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RISK FACTORS AND PREVENTION OF ISCHEMIC STROKE

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Introduction. Stroke is a clinical syndrome represented by focal neurological and/or general cerebral disorders that develops suddenly due to an acute violation of the cerebral blood circulation, persisting for at least 24 hours or ending with the death of the patient in these or earlier terms [1, 2].

Keywords: ischemic stroke, risk factor, prevention, diabetes mellitus, arterial hypertension, transient ischemic attack, lipid metabolism disorder, obesity.

The mortality rates of ischemic stroke in the acute stage are 35%. The most important direction in neurology is the prevention and reduction of risk factors in the development of ischemic stroke. The most important of them include age, hypertension, transient ischemic attacks, impaired lipid metabolism, diabetes mellitus 2 type, hypercoagulation, smoking, obesity, low physical activity.

Age is one of the most significant risk factors for the development of ischemic stroke. In the age group. In he 45-54–year-old group, ischemic stroke is diagnosed annually in 1 patient out of 1000, in 65-74 - already in 1 out of 100 people; starting from 55 years, every decade the risk of stroke doubles [1, 3].

According to the World Health Organization (WHO), arterial hypertension affects approximately 45% of patients aged 50 years, 60% – at the age of 60 years, 70% – at the age of 70 years. In general, arterial hypertension increases the risk of ischemic stroke by 5 times. The risk of ischemic stroke is directly related to the degree of arterial hypertension. Increase systolic blood pressure on 10 mmHg leads to an increase in the risk of stroke by 1.9 times in men and 1.7 times in women.

The presence of isolated systolic hypertension also independently increases the risk of stroke from 2 to 4 times. In addition to this, the risk of development increases with increasing levels of blood pressure (BP) within normal pressure [5, 6]. This is important because the definition of hypertension varies among different countries, and the normal blood pressure level on one continent may differ from a "certain elevated" level on another. An increase in blood pressure by 7.5 mm Hg doubles the risk of ischemic stroke in normotensive patients [1, 3, 8].

Various parameters characterizing arterial hypertension proper and the risk of stroke associated with it have been established, the rise of both systolic blood pressure and diastolic blood pressure (DBP), left ventricular myocardial hypertrophy, hypertensive arterial crises.

Transient ischemic attack is also associated with a high risk of ischemic stroke. Population studies [7] revealed that the incidence of ischemic stroke is 17%, and after a transient ischemic attack is up to 25%.

In a study by E.V. Guseva et al. [3], it was found that 10% of patients developed an ischemic stroke within 2 days of its onset within 90 days after a transient ischemic attack.

Violation of lipid metabolism is a significant risk factor leading to the development of ischemic stroke. The relationship between elevated cholesterol levels and ischemic stroke is mediated through the development of a stenosing process in the main and large intracerebral arteries. Currently, great importance is attached to the evaluation of the ratios of individual fractions of low and high

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lipoproteins density. Diabetes mellitus is also a significant risk factor for stenosing atherosclerotic lesions of the main arteries.

The risk of ischemic stroke in the presence of type 2 diabetes mellitus increases by 1.5–2 times. Z.A. Suslina et al. [8] have shown that hypercoaculatory conditions can increase the risk of ischemic stroke. Hereditary thrombophlebias are the cause of ischemic stroke mainly in pediatric practice. There is a convincing evidence base, indicating that smoking is an independent risk factor for the development of ischemic stroke [1, 3]. The risk associated with smoking, applies to patients of all ages, both sexes. The relative risk of ischemic stroke in heavy smokers (40 cigarettes a day) is 2 times higher than in moderate smokers (10 cigarettes a day), in women this dependence is more pronounced [1]. The risk of stroke decreases after smoking cessation, and the increased risk is completely leveled after 5 years [3, 5].

Obesity is one of the risk factors for ischemic stroke. Risk of ischemic stroke increases as body weight increases; abdominal obesity determines the risk of stroke to a greater extent than the general one, estimated by the body mass index [3]. The effect of obesity and overweight on the development of stroke is complex. Obesity is associated with risk factors such as hypertension, diabetes mellitus, dyslipidemia. In men, according to Z.A. Suslina et al. [8], an increased body mass index is associated with a significantly increased frequency of ischemic stroke, regardless of the presence of hypertension, diabetes mellitus and cholesterol levels.

Sufficient physical activity provides beneficial effect on risk factors for ischemic stroke. In men and women with moderate physical activity, the risk of recurrent acute vascular disorders is reduced by 20%, and in patients with increased activity – by 27%. This is explained by the fact that physical activity reduces blood pressure and body weight. Lifestyle changes, regular physical activity minimize the risk of ischemic stroke.

The purpose of the study. To identify the most significant risk factors for the development of ischmic stroke and to develop criteria for the prevention of cerebral circulatory disorders.

Materials and methods. 51 patients aged 68±6 years were examined, including 28 (54.9%) women and 23 (45.1%) men who were treated in the neurological department of the ASMI Clinic. All patients underwent a comprehensive examination, including the collection and analysis of clinical and anamnestic, laboratory, psychometric and neuroimaging data.

Statistical data processing was carried out methods of variational statistics using Student's t-test and angular transformation Fischer. The differences were considered significant at $p<0.05$.

Results and their discussion. It was revealed that 12 (23.53%) patients had a transient ischemic attack at the time of examination. The time interval between a transient ischemic attack and an ischemic stroke was 2±0.5 years. 6 (11.76%) patients were diagnosed with compensated type 2 diabetes mellitus. The average period of diabetes mellitus was 3 ± 0.6 years. Obesity of 1-3 degrees was detected in 5 (9.8%) patients. It was found that in 18 (35.3%) patients, the ischemic focus was localized in the basin of the left internal carotid artery, in 17 (33.3%) patients in the vertebrobasilar basin, in 16 (31.4%) patients in the basin of the right internal carotid artery. Atherothrombotic character of ischemic stroke was diagnosed in 40 (78.4%) patients, cardioembolic ischemic stroke – in 8 (15.7%) patients, lacunar – in 3 (5.9%) of patients. It was revealed that all patients had focal neurological symptoms: right-sided pyral symptoms were diagnosed in 20 (39.21%) patients, left–sided - in 31 patients (60.79%). Sensitive disorders are presented in the form of hemihypesthesia in 8 (15.68%) patients, the polyneuristic type of sensitivity disorder was detected in 10 (19.6%) patients. Cerebellar symptoms in the form of intentional tremor when performing finger-hammer and knee-heel tests was diagnosed in 12 (23.53%) patients.

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The highest levels of lipid parameters and blood clotting were diagnosed in patients with ischemic stroke in the left internal carotid artery basin.

In general, 3 groups of patients were identified. First group: patients with impaired lipid metabolism and arterial hypertension – 35 (68.6%). In them, the degree of arterial hypertension does not depend on the localization of the vascular basin and the pathogenetic nature of ischemic stroke. The second group: patients with primary arterial hypertension 1-3 degrees – 11 (21.6%). The third group: patients with metabolic syndrome – 5 (9.8%). Statistically significant differences in the assessment of factors such as smoking, improper lifestyle and gender were not reliably detected.

Conclusion. It has been established that the risk factors for ischemic stroke are arterial hypertension, lipid metabolism disorder, transient ischemic attack, diabetes mellitus, obesity. In order to prevent the development of ischemic stroke, it is necessary to take patients with these risk factors under medical supervision. Adequate treatment of patients with arterial hypertension, correction of carbohydrate and lipid metabolism contribute to the prevention of ischemic stroke. Detection, dispensary observation and ongoing prevention and correction risk factors lead to a decrease in morbidity and mortality from ischemic stroke.

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