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## ЭТИОЛОГИЯ И ЛЕЧЕНИЕ МИГРЕНИ. РАСПРОСТРАНЕННОСТЬ СРЕДИ СТУДЕНТОВ УГМУ

Яна Андреевна Вильянт<sup>1</sup>, Анастасия Сергеевна Исакова<sup>2</sup>, Ирина Вячеславовна Ярунина<sup>3</sup>

<sup>1-3</sup>ФГБОУ ВО «Уральский государственный медицинский университет»

Минздрава России, Екатеринбург, Россия

<sup>2</sup>isakovaanastasia479@gmail.com

### Аннотация

**Введение.** Мигрень является седьмой основной причиной нетрудоспособности во всем мире, однако ей уделяют относительно мало внимания как серьезной проблеме общественного здравоохранения. Мигрень — это не просто сильная головная боль. Это инвалидизирующее неврологическое заболевание с различными симптомами и подходами к лечению. **Цель исследования** — определить причины и принципы лечения приступов, проанализировать рекомендуемые профилактические меры, оценить распространенность данного заболевания среди студентов УГМУ. **Материалы и методы.** В ходе исследования мы сравнили данные научных журналов с результатами проведенного анкетирования и обобщили их. **Результаты.** В результате анкетирования мы выяснили, что мигрень достаточно распространена среди студентов УГМУ, основным триггером мигрени является стресс и чаще заболевание встречается среди женщин. **Обсуждение.** На возникновение мигрени влияют генетическая предрасположенность, заболевания сердечно-сосудистой системы, сенсбилизация, действие нейропептида CGRP, структурные изменения в головном мозге. Приступы часто провоцируются различными факторами окружающей среды. Для профилактики мигрени используются следующие виды лекарств: противоэпилептические препараты, антидепрессанты, бета-блокаторы, антагонисты кальциевых каналов, антагонисты серотонина, ботулинические нейротоксины, НПВП и другие. **Выводы.** Мигрень — распространенное среди студентов заболевание, на возникновение которого влияют факторы как внешней, так и внутренней среды. Студентам следует уделять этой проблеме больше внимания, ведь своевременная медикаментозная терапия снижает частоту и тяжесть приступов мигрени.

**Ключевые слова:** мигрень, триггеры мигрени, распространенность.

## ETIOLOGY AND TREATMENT OF MIGRAINE. PREVALENCE AMONG USMU STUDENTS

Yana A. Vilyant<sup>1</sup>, Anastasia S. Isakova<sup>2</sup>, Irina V. Yarunina<sup>3</sup>

<sup>1-3</sup>Ural State Medical University, Yekaterinburg, Russia

<sup>2</sup>isakovaanastasia479@gmail.com

### Abstract

**Introduction.** Migraine is the seventh leading cause of disability worldwide, but it receives relatively little attention as a serious public health problem. Migraine is not

just a severe headache. It is a disabling neurological disease with various symptoms and treatment approaches. **The aim of the study** - to determine the causes and principles of treatment of seizures, to analyze recommended preventive measures, to assess the prevalence of this disease among USMU students. **Materials and methods.** In the course of the study, we compared the data of scientific journals with the results of the survey and summarized them. **Results.** As a result of the survey, we found out that migraine is quite common among USMU students, the main trigger of migraine is stress and the disease is more common among women. **Discussion.** The occurrence of migraine is influenced by genetic predisposition, diseases of the cardiovascular system, sensitization, the action of the neuropeptide CGRP, structural changes in the brain. Seizures are often provoked by various environmental factors. The following causes of medications are used for migraine prevention: antiepileptic drugs, antidepressants, beta-blockers, calcium channel antagonists, serotonin antagonists, botulinum neurotoxins, NSAIDs, and others. **Conclusions.** Migraine is a common disease, the occurrence of which is influenced by factors of both external and internal environment. Students should pay more attention to this problem, because timely drug therapy reduces the frequency and severity of migraine attacks.

**Keywords:** migraine, migraine triggers, morbidity.

## **INTRODUCTION**

Migraine is highly prevalent and is the seventh leading cause of time spent disabled worldwide [1], yet it has received relatively little attention as a major public health issue. Migraine is not just a bad headache. It's a disabling neurological disease with different symptoms and different treatment approaches compared to other headache disorders [2]. The symptoms of migraine vary from person to person.

**The aim of the study** - to determine the causes and principles of treatment of seizures, to analyze recommended preventive measures, to assess the prevalence of this disease among USMU students, identify the main provoking factors of the disease and find out the attitude of students to this problem.

## **MATERIALS AND METHODS**

The study involved an analysis of theoretical sources, treatment methods, and medical records. We conducted a survey of USMU students as a category of the population most susceptible to stressful situations. After that, the obtained data were compared, generalized and systematized. The Google Forms program was used to collect and analyze statistical data.

## **RESULTS**

To find out how often young people suffer from this disease, what prevention and treatment measures are most often used, we conducted an anonymous survey among students of USMU. A total of 89 people took part in the survey, of which 87.6% were women and 12.4% were men aged 18 to 25. 42.7% of respondents reported that they are often disturbed by migraine attacks, but only 14.1% of survey participants are registered with a neurologist. Migraine is most common among women, and the most common form of migraine is without aura (35.7%). The most common triggers of migraine with aura according to the survey results were: stress (51.9%), loud sounds (13%), strong smells (7.8%). Drug therapy is used in 67.5% of

cases, most often respondents answered that healthy sleep helps them to relieve an attack (72.3%). Despite the fact that migraine significantly worsens the quality of life, 78% of the survey participants do not take any preventive measures to reduce the frequency and severity of headache attacks. This indicates that insufficient attention is being paid to this health problem.

## **DISCUSSION**

The data of our survey converge with the results of scientific articles that we have read. According to one of the articles, migraines are two to three times more common in women than in men. [1] Data from another article indicate that the most common triggers of migraine with aura are stress (80% of participants) hormonal changes in women (65%), weather (53%), sleep disturbance (50%), odors such as perfume (44%). [4]

To better understand and evaluate the results obtained, it is necessary to understand the etiology of this disease.

The word migraine is derived from the Latin word «hemicrania», meaning «half skull». The term «migraine» was first used by the Greek physician, Galenus of Pergamon. [3] Migraines are thought to have a variety of possibly causes.

It is very difficult to pinpoint the genetic basis of migraines because it is likely a complex interaction of many factors. However, migraines are probably inherited. In fact, there's a higher rate of both twins having migraine headaches in identical twins, with the same genetic makeup, versus fraternal twins, with different genetic makeup. So, the risk of a person having a migraine is three times greater if they have relatives who also experience migraines. There are a few abnormalities in the neural pathways of the brain that have been identified in certain groups and individuals who get migraines that are linked to genetics. However, genes do not act alone-additional environmental factors make individuals more prone to migraines. Researchers are still looking for the exact genetic causes so effective treatments can be created.

Some studies have shown that some people with migraines have altered blood flow to areas of the brain that involve migraine symptoms. Structural changes in the brain have also been identified.

Calcitonin gene-related peptide (CGRP) plays an essential role in the pathogenesis of migraines. CGRP is a neuropeptide, which has a vasodilatory effect on the cerebral and the dural vessels. It mediates pain transmission to the central nervous system from the intracranial vessels. It is also involved in the vasodilatory component of neurogenic inflammation. [4]

Women may be prone to migraines since estrogen has several important actions in the central nervous system. Estrogen may affect some chemical mediators, such as magnesium, which may alter the excitatory and inhibitory neural pathways in the brain. When estrogen concentrations decline in the brain during your period, serotonin concentrations decline too. This causes a release of substances that cause vasodilation (widening) of cranial blood vessels and sensitization of specific nerves in the brain that may lead to the symptoms of a migraine.

Sensitization is the process by which neurons, the cells in the brain, become increasingly responsive to stimulation. This is likely the cause for many of the clinical symptoms of a migraine, which includes worsening of pain with certain motion, sensitivity to painful stimuli, throbbing sensation, and even increased sensitivity to painful things that may not normally cause pain.

The evidence is currently conflicting, but associations have been made between migraines and a congenital heart defect called a patent foramen ovale. Other congenital heart defects, such as an atrial septal defect, have been linked to migraines. The mechanism as to why this might occur is not completely understood. It's possible that an underlying genetic basis ties the two conditions together. [5]

As already noted, the symptoms of migraine are ambiguous. However, there are several main indicators that may partially manifest in migraines.

The headache is moderate or severe and often intense, it can be unbearable. The pain can be on one side of the head or on both, in front or behind. Some patients experience migraines in or around the eyes and behind the cheeks. This pain causes a pounding or throbbing sensation that increases with physical activity or any movement. Nausea, vomiting, sensitivity to light, noise and odors may also occur. A migraine attack lasts from four hours to several days. [2]

Often, migraine is caused by various environmental factors, among them were highlighted: stress, hormone changes in women, not eating, weather, sleep disturbance, odors, such as perfume, neck pain, lights, alcohol, smoke, sleeping late, heat, food, exercise and sexual activity. Poor sleep quality and obesity have both been associated with increased migraine frequency and severity. Sleep apnea, jaw clenching, or teeth grinding may also trigger migraines. These things may exist together, as those who are obese may have sleeping disorders, such as sleep apnea. Migraine headaches can sometimes get worse by constant movement, physical exertion, and rapid head motion. Certain psychiatric conditions may also impact migraine frequency. Caffeine can be a trigger as well.[5]

If you are prone to migraines, prevention can go a long way toward improving your quality of life. In addition to lifestyle modifications, this can include medications, complementary and alternative (CAM) treatments, and in some cases, even surgical approaches. Migraine treatment involves abortive and prophylactic therapy. Abortive treatment is to stop a headache that has already started, from progressing further. Prophylactic therapy is aimed at reducing the frequency or severity of headaches, thereby improving the quality of life of patients.[6]

The following classes of medications are used for migraine prevention: antiepileptic drugs, antidepressants, beta-blockers, calcium channel antagonists, serotonin antagonists, botulinum neurotoxins, NSAIDs, and others (including riboflavin, magnesium, and Peta sites). A drug is chosen based on its efficacy, its adverse event profile, the patient's preference, and the presence of any coexistent or comorbid conditions. Preventive drugs with the best proven efficacy for migraine are certain beta-blockers, divalproex sodium, and topiramate. The chosen drug should

have the best risk-to-benefit ratio for the individual patient and, where possible, take advantage of the drug's side effect profile. [7]

### **CONCLUSION**

Migraine is a genetically influenced complex disorder characterized by episodes of moderate-to-severe headache, most often unilateral and generally associated with nausea and light and sound sensitivity.

Migraine is quite common among USMU students, the main trigger of migraine with aura is stress. According to statistics, the disease is more common among women, which is confirmed by scientific studies. Also, the occurrence of migraine is affected by diseases of the cardiovascular system, sensitization, the action of the neuropeptide CGRP, structural changes in the brain. Migraines are often caused by various environmental factors.

The clinical approach to migraine patients includes making the correct diagnosis, identifying and addressing aggravating factors, making a treatment plan for acute attacks, and determining the need for daily therapy to prevent attacks.

Preventive treatment aims to reduce attack frequency and to improve responsiveness to acute attacks' severity and duration, and reduce disability.

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### **Сведения об авторах**

А.С. Исакова – студент

Я.А. Вильянт – студент

И.В. Ярунина – ассистент

### **Information about the authors**

A.S. Isakova – student

Y.A. Vilyant – student

I.V. Yarunina – Assistant

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