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CLINICAL AND DIAGNOSTIC ASPECTS AND RISK FACTORS OF MIGRAINE IN WOMEN OF REPRODUCTIVE AGE

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Abstract: Migraine is one of the most common neurological diseases, which has a significant impact on the quality of life of patients and has significant socio-economic significance for society. According to the World Health Organization (WHO), migraine is among the twenty most disabling human diseases and ranks third among the causes of temporary disability in the world. Epidemiological studies show a pronounced gender predisposition to migraine: this disease occurs 2-3 times more frequently in women than in men, with the peak incidence occurring specifically during the reproductive period of life. According to international statistical data, the prevalence of migraine among women of fertile age is 15-18%, which is significantly higher than in other age groups and the male population.

Key words: women of fertile age, migraine risk factors, morphology, neurology

Relevance. Migraine occurs 3 times more often in women than in men and affects 18-25% of women of fertile age. Hormonal changes, especially fluctuations in estrogen levels, significantly affect the frequency and severity of migraine attacks. In women of fertile age, migraine causes not only individual suffering but also affects reproductive health, causes complications during pregnancy, and reduces work capacity. In Western Europe, an average of 27,000 euros are spent annually on the treatment and rehabilitation of women of childbearing age suffering from migraine. Considering these figures, it should be noted that the features of migration in women have long been insufficiently studied. Despite the fact that gender-sensitive data are increasingly being collected, many questions about the pathogenetic mechanisms and approaches to the diagnosis of migration in women of fertile age remain unanswered.

In the world, migraine can occur in people of any age, but the most active course of the disease in women is noted at the age of 20-45. During this period, factors such as the regularity of hormonal cycles, the use of contraceptives, pregnancy, and the postpartum period have a strong influence on the clinical course of migraine. Unlike men, in women, migraine is often associated with the menstrual cycle and exhibits specific phenotypic features of the disease.

A number of scientific studies conducted in the world have shown that the possibilities of early and accurate diagnosis of migraines are still limited. In addition to traditional clinical diagnostic methods, the use of modern morphological and neuroimaging research methods allows for a deeper understanding of the pathogenetic basis of the disease. Diagnosis based on a comprehensive approach led to a change in the unclear diagnosis of migraine "headache" in 75% of women and increased treatment effectiveness by 60%. Analysis of the conducted scientific research revealed the need to conduct special studies on migration, taking into account the gender characteristics of women of fertile age, since the hormonal and neurophysiological characteristics of the male and female body differ significantly from each other. It is also necessary to take into account the sharp differences in the clinical course of migraines in the period of reproductive age, pregnancy, menopause, and other

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periods of hormonal transition. These differences served as the basis for conducting a number of epidemiological studies. Comprehensive diagnosis of migraine in women of fertile age, the lack of clear morphological criteria, and insufficient sensitivity of existing diagnostic methods allow us to assert that the problem of migraine is acute in the field of modern neurology [1].

In the field of neuroimaging, issues of structural changes in the brain and functional asymmetry (Department of Neurology Harvard Medical School), biomarkers, principles of personalized medicine, methods of neuromodulation in the prevention of migraine (European Headache Federation, 2021) have been studied. In women of reproductive age, migraine is distinguished by its polymorphism, a significant diversity of etiology and risk factors, as well as the presence of hormonal factors that increase the risk of its development [2].

In Uzbekistan, a number of successful scientific studies have been conducted aimed at the early detection of neurological pathologies and their complications. A number of other scientists studied modern approaches to the treatment of cognitive impairments in neurological diseases. Factors contributing to the development of migraine include frequent endocrine changes in women during physiological exertion (pregnancy, lactation, menopause, their pathological course), as well as a high frequency of hormonal imbalances developing as a result of interference in the reproductive organs [3]. In the case of organizing rehabilitation measures after an acute attack of the disease with individual approaches focused on women, it is necessary to increase the effectiveness of diagnostic measures by using the existing conditions in many medical institutions, and not the most modern and expensive diagnostic methods. The results of our research undoubtedly affect the quality and accuracy of morphological and neurological studies. However, the lack of an algorithm for predicting the risk of developing migraine in women of fertile age, modern comprehensive diagnostics, and personalized treatment indicates the relevance of the problem [4].

