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HYPERTENSIVE DISEASE: HISTORY OF NOSOLOGY DEVELOPMENT

Abstract: The article presents data from domestic and foreign literature on the evolution of ideas about hypertension and the evolution of manifestations of the disease or its clinic. The concept of the mechanisms of development of arterial hypertension is presented in detail.

Keywords: arterial hypertension, historical aspects.

Hypertension (synonyms - essential arterial hypertension, primary arterial hypertension) is a disease of the cardiovascular system that develops as a result of primary dysfunction of the higher vasoregulatory centers and the subsequent activation of neuro-hormonal (hypothalamic) and renal mechanisms. In this case, an increase in blood pressure (BP) is not caused by the body's natural reactions to certain physiological situations, but is a consequence of an imbalance in the systems that regulate blood pressure. The insidiousness of the disease is that it can proceed unnoticed by the patient himself. The disease manifests itself with arterial hypertension above 130/90 mm Hg. Art. as follows: a person is worried about headaches, irritability, dizziness, his memory deteriorates, his working capacity decreases, but these symptoms can disappear after rest, and the patient does not consult a doctor for years. Over time, hypertension progresses, the symptoms become permanent and in the later stages are accompanied by damage to target organs: kidneys, heart, central nervous system. The increase in blood pressure until the 90s was called hypertension. The terminology has been revised, and now the term "hypertension" can be found more often. When diagnosed with high levels of upper and lower blood pressure, the two terms are synonymous. Doctors who received education and worked during the Soviet era often use the term "hypertension".

Overview of hypertension and hypertension

Essential hypertension is an increase in the hydrostatic pressure of the blood within the systemic circulation. In fact, this is the resistance of the fluid in an enclosed space. Hydrostatic pressure is the force acting on a fluid due to gravitational attraction, usually on the walls of the vessel in which it is located. Blood pressure is one of its forms. This is the force exerted by the biological fluid on the walls of blood vessels and the cavity of the heart.

Blood pressure is measured in capillaries and veins, as well as in the vessels of the pulmonary circulation. But the term "blood pressure" usually refers to the rate of circulation in the arteries of the large circle. In clinical practice, the parameter is measured in millimeters of mercury. When the left ventricle contracts,

blood is released into the aorta to supply organs and tissues throughout the body. This creates normal pressure in the arteries. The level of the indicator depends on the total blood volume, the tension of the vascular walls and the tone of the arterioles.

When measuring blood pressure, it is recorded in two numbers - 120/80 mm Hg. There are several types of pressure:

1) systolic - reflects the pressure created by the ejection of blood during the contraction of the ventricles - systole (SBP);

2) diastolic - pressure during relaxation of the ventricles - diastole (DBP);

3) pulse rate - the difference between the upper and lower values (120 - 80 = 40 mm Hg) is at least 25% of the systolic.

With a decrease, it is called low, which occurs with a reduced stroke volume of the heart against the background of congestive heart failure, stenosis of the aortic valve, blood loss after trauma. High pulse pressure occurs in people after exercise due to increased stroke volume. A persistent rise indicates excessive resistance in the arteries and affects heart, kidney, and brain health.

Normally, the indicators change depending on physical activity, emotional excitement, stress factors, and decrease during a night's rest. Typically, BP returns to the range from 100/60 to 140/90. With a constant excess of the numbers, a diagnosis of arterial hypertension is made.

Difference between hypertension and hypertension

The terms “essential hypertension” and “hypertension” have been replaced by the term “arterial hypertension” as required by the World Health Organization. Arterial hypertension is a syndrome that can be divided into two types:

• essential hypertension occurs primarily, occupies about 75% of the morbidity structure;

• secondary - an increase in blood pressure as a symptom of kidney disease, endocrine system and organic changes in the heart.

Differences between hypertension and hypertension in the peculiarities of medical terminology. Both conditions indicate increased pressure or tension in tissues and organs. The word "hypertension" is of Greek origin and is translated literally: hyper - excessive; tonos - voltage. It is correct to call hypertension increased pressure of fluids - blood or lymph, and hypertension - increased muscle tone.

The term essential hypertention, or "arterial hypertension" was introduced into practice by E. Frank in 1911, and in 1922 Bergmann from Germany called it a disease of high blood pressure (Krankheit Bluthochdruck). Almost simultaneously in Russia G.F. Lang called the pathology "hypertension."

The proposed term "hypertension" (HD) was widespread in the USSR and Russia. In 1962 A.L. Myasnikov suggested that the WHO expert committee consider essential hypertension and hypertension as synonyms. Practitioners believe that it is correct to call pathology a disease, and not just high blood pressure of unknown etiology. Long-term practice makes adjustments, although hypertension and hypertension are divided with a difference in the approach to the etiology of pathology.

