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DAMAGING FACTORS OF ARTERIAL HYPERTENSION ON THE WORK OF THE HEART

Annotation: As a result of studying the literature sources, the state of the question of structural and functional changes in the heart in patients with arterial hypertension is analyzed.

Key words: arterial hypertension, hypertensive heart disease, heart remodeling.

Introduction. Arterial hypertension (AH) is one of the most common diseases of the cardiovascular system. Its frequency in the general population reaches 25-30%. Long-term and persistent increase in blood pressure (BP) leads to the development of severe cardiovascular complications (myocardial infarction, cerebral stroke, chronic heart or kidney failure) and causes high mortality and disability of the population. This is largely due to damage to target organs (heart, kidneys, brain), and, along with the "rejuvenation" of the disease, explains the activation of scientific research on this problem. The heart is involved in the pathological process already in the early stages of the disease.

Changes in the size and shape of the cavities and wall thickness of the left ventricle (LV) cause heart failure and contribute to the development of all forms of coronary heart disease (CHD), rhythm and conduction disorders, and heart failure. All this worsens the quality and life expectancy of patients with hypertension. The most complete and comprehensive description of the nature of heart involvement in the pathological process is the concept of "hypertensive heart disease" (HHD). The term "HHD" refers to a complex of functional and morphological changes in the heart itself as a target organ due to the occurrence and development of hypertension. The dynamics of myocardial changes in patients with hypertension at various stages of the cardiovascular continuum is represented by a cascade of alternating and complementary concepts-stages that include cardiac remodeling (remodeling of the left atrium, ventricle, and heart vessels), and left ventricular hypertrophy.

Cardiac remodeling is the process of complex disruption of its structure and function in response to damaging overload or loss of a part of a viable myocardium, including progressive increase in myocardial mass, dilation of cavities, and changes in the geometric characteristics of the ventricles. Electrophysiological remodeling changes in the cellular structure of the heart muscle as myocardial hypertrophy develops, affecting the parameters of the electric field of the heart. Electrical remodeling of the LV is a change in the distribution of electrical forces of the myocardium associated with the restructuring of the electrical, mechanical and metabolic activity of cardiomyocytes and interstitium. LV remodeling represents its structural and geometric changes, including processes of LV hypertrophy (LVH) and dilation, leading to changes in geometry, sphericity, and violations of systolic and diastolic function.

In hypertension, LV remodeling is considered a characteristic feature of the pathological process, associated primarily with the development of LVH.

Conclusion. Thus, structural and functional changes that occur in the heart during hypertension are not so much compensatory changes as an independent cause of further progression of the disease and an independent unfavorable prognostic factor. Myocardial changes that form the basis of HHD and their pathogenesis should be considered as a complex dynamic system that represents the development and mutual influence of hypertrophy and remodeling processes that constantly rhythmically prevail over each other and aggravate each other.

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