as pathophysiology gains more attention. According to research, fundamental neurological anomalies brought on by genetic changes taking place in the brain are the cause of migraine. Medical expenses and lost productivity as a result of migraines are substantial sources of both. According to estimates, they are the most expensive neurological condition in the European Union, costing more than € 27 billion annually, the majority of which comes from lost productivity. The effectiveness of individuals who do go to work while having a migraine is reduced by about one third. A person's family typically experiences negative effects as well.

Many people who do not receive adequate treatment for their migraine episodes are unaware that they should attempt various migraine treatment options over time in order to determine which medication or combination of treatments works best for them. Scientists are using new models to help them better understand the underlying biology, genetics, and migraine processes. Researchers will have the chance to create and test medications that could be more specifically targeted to completely prevent attacks if they fully understand the origins of migraine as well as the circumstances that affect them. Overall, migraines don't seem to make you more likely to die from heart disease or a stroke. Due to increased pharmacological alternatives and newer treatment approaches, more is now known about the pathophysiology of migraines, even if there are still many unsolved concerns. People need to think about migraines differently and adjust their mindset and strategy appropriately. There is a lot of evidence that migraines have a greater negative impact on health-related quality of life than osteoarthritis or diabetes. Complicated illnesses that require proper management contribute to some of the handicap experienced by headache sufferers.

Numerous risk factors and triggers are present, which reflects the complexity and multifaceted nature of migraine.

There is also a lot of evidence to support the notion that psychiatric and psychological issues, as well as a variety of biological factors, including hormones, genetics, and metabolic diseases, are risk factors for migraine. To fully comprehend the biological phenomena behind migraine, more research is required. Identification of significant biological and psychological risk factors and comprehension of the pathophysiological mechanisms might provide fresh perspectives on prevention, redesign of

care pathways, management techniques, and individualized treatment approaches.

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