Among neurological diseases, the most common are symptoms associated with headaches. Among them, migraine occupies the first place as a transdisciplinary and multifactorial problem. Migraine is characterized by recurring episodes of hemicrania. The course of migraine varies and can be episodic, subacute, or chronic. According to many authors, the most distinctive sign of the disease is the presence or absence of aura with a wide spectrum of symptoms. This interpretation of the disease appeared in the last decade. Previously, at the beginning of the century, migraine attacks were associated with endocrinological insufficiency, in particular, with a sharp decrease in blood sugar levels (hypoglycemia) against the background of accompanying somatosensory disorders. Today, migraine is considered a genetically determined disease. Sephalgia attacks are usually unilateral, often accompanied by complications such as nausea and vomiting. The trigger for migraine attacks is often increased sensitivity to something, for example, bright light (at night) or a sharp sound. The exacerbation period or episodic period of migraine attack itself is uneven in duration, can last from several hours to several days. The conditions and factors that provoke an attack - hormonal insufficiency, stressful situation, influence of the external environment - all this mainly explains the cause-and-effect mechanism of the disease in women. At the same time, it has been proven that the most common type of migraine, occurring in 80% of cases, is migraine without aura[5].

The term "migraine" comes from the Greek word "hemicranias," which means "half of the head." This precisely characterizes the general nature of the disease, as patients' complaints are related to pain in one half of the head. However, recent studies show signs of bilateral pain, most often in the frontal or occipital part of the head. This causes bilateral sensation and complicates the diagnosis of migraine. A pain attack in migraine is characterized by a pulsating type of pain, which intensifies with sudden movement or physical exertion. Research by scientists on the experimental study of migraine is aimed at studying the pathological mechanism of migraine development. At the same time, factors activating the trigemino-vascular concept were considered as the main causes of the disease.

Proponents of this concept assert that the pathogenesis of migraine is interconnected with energy deficiency syndrome. E.K. Gross, M. Lisitski, D. Fisher, P.S. Shandor, Y. Shonen (2020) in their research considered migraine as a disproportionate mismatch of the brain's energy potential from birth

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and a "conservative adaptive reaction" to the level of body energy consumption in individuals with genetic predisposition [5]. Experiments on animals and clinical trials revealed the possibility of metabolic disorders in the system of pathophysiology of migraine.

A migraine attack is the body's reaction to oxidative stress, arising under conditions of excess antioxidants. In addition, a migraine attack helps the body restore and maintain the stability of the internal environment of the brain (homeostasis), while simultaneously eliminating intoxication from oxidative stress. In the world, the prevalence of migration among the adult population is from 17 to 20% and ranks eighth in the world in terms of disability. It is mainly found among women. According to the World Health Organization, migraine is among the diseases causing disability among the working-age population [6].

Studies in recent years show that women of fertile (young) age are the main patients with migraine. The difference is determined by two types of migraine: with aura and without aura. A study conducted by Rasmussen and co-authors in 2023 presented a multifactorial comparison on etiopathogenesis between the two types of migraine (with aura and without aura). The total number of participants was more than a thousand, while the ratio of men and women in migraines without aura was 1:7, and in migraines with aura - only 1:2. This indicates a significant predominance of women compared to men in the widespread type of migraine [7].

The age difference depending on the type turned out to be quite significant, while it was found that the initial age for migraines with aura was higher than for migraines without aura. However, statistical data from foreign studies show that in the age range from 30 to 35 years, the prevalence of both types of migraines is the same and averages 30%. Until the age of 30, migraine without aura occurs twice as often as migraine with aura (45% vs. 25%). When comparing the two types, migraine with aura in individuals over 40 years of age averages 32%, and migraine without aura - 17%. The results of the epidemiological analysis conducted by Chalmer and co-authors in 2023 showed similar data, the study was conducted on more than 65 thousand people. Migraine without aura was significantly more frequent in women compared to men (OR 1.22), and the peak morbidity was observed in the fertile period.

In the studies of foreign specialists in the field of the pathogenesis of migraine, several areas related to the molecular nature of the disease have been studied. In the first place is the study of the trigeminovascular concept as an important and fundamental aspect of the development of migraine headache syndrome. Scientists have determined that a peptide directly linked to the calcitonin genome (CGRP) represents a neuropeptide chain linked to the trigeminal nerve. Its concentration in the blood increases sharply during an attack of migraine, regardless of the type of disease. However, Professor Godsby, together with co-authors, comparing the levels of CGRP neuropeptide in patients with migraine with aura and without aura, noted practically identical blood ejection rates. At the same time, high indicators of an increase in the concentration of CGRP in peripheral blood were less pronounced, unlike the level of neuropeptide concentration in central circulation.

In recent years, scientific research has raised the issue of "cortical spreading depression" - a term proposed by scientists as a factor provoking aura [11]. This concept puts forward the following hypotheses: firstly, stimulation of trigeminovascular pathogenesis, exacerbating pain syndrome. Moreover, specialists developing this hypothesis describe types of migraines that do not show clinical signs, called "masking" aura. This indicates that migraine with aura and without aura is the same disease, that is, the only disease that differs only in the diversity of clinical and neurological signs. The authors consider aura to be an additional phenomenon accompanying other events not related to migrainous pain; accordingly, aura is a disorder independent of headache. In addition, researchers found that the hypothalamus is activated before the onset of migraine, regardless of the presence of aura. Magnesium content is of great importance in neurological diseases, especially in headaches, and it has been proven that its deficiency disrupts the nociceptive system, neurotransmitter secretion, and leads to platelet hyperaggregation. All these processes constitute the mechanism of migraine [12].

