

The Main Risk Factors and Their Combination in Cohorts with a Progressive and Stable Course of the Disease to Identify the Most Significant Factors Influencing The Disease Progression of Acute Cerebral Circulatory Disorders

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Abstract: Acute cerebral circulatory disorders are one of the main causes of morbidity and mortality worldwide. According to WHO, at least 5.6-6.6 million people develop stroke each year, and one third of stroke survivors of working age die. Identifying and controlling risk factors for stroke is the best way to primary prevention. There is a mutual influence between many factors, so their combination leads to a greater increase in the risk of the disease than the simple arithmetic addition of their isolated action.

Key words: initial manifestations of cerebrovascular insufficiency, prevention of acute stroke

Introduction. Stroke is one of the acute medical and social problems, which is associated with high morbidity, mortality and disability of the disease. In Russia, stroke develops in 400-450 thousand people annually.

Lethality in the acute period of stroke in Russia reaches 32-42%, increasing to 48-63% by the end of the first year after stroke. Post-stroke disability ranks first among all causes of disability and reaches 3.2 per 10,000 population. Twenty per cent of stroke survivors return to work, while one third of stroke patients are of working age.

There are more than 1 million people in the country who have had a stroke, 80 per cent of whom are disabled. For comparison: in the most favourable countries by socio-economic criteria: Sweden, Finland, Norway, Japan, Canada, USA, Australia, the incidence rates are 2-4 times lower than in Russia. WHO experts explain this mainly by the active implementation of national programmes to promote a healthy lifestyle, as well as active systematic medical prevention of cerebrovascular disease (CVD) risks.

In addition, ONMC is an important economic problem. Stroke remains one of the leading causes of death in Russia. In Russia, stroke mortality is one of the highest in the world: in 2006, it amounted to 175 people per 100,000 population. In 2014, the absolute number of stroke deaths was 297.9 thousand people in the Russian Federation. In 2016, the death rate in the Russian Federation from stroke was 611.5 per 100,000 people, i.e. it caused 48.7% of all deaths in the country. Despite the fact that primary prevention is crucial in reducing mortality and disability due to stroke, a significant effect in this regard is provided by the optimization of the care system for patients with ONMC, the introduction of therapeutic and diagnostic standards for these patients, including rehabilitation measures and prevention of recurrent strokes. The European Regional Office of the World Health Organization (WHO) believes that the creation of a modern system of care for stroke patients will reduce mortality during the first month of the disease to 20% and ensure independence in daily life 3 months after the onset of the disease for at least 70% of surviving patients.

According to the WHO definition, a stroke is a rapidly developing focal or global impairment of brain function that lasts more than 24 hours or leads to death, excluding a different genesis of the disease. Acute cerebrovascular accident (ONMC, stroke) is a sudden (within minutes, less often – hours) the appearance of focal neurological symptoms (motor, speech, sensory, coordination, visual, auditory, etc.) and/or general cerebral disorders (changes in consciousness, headache, vomiting, etc.). Symptoms persist for more than 24 hours. A stroke is always a tragedy for both the patient and his relatives. The population should be informed about the risk factors and prevention of stroke, the need to take care of health from childhood. As you know, human health is 15% determined by heredity, 15% by the level of healthcare, and 70% by lifestyle and environmental conditions. It is important to know that 90% of strokes can be prevented. He is getting younger, as medical practice proves. And if earlier strokes occurred more often after the age of 60, today the attack "overtakes" people much younger – 45-50 years old.

Objective: to compare the prevalence of the main risk factors and their combination in cohorts with a progressive and stable course of the disease in order to identify the most significant factors affecting the progression of the disease in order to prevent acute cerebral circulatory disorders.

Materials and methods of the study: a prospective follow-up (6 months and 6 years) was conducted for 180 women with NPNCM aged 20 to 59 years at the beginning of the study. During this period, the patients were examined twice with an interval of 3 years. When determining the status of "deterioration", the following indicators were taken into account: fatal outcome, transition to a disability group due to hypertension (HD) and coronary heart disease (CHD), the development of transient cerebral circulatory disorders, the appearance of new cases of CVD, deterioration of the course of NPNCM, the development of acute cerebral circulatory disorders. The following risk factors were studied: age, blood pressure, coronary heart disease, obesity, hereditary burden, indicators of the total fraction of β lipoproteins, hypercholesterolemia, psychoemotional stressful situations at home and at work.

Results and discussion. With a progressive course of the disease, $34.6 \pm 2.36\%$ of patients had certain risk factors and only 5.4% did not have them. The value of individual risk factors was taken into account by the coefficient of informativeness, the highest value of which was established for the total fraction of β lipoproteins – 1.0, then for psychoemotional stress – 0.52, hypercholesterolemia – 0.47, burdened heredity – 0.42, overweight – 0.30, coronary heart disease – 0.11 and least of all for hypertension – 0.012.

Most patients had a complex of risk factors, and therefore their integrative effect on the course of the disease was analyzed. In the age group from 20 to 39 years, the following combinations had the greatest pathological significance: hypercholesterolemia with hereditary burden ($46.2 \pm 13.8\%$), hereditary burden and stress (42.8 ± 13.6), β lipoproteinemia and stress (38.5 ± 13.5), as well as hypercholesterolemia, hereditary burden and stress (36.8 ± 12.9).

In the older age group from 40 to 59 years, the following combinations were the most unfavorable: hereditary burden together with β lipoproteinemia (61.9 ± 6.1), hypercholesterolemia and hereditary burden (47.6 ± 6.3), hypercholesterolemia, hereditary burden and β lipoproteinemia (46.0 ± 6.3), as well as hypercholesterolemia, β lipoproteinemia and obesity (30.2 ± 5.8).

All patients underwent individual correction of the corrected risk factors, as a result of which there were no acute cerebral circulatory disorders or acute myocardial infarctions in both age groups in the catamnesis, with the exception of 1 case of fatal infarction, which indicates an undoubted positive effect of secondary prevention measures.

Conclusions. The data obtained will make it possible to more clearly and purposefully organize a system of comprehensive restorative treatment for people with initial vascular pathology of the brain, and the concept of commonality of some risk factors for a number of chronic non-communicable diseases is a theoretical prerequisite for the development of an integrated approach to the prevention of these diseases.

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