Essential hypertension is observed in 10-15% of the total population of the earth. In Russia, 39.2% of men and 41.1% of women suffer from arterial hypertension. GB is one of the diseases of civilization, it is more common among residents of large cities than among the rural population. The prevalence of HD is growing steadily with age. In Russia, an increase in the number of hypertensive crises is still recorded. According to the National Scientific and Practical Society of Emergency Medicine, in Russia as a whole over the past three years, the number of calls to ambulance teams for hypertensive crisis and related hospitalizations increased by an average of 1.5 times and accounts for about 20% of all reasons for calling an ambulance. medical care. Among the risk factors for the occurrence of hypertension are hereditary predisposition, increased reactivity to psychoemotional stress, a complex of nutritional factors (excess salt, etc.), obesity, aging. Most readers find it difficult to imagine how difficult it is to solve the worldwide

problem of hypertension. “To date it is not possible to cure hypertensive disease,” said A.P. Yurenev, employee of the VKNTs AMS USSR. Since then, the situation has not changed. Despite the use of antihypertensive drugs, therapy does not eliminate the causes of hypertension. Without a clear understanding of the origin of the disease, medicine does not know its effective treatment. And hypertension is also "getting younger." According to Moscow researchers, 19% of our boys and 16% of girls have impaired blood pressure. Known figurative expression of the German scientist Max Burger that "physiological hypertension of the elderly is fate, and hypertension is a disease."

Historical aspects of the study of arterial hypertension

The modern history of the study of hypertension began with an epidemic of anorexia, which broke out in the late 60s of the last century, when the incidence of hypertension increased tenfold in a number of European countries. The drug for weight loss led to such consequences. The concept of "arterial hypertension" arose long ago, back in the 19th century. This is how the increase in blood pressure was interpreted. When there were still no devices for measuring blood pressure, its increase was judged by indirect signs: pulse tension, an increase in the size of the heart, the emphasis of the second tone on the aorta. For the first time, the measurement of blood pressure (arterial force) was carried out by the Englishman S. Gales, who in 1733 published the result of an experiment, during which he determined the height of a blood column in a glass tube inserted into the carotid artery in animals. He owns the first measurements of cardiac output, the speed of blood movement and the resistance that it experiences during its movement through the vessels. More than 100 years later, R. Bright, a compatriot of S. Gales, associates the enlargement of the heart with thickening of its walls with chronic kidney disease. The results of the observations of scientists lead to the idea that there is an obstacle in the circulatory system that prevents the blood from moving normally. It was difficult for the predecessors of modern doctors, because there was no certainty even of the very existence of blood pressure. The method of

measuring blood pressure was hazardous to health and could not be spread, even with some improvement. To determine the pressure, it was required to open the artery and insert a cannula (glass tube) into it. In 1828, for the direct measurement of the pressure in the artery of an animal, J.L.M. Poiseuille (Jean-Louis-Marie Poiseuille) used a mercury manometer, and the German physiologist K. Ludwig, having connected it with a moving drum, for the first time recorded a pulsating blood pressure curve (sphygmogram). The author called this device a kymograph and for many subsequent years it served as the main tool for recording various physiological processes. Since that time, sphygmographic methods for recording hemodynamics have begun. Karl Fierordt used sphygmography to indirectly measure blood pressure in a person. Measurements of blood pressure, which were carried out in exceptional cases (amputation), made it possible by the middle of the 19th century to establish that the average blood pressure on the walls of blood vessels in an adult is 110–130 mm Hg. Art.

This was the beginning of the correct understanding of the nature of blood pressure: the blood presses on the elastic wall of the vessels, stretching them with a certain force, and the muscles in the walls of the vessels resist stretching, since they are constantly tense to a greater or lesser extent. They began to call this constant muscle tension, tone, and the magnitude of the effect of blood flow on the walls of blood vessels is blood pressure. In the 19th century, scientists described that the introduction into the human body of an adrenal extract containing adrenaline causes a narrowing of peripheral blood vessels, a decrease in the general lumen in them and a sharp increase in blood pressure. Doctors also knew about the shock associated with the expansion of large blood vessels, the accumulation of blood in them and the corresponding sharp drop in blood pressure. In 1896, Scipione Riva Rocci proposed a method for measuring blood pressure without damaging blood vessels using a sphygmomanometer (pulse pressure gauge with a rubber cuff) of the shoulder artery, developing a method for non-invasive blood pressure measurement. Modern sphygmomanometers (tonometers) are sometimes named after Riva Rocci. As indications, the scientist used manometric pulsations