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Since sex hormones and reproductive processes have different forms of manifestation, the clinical signs of migraine vary differently. Menstrual-associated migraine is more common in patients without aura - 75%, while migraine with aura occurs in 25%, whose menstrual attacks are associated with menstruation. Analysis of the research results proves that migraine, associated with female sex hormones and the reproductive system cycle, changes the clinical profile of migraine and affects the diversity of migraine types. A characteristic feature of migraine attacks, noted by all patients with migraine with and without aura, is a favorable condition of patients during pregnancy, a sharp decrease in the frequency of migraine attacks, as well as complete remission in 60% of cases. Migraine with aura is less prone to remission during pregnancy compared to migraine without aura, which is observed with the onset of pregnancy. Also, scientists have proven that nursing women are protected from migraine attacks, especially patients without aura. However, in 35% of migraine patients with aura, the frequency of attacks may increase. In 65% of cases, external factors of sex hormones classify migraine. Scientists have found that migraine attacks constitute the highest percentage among patients taking hormonal contraceptives. Further examination of patients receiving estrogen therapy showed a deterioration in their condition as a result of an increase in migraine attacks [13].

Conclusions: Thus, we emphasized that an increase in estrogen levels during ovulation causes a migraine attack, while a decrease in estrogen levels leads to migraines without aura. Conversely, an increase in progesterone levels in women taking contraceptives reduces the frequency of both types of migraine attacks. Researchers also assessed the risk of stroke in patients with migraine.

Bibliography:

1. Ferro J.M. Paradoxical Embolic Syndromes // Journal of Neurology. - 2019. - Vol. 266. - P. 1159-1169.
2. Jacobs B.S., Bogousslavsky J. Female Stroke Epidemiology: A Systematic Review // Stroke. - 2018. - Vol. 49(3). - P. 726-732.
3. Kamalova M. I., Khaidarov N. K., Islamov Sh.E. Clinical and demographic quality of life for patients with ischemic stroke in Uzbekistan: An International Multidisciplinary Research Journal.
4. Kamalova M. I., Islamov Sh.E., Khaydarov N.K.// morphological changes in brain vessels in ischemic stroke. Journal of Biomedicine and Practice 2020, vol. 6, issue 5, pp.280-284
5. Khaidarov Nodir Kadyrovich, Shomurodov Kahramon Erkinovich, & Kamalova Malika Ilhomovna. (2021). Microscopic Examination Of Postcapillary Cerebral Venues In Hemorrhagic Stroke. The American Journal of Medical Sciences and Pharmaceutical Research, 3(08), 69-73.
6. Lebedева E.R., Gilev D.V. Gender Differences in Clinical Manifestations of Stroke // Annals of Clinical and Experimental Neurology. - 2018. - Vol. 12(3). - P. 45-53.
7. Smith E.E., Schwamm L.H. Sex Differences in Stroke: Epidemiology, Risk Factors, and Outcomes // Circulation Research. - 2021. - Vol. 128(7). - P. 1111-1126.
8. Gongora-Rivera F., Davalos A. Precision Medicine in Stroke: From Pathophysiology to Treatment // Stroke. - 2020. - Vol. 51(6). - P. 1907-1914.
9. Putaala J., Yesilot N. Stroke in Young Adults // Nature Reviews Neurology. - 2017. - Vol. 13(12). - P. 729-738.
10. Colivicchi F., Basili S. Cardiovascular Risk Factors and Stroke Prevention in Young Women // European Heart Journal. - 2019. - Vol. 40(14). - P. 1128-1136.
11. Siebner HR, Funke K, Aberra AS, Antal A, Bestmann S, and Chen R, et al. Transcranial magnetic stimulation of the brain: What is stimulated? - A consensus and critical position paper. Clin Neurophysiol 2022; 140:59–97.

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12. Sinitsyn DO, Poydasheva AG, Bakulin IS, Legostaeva LA, Iazeva EG, Sergeev DV, et al. Detecting the Potential for Consciousness in Unresponsive Patients Using the Perturbational Complexity Index. Brain Sci 2020; 10(12).

13. Somaa FA, de Graaf TA and Sack AT Transcranial Magnetic Stimulation in the Treatment of Neurological Diseases. // Front. Neurol. 2022, 13:793253. doi: 10.3389/fneur.2022.793253

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