

## STRUCTURAL AND FUNCTIONAL FEATURES OF THE HEART IN ARTERIAL HYPERTENSION DISEASES BY TISSUE DOPPLEROGRAPHY

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**Annotation:** *Arterial hypertension (AH) remains one of the most important causes of the development of chronic heart failure (CHF). In recent years, much attention has been paid to the study of tissue dopplerography parameters for arterial hypertension (AG). These changes can be seen as early signs of CHF development, and tissue dopplerography studies can serve as a reliable indicator of diastolic heart failure. However, this tissue dopplerography is very important to assess the prognosis for AG, especially in conjunction with CHF.*

**Keywords:** *medicine, arterial hypertension, structural feature  
Optimizing assessment of cardioprotective efficacy of hypotensive therapy  
in patients with arterial hypertension based on tissue dopplerography.*

Against the background of antihypertensive therapy, the reduction of systolic blood pressure in AG patients with an E/Em ratio value  $<8$  9.6% and 12.1%, with E/Em $>8$ , respectively, a decrease in diastolic blood pressure - 8.3% and 10.4%. At the same time, in patients with a large E/Em ratio  $>8$ , the number of patients with high fatigue is 42.4% to 24.2%, with palpitations-18.2% to 3.0%, shortness of breath-30.3% to 21.2%. On the background of hypotensive therapy, the main indicators of standard EhoKG and DEhoKG transmitral and transstricuspid flows, including left atrial mass and high velocity of E peak, did not change significantly.

On the contrary, according to tissue Doppler, a reliable reduction of the Tei-index value was noted. Thus, in both groups, a decrease in Tei-index was observed for all walls, including the side wall of the left ventricle. In addition, in patients with an initial value of the combined index E/Em $>8$ , the decrease in the value of the Tei-index was more significant, and this dynamic occurred mainly by reducing the time of isovolumic relaxation. Thus, the initial value of E/Em $<8$  is 1.2%, while E/Em $>8$  is 15.6%, in the interventricular zone, this dynamic is 13.3% and 14.7%, respectively, in the anterior wall - 14.4% and 18.8% ( $p<0.01$ ), lower

wall - 8.1%, anterior wall - 14.4% and 18.8%, and 15.4% did More specific dynamics of Tei-index in patients of group 2 was associated with an active decrease in blood pressure numbers. Thus, in AG patients with an initial value of E/A, its reliable increase was noted on the side wall. In patients with an initial E/Em ratio of  $>8$ , on the contrary, compared to the initial data, a decrease in this indicator showed an improvement in diastolic function. In addition, these dynamics depended on the increase in the regional speed of the early diastolic movement of the myocardium on the side wall of the left ventricle by 20.1%, 9.3% and the lower wall - by 11.4% against the background of hypotensive therapy. In the anterior wall of AG patients with an initial  $E/Em < 8$  value, this indicator was also associated with a decrease in the highest speed up to 8.3%. With a detailed analysis of E/em dynamics, only 42 patients (79.2%) out of 53 patients with initial E/Em values were less than 8,  $6.1 \pm 1.2$  was, and in the remaining 11 (20.8%) patients, the ratio of this indicator to negative dynamics, that is, the value of the e/em relationship exceeded 8, was  $9.3 \pm 1.08$ . For detailed analysis, these patients were divided into 2 subgroups. In turn, in 15 patients (45.5%) out of 33 patients with initial  $E/Em > 8$ , this number was more than 8 and was  $9.9 \pm 1.4$ , in 18 patients (54.5%), on the contrary, the value of this indicator was less than 8 and was  $7.0 \pm 0.72$ . Taking into account the identified dynamics, these patients formed subgroups 3 and 4, respectively. When analyzing the effect of antihypertensive therapy on the dynamics of the E/Em indicator, it was noted that regular intake of antihypertensive drugs and, accordingly, reaching the target levels of blood pressure occurred more often in subgroups 1 and 4. Depending on the regularity of taking hypotensive drugs, the effectiveness of therapy and the dynamics of the e/em combined indicator, AG patients are distributed. According to tissue dopplerography in patients of subgroup AG 3, high blood pressure values caused significant changes in the functional state of longitudinal false