that appear after the cessation of clamping of the artery. A rubber bulb was blown into a bicycle tire, which encircled the upper third of the shoulder and connected to a mercury sphygmomanometer. The pressure at which the pulsation stopped was recorded, which corresponded to the systolic pressure. Then the pressure was gradually released from the tire. The first appearance of pulsation corresponded to diastolic pressure. The narrow tire created a lot of inconvenience and often distorted the results of the study. The Riva-Rocci method was improved by Friedrich Recklinghausen in 1906. He replaced the narrow tire with a 5 to 13 cm wide cuff and a mercury pressure gauge with a spring one. The rest of the Riva-Rocci technique has remained unchanged. However, this method in this form is not widely used. Only the Russian scientist military surgeon N.S. Korotkov in 1905 proposed the use of a sound, or au-sculptural, method of measuring pressure by listening to vascular sounds in an artery. Method N.S. Korotkov turned out to be simple and convenient, it is still used today. The method is based on listening to the noises arising from the gradual bleeding of air from the inflated cuff. The pressure in the cuff recorded at the appearance of the first murmur corresponded to the systolic pressure, and the pressure recorded at the cessation of the murmur corresponded to the diastolic pressure.

In 1877, the Englishman J. Johnson found out that arterial hypertension and subsequent hypertrophy of the left ventricle of the heart is caused by contraction of the arteriole, that it is the contraction of the arteriole that determines the resistance to blood flow in the circulatory system. Johnson was the first to identify the physical basis of the mechanism for increasing blood pressure.

“The strength of the blood pressure depends on the strength of the contraction of the heart. It also depends on the nature of the work of the heart itself. It is quite natural that the more often the heart contracts, the more blood will enter the blood vessels and, therefore, the stronger the pressure on their walls will be. The same will happen when the energy of each heartbeat is greater. The width of the bloodstream, that is, the total width of the lumen of arteries, veins, capillaries in a particular area of the body, is also very significant for blood

pressure. The greater this width, the more noticeably the tension of the vessel walls decreases - the pressure decreases ”(L. Friedland, 1954).

For many years, the concept of hypertension as a manifestation of kidney disease dominated (F. Volkhard, T. Far, 1914). In the future, the development of arterial hypertension was associated with vascular lesions, with endocrine disorders. In the second half of the 19th century, evidence was found for the existence of hypertension without kidney damage, a vascular theory of the pathogenesis of the disease developed. “So, at the end of the 19th - the beginning of the 20th centuries, a polarization of views on the origin of hypertension gradually took place and two leading ideas took shape, which turned out to be able to feed the main directions in the presentation of its pathogenesis for a long time. These directions have survived to this day ”(YV Postnov, SN Orlov, 1987).

A turning point in the development of ideas about hypertension was the idea of the existence of an independent, primary hypertension, not associated with a pathological process in a particular organ. In the early 1920s, the Leningrad clinician G.F. Lang divided arterial hypertension into primary and secondary and proposed the term "hypertension". He formulated the neurogenic theory of hypertension, which in the 1950s – 1960s. years developed in his works by A.L. Myasnikov. “The neurogenic theory of the onset of hypertension, developed in the Soviet Union by professors G.F. Lang and A.L. Myasnikov and based on the teachings of I.P. Pavlova on higher nervous activity ”(MG Glezer, 1986).

So the origins of the study of hypertension in Russia go back to 1947, when on the basis of the Institute of Therapy, headed by Professor A.L. Myasnikov, two departments for the study of hypertension are created. In 1959-1975, one of them was headed by Doctor of Medical Sciences N.A. Ratner, studying the relationship of arterial hypertension with pathology of the kidneys, renal arteries, nephropathy of pregnant women. Methods have been introduced into clinical practice to verify the diagnosis of arterial hypertension - puncture biopsy of the kidneys, abdominal aortography.

From 1975 to 1999, the department of arterial hypertension at the N.N. A.L. Myasnikov was led by Professor G.G. Arabidze is a student and follower of N.A. Ratner, who continued to study the secondary forms of arterial hypertension. In parallel, the idea of the existence of genetic prerequisites for the development of hypertension was formed. Comparing the significance of the polygenic hereditary factor and the external environment for the formation of essential hypertension, J. Pickering (1977) believed that the adverse effect of the external environment in the conditions of modern civilization manifests this feature of the genotype in persons predisposed to essential hypertension. The validity of the position on the role of genetic factors in hypertension was strengthened by data on impaired transport of cations through cell membranes, accompanied by physical and chemical changes in the membranes themselves (Yu.V. Postnov, S.N. Orlov, 1987).

The true reasons for the development of hypertension remain a mystery to modern medicine. All doctors in the world measure blood pressure in patients using the method of N.S. Korotkov, but none of them has a complete understanding of the physical and physiological meaning of the data obtained from the measurement.

“The unsuccessful search for a single cause of hypertension was reflected in the 'mosaic' theory. Thus, the multi-causality of this disease is postulated, and the question of the specific cause of the disorders in each case remains open ”(Yu.V. Postnov, SN Orlov, 1987).

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