

Systematic Review on Aspects of Headaches

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Received: 14 Aug. 2020; Accepted: 18 Mar. 2020

Abstract- Headaches are a very common ailment in the modern world. Unfortunately, a large number of people are not diagnosed properly, and headaches are underestimated. However, it is worth analyzing this problem to be able to treat the causes of which the headache is only a symptom. The aim of the work was to present various types of headaches and their characteristic features. To this end, a systematic review of the PubMed science base has been carried out. It is possible to distinguish mainly primary and secondary headaches. Particularly noteworthy are secondary headaches, among which, for example, headaches associated with sexual activity can be observed. It can be seen that there is a lack of scientific literature discussing this type of headache. Since there is a stigma surrounding it, this topic is avoided in research and difficult to explore due to low public awareness. In turn, the treatment of headaches does not have to be limited to pharmacological methods. The review presents effective methods of non-pharmacological treatment of headaches. Headaches are a social and economic problem. It is important to educate the patient and their families in the field of headache treatment to increase patients' awareness of the types of headaches. © 2021 Tehran University of Medical Sciences. All rights reserved.

Acta Med Iran 2021;59(4):186-190.

Keywords: Headache; Migraine; Cluster headaches; Sex and headaches

Introduction

Headache is the most common disorder of the nervous system. It is estimated that more than half of the adult population suffered a headache at least once a year. Recurring headaches are associated with personal and social burden, lowering the quality of life, even leading to disability (1). Unfortunately, in the world, a very large number of people are not properly diagnosed, although headaches are the most common reasons for appearing at a medical visit (2). Primary headaches, which include migraine, tension headache, and cluster headache, belong to a small group of diseases (3,4), which are supplemented with secondary pain (5). The second group includes, among others: side effects of drugs, vision defects, hormonal disorders, sinusitis, temporomandibular joint dysfunctions, cervical spine arthrosis, pain associated with sexual activity, anemia, hypertension, carotid occlusion, hypermobility, inflammation trigeminal nerve, hypoglycemia, but also concussion, epidural and intrathecal hematoma, tumors, meningitis (3,4,5,6).

According to WHO, over 50% of people worldwide suffer from headache disorders. Importantly, 75% of people aged 18 to 65 report headaches, including 30% suffering from migraines, and chronic pain that lasts for 15 days or more per month affects 1.7-4% of the world's population (7). Despite regional differences, headaches are a global problem, affecting young people as well as older people, regardless of race, geographical location, or level of education. Unfortunately, the low awareness of the general public and the perception of headaches as trivial incidents that do not cause death and are not contagious lead to low effectiveness in the treatment of headaches and incorrect diagnosis (8,9,10).

Selected headache models

Migraine

Migraine is a condition that often affects young women but also occurs in men in a 1:2 ratio (8). As a rule, this pain is one-sided, moderate, recurrent, and pulsating, but it can also be strong, distracting, and rapid, lasting from one hour to three days. The causes and severity of symptoms are very different, including

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bright lighting, noise, various types of sounds, stress, hunger, exercise, hormonal fluctuations, weather conditions, lack of sleep, alcohol, and other individual stimuli. Unpleasant complaints accompanying migraines are most often: nausea and vomiting, photosensitivity, sounds, smells, dizziness, visual disturbances, or vegetative disorders (1,2,3).

Migraine is divided into five main categories, of which the two most important are migraine without aura and migraine with aura (1). Migraine without aura is diagnosed when a patient experiences a minimum of 5 seizures lasting 4 to 72 hours throughout their life (7). At least two of the four characteristic pain characteristics and at least one of two sets of accompanying symptoms must also occur. If seizures occur for 15 days or more per month, migraine should be considered chronic (1,2,3,6,7,8).

During migraine with aura, five phases of migraine attack can be distinguished: harbingers phase, aura, headache phase, resolution phase and post-paroxysmal phase (2). In this type of headache, the patient can often predict when an attack will occur up to several hours before it occurs. Just before the onset of pain, the aura appears, but sometimes it appears equally with the pain or after the onset of pain. The symptoms of aura are very diverse and individual for each patient, but most often they are: visual disturbances, sensation, motor skills or brainstem symptoms. These symptoms develop from 5 to 20 minutes and each of them lasts less than an hour (3). To confirm the occurrence of migraine with aura, the patient must experience at least two seizures meeting the criteria (1,2,3):

1. The aura passes without paresis and includes at least one of the following symptoms:

- a) Fully reversible visual impairment including "redundant" symptoms including flashing lights, spots, lines and/ or vision loss and vision
- b) Fully reversible sensory disorders including "redundant" symptoms including tingling sensation and/ or loss symptoms e.g. numbness
- c) Fully reversible speech disorders

2. At least two of the following features:

- a) Unilateral visual impairment and / or unilateral sensory disturbance
- b) At least one of the aura symptoms develops gradually > 5min and / or various aura symptoms consecutive within > 5min
- c) Each symptom of aura lasts > 5 min and < 60 min

3. Headache that begins during the aura or within 60 minutes after it subsides, which has at least two of the following characteristics:

- a) is located on one side of the head
- b) Has a pulsating character
- c) Is moderately or severely
- d) Intensifies during normal physical activity (e.g. walking or climbing stairs)

And it is accompanied by at least one of the following symptoms:

- a) Nausea and/ or vomiting
- b) Photosensitivity and sound sensitivity (1).

Tension headaches

Tension headache is more common in women than in men. It is characterized by dull, oppressive, girdling pain, which often radiates from the forehead to the occiput, sometimes also covering the neck area. This pain is often moderate and is accompanied by neck and shoulder cramps, weakness of appetite, tiredness, hypersensitivity to noise, sleep disturbance, photophobia, or nausea. Looking at the duration of this pain, it lasts from 30 minutes to many hours. The etiology of this pain is unknown, but it was found to be responsible for the biopsychosocial model, in which the central biological sphere is constituted by physiological processes of the nervous system, and secretory, immune, and autonomic systems are considered as peripheral (8,9). The psychic sphere assesses emotional reactions and cognitive assessment processes that affect the physiological processes of the above systems. Particular attention should also be paid to the factors in the environment in which the patient operates, his lifestyle, and diet. These types of headaches are very often associated with stress but also with musculoskeletal problems (1,10,11,12).

According to the International Classification of Headaches, several pain subtypes can be distinguished, which differ in the frequency of pain attacks. The first is a rare, episodic headache, the symptoms of which occur no more than once a month during a 12-month period, *i.e.*, no more than 12 pain episodes per year (11). To recognize him, it must be stated (13):

1. Attacks of pain occurring less often than on one day a month,
2. At least ten episodes of headache,
3. Pain lasting from 30 minutes to 7 days,
4. Bilateral pain, oppressive, non-pulsating,
5. Mild or moderate severity,
6. Pain does not intensify with ordinary physical

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- activity,
- 7. Without nausea and vomiting,
- 8. There may be photophobia or phonophobia.

The second type is frequent, episodic tension headaches (11), which must meet the following criteria (13):

1. At least 10 attacks of headache, appearing in 1-14 days a month, at least for more than three months (between 12 and 180 days with a headache a year),
2. Pain lasting from 30 minutes to 7 days,
3. Bilateral pain, oppressive, non-pulsating,
4. Mild or moderate severity,
5. Pain does not intensify with ordinary physical activity,
6. Without nausea and vomiting,
7. There may be photophobia or phonophobia.

The third type that can be distinguished is chronic tension headache (11), and to be recognized it must occur (13):

1. Headache that occurs for at least 15 days a month for more than 3 months,
2. Pain lasting from several hours to several days or continuous pain,
3. Bilateral pain, oppressive, non-pulsating,
4. Mild to moderate severity: pain does not worsen with normal physical activity,
5. Without severe nausea and vomiting,
6. One of the following symptoms may occur: photophobia, phonophobia or mild nausea.

Clinical observations suggest that frequent episodic tension headaches threaten the development of chronic tension headaches in some patients (13,14).

Cluster headaches

Cluster headache mainly affects men, and its occurrence is less than in 0.1% of the population (8,15). It is a very strong, short-term, unilateral pain located around the orbit, supraorbital and temporal region. The radiation of pain to the occiput, neck and shoulders is also characteristic. This seizure lasts from 15 to 80 minutes, and the number of seizures occurring during the day ranges from 1 to 8 (16). Pain is also accompanied by redness of the eye, swelling of the eyelid, tearing and serous discharge from the nose or a feeling of stuffiness (10). During the occurrence of pain, the patient very often shows significant agitation and anxiety, he is unable to sit or lie down calmly, and after

the attack he feels exhausted (17). Cluster headache is divided into two subtypes: paroxysmal episodic cluster headache, which occurs in episodes lasting from 7 days to 1 year, separated by asymptomatic periods lasting more than a month, and chronic cluster headache, in which seizures occur for a year or more without remission time or remission time is less than a month (1,8,15,16,17).

Secondary headaches

Drug-induced headaches

Drug-induced headaches are a type of pain caused by the abuse of painkillers as part of the wrong treatment of primary headaches. It is one of the most disabling types of pain that causes physical and social inactivity, abstinence from work, or economic problems. It affects people who originally suffered from migraine, tension, and cluster headaches. Patients with these symptoms can very often treat themselves by taking large doses of over-the-counter painkillers. These people have a dull, usually oppressive pain in the entire head, with a predominance of frontotemporal areas, less often parietal-occipital (18). Most often, this pain occurs in the morning immediately after waking up and provokes the intake of painkillers. Very often, it brings temporary relief, but after a while, this pain returns, and the patient is forced to reach for another dose of medicine. To recognize a drug-induced headache, the following criteria must be met (19):

1. Headache occurring for ≥ 15 days a month in a patient with pre-existing headache
2. Regular abuse of $>$ one or more drugs used for emergency or symptomatic treatment for $>$ 3 months

Headaches related to sexual activity

Headaches associated with sexual activity affect 0.2-1.4% of the population. It occurs more often in men than in women in a ratio of 3-4/1 (20,21). Most often, they are diagnosed in people over 40 years of age, but two peaks of incidence are also indicated: 20-24 and 35-45 (22,23,24). There are two types of headaches. This is a preorgasmic and orgasmic headache. The former is characterized by bilateral, blunt pain intensifying with excitement occurring in the occiput and neck area, beginning about 150 seconds before orgasm (24). It resembles a tension headache and lasts from several hours to several days. However, the second one is often pulsating, with a sudden onset and lasts from several minutes to 2 days (22). It occurs in the frontal area but may also be diffuse. Very often, it is an isolated symptom, but in some cases, it may be accompanied by

nausea, vomiting, photosensitivity, or sound sensitivity. In 2/3 of patients, the ailment appears in relapses that spontaneously disappear. In those who suffer constantly, pain does not have to occur at every intercourse, but it can also occur during masturbation (22). It is stated that even in 40% of people suffering from this type of pain, the pain disappears after cessation of intercourse (25).

Headache treatment

The treatment of headaches is an extremely difficult task and requires an interdisciplinary approach to the patient. It requires a lot of knowledge from a doctor and therapist who will treat a person suffering from headaches. A detailed interview and physical examination, which can be supplemented with imaging tests, allow the correct diagnosis to be made. During the treatment of a patient with primary headache, we can undergo pharmacotherapy, which includes the administration of analgesics, anti-emetics and specific anti-migraine drugs (8). In a specific headache, which is a drug-induced headache, it is recommended to immediately painkillers, which can cause a short-term withdrawal period of 2-10 days, the symptoms of which are: worsening headache, nausea, vomiting, insomnia and even anxiety (18,19). However, in the headache associated with sexual activity, it is recommended to change lifestyle, psychoeducation and pharmacotherapy. Very often this type of illness resolves on its own, but it is recommended to reduce sexual activity and avoid stress (22).

Physiotherapy is very important in the treatment of primary headaches, especially tension and migraine headaches. It aims to alleviate and eliminate the causes and effects that they cause, including pain. However, it should be remembered that there are contraindications that will prevent work with a given patient (8,26,27,28).

One of the methods that is used in people suffering from headache is trigger point therapy. The most common technique used in this type of therapy is compression and muscle compression. By using this type of impulse, it affects the tension in the area of muscle tissue, thereby increasing the metabolic and energetic changes of cells. Another type of this therapy is the use of a pincer grip, spray and stretch technique, positional loosening, as well as not directly related to tissue compression: dry needling or ultrasound, ultrasound and contact laser therapy (29,30), magnetotherapy (30), acupuncture and electroacupuncture (28,31).

Dry needling is another method used in the treatment of headaches, but it is a controversial method among

physiotherapists, however, studies conducted so far indicate the positive effect of dry needling on tissues and the treatment of headaches, in particular tension headaches (32).

When discussing the therapies used to treat headaches, attention should also be paid to craniosacral therapy, which aims to restore the physiological circulation of cerebrospinal fluid in the craniosacral system (33), improve mobility and efficiency of the central nervous system (34), restore mobility skull bones (35), fascial relaxation (35) and diagnostics and therapy of dura mater (35,36). It is also important to consider internal organs in therapy, which are very often the primary cause of headaches. This therapy is based on visceral techniques (37).

Summary

Headaches are a problem that can significantly reduce the quality of life of patients. These types of symptoms are complained about by an increasing number of patients visiting doctors and physiotherapeutic offices. This is a very serious medical problem, but also a social and economic one. The most important aspect in the treatment of both primary and secondary headaches is their correct diagnosis and correct diagnosis. It is also important to choose the right type of therapy and to educate the patient. The latter has a huge impact because headaches should be treated comprehensively, in an appropriate manner, avoiding the independent, uncontrolled abuse of analgesics, which can lead to many diseases and disabilities.

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