

## THE ROLE OF HYPERTENSION IN THE DEVELOPMENT OF ISCHEMIC STROKE

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**Summary:** This article contains anamnestic data on patients who have had an ischemic stroke. 500 patients with a diagnosis of ischemic stroke, 310 patients with a diagnosis of ischemic stroke, and most patients with a diagnosis of hypertension, ischemic stroke. 256 patients who have had an ischemic stroke have hypertension, which allows for immediate diagnosis and treatment.

**Key words:** Ischemic stroke, hypertension.

**Hypertension** (high blood pressure) is one of the leading risk factors for developing an ischemic stroke. Studies show that people with chronically high blood pressure are significantly more likely to suffer strokes than those with normal blood pressure. For a better understanding, it is important to consider the mechanisms of hypertension's effects on the vascular system and brain.

### 1. Hypertension as a risk factor for stroke

Hypertension increases the load on the walls of blood vessels, which contributes to their damage. This can lead to the development of atherosclerosis, inflammation of the vascular walls, and the formation of blood clots. In the context of ischemic stroke, hypertension can cause the following disorders:

- **Increased tension in the walls of blood vessels** — increased pressure increases the likelihood of rupture or narrowing of the arteries that supply the brain with blood.

- **Loss of vascular elasticity**-high blood pressure contributes to the loss of vascular walls of their elasticity, which makes them more susceptible to damage.

- **Formation of atherosclerotic plaques**-hypertension contributes to the accumulation of fatty deposits in the walls of the arteries, which leads to the formation of plaques that can clog the vessels.

- **Increased blood clotting** — with hypertension, the balance in the blood clotting system is disturbed, which can contribute to the formation of blood clots.

### 2. Mechanisms of vascular damage in hypertension

High blood pressure has a long-term effect on the vascular system, which makes it more vulnerable to various diseases, including stroke. Hypertension causes the following changes in blood vessels:

- **Thickening of the artery walls**-high blood pressure leads to thickening and stiffness of the vascular walls, which limits their ability to expand and contract. This interferes with normal blood flow and increases the likelihood of blood clots.

- **Endothelial destruction**-endothelial cells (cells lining the inner surface of blood vessels) can be damaged by prolonged pressure increase, which accelerates the formation of atherosclerotic plaques.

- **Microcirculation disorders**-hypertension can disrupt blood circulation in small vessels, which in turn makes it difficult to deliver oxygen and nutrients to the brain.

### 3. Stroke risk in hypertension

Hypertension increases the risk of ischemic stroke in several ways:

- **Vasoconstriction**-high blood pressure causes narrowing of the arteries, which can lead to impaired blood supply to the brain.

- **Formation of thrombosis**-damaged blood vessels become vulnerable to thrombosis, especially at the sites of atherosclerotic plaques, which can lead to their blockage and ischemic stroke.

- **Cardioembolism**-Hypertension increases the risk of developing heart diseases such as atrial fibrillation, which can cause blood clots to form in the heart and travel to the brain, causing a stroke.

### 4. The impact of blood pressure on stroke risk

Studies show that the higher the blood pressure level, the higher the risk of stroke. In particular:

- People with blood pressure above 140/90 mmHg are twice as likely to have a stroke as those with normal blood pressure.

- Controlling blood pressure even at 130/80 mmHg reduces the risk of stroke by 20-30%.

### 5. Treating hypertension to prevent stroke

Effective hypertension management significantly reduces the risk of ischemic stroke. Important prevention measures include:

- **Medication** — medications that lower blood pressure, such as ACE inhibitors, beta blockers, diuretics, and calcium channel blockers, help control blood pressure levels and reduce vascular strain.

- **Lifestyle changes** such as quitting smoking, reducing alcohol consumption, following a diet low in salt and fat, increasing physical activity, and controlling body weight all contribute to blood pressure normalization.

- **Blood pressure monitoring**-regular measurement of blood pressure allows you to detect hypertension in a timely manner and start treatment at an early stage.

### 6. Prognosis and rehabilitation

People with hypertension who have suffered a stroke should undergo long-term rehabilitation. It is important to normalize blood pressure, monitor cholesterol levels,

undergo physical therapy and, if necessary, adjust medication. The faster normal blood circulation is restored, the fewer the consequences of a stroke.

Features of therapy of concomitant diseases Elderly people often have other chronic diseases, such as diabetes mellitus, heart disease, and kidney failure, which also requires a specific approach to treatment. Diabetes mellitus requires careful correction of blood sugar levels to prevent deterioration of the patient's condition after a stroke. Heart conditions such as arrhythmias may require the use of antiarrhythmic medications. An important aspect is regular monitoring of the patient's condition in order to adjust the treatment in time.

### **Conclusion**

Hypertension is one of the most significant risk factors for the development of ischemic stroke. An increase in blood pressure has a harmful effect on blood vessels, which increases the likelihood of thrombosis, atherosclerosis and other diseases leading to stroke. However, timely treatment of hypertension, blood pressure control, and a healthy lifestyle can significantly reduce the risk of stroke and improve the quality of life of patients.

It is important to take into account the age characteristics of the patient, concomitant diseases and an increased risk of complications. Treatment should be timely and individualized, including thrombolytic therapy, anticoagulant treatment, surgical intervention, if necessary, and long-term rehabilitation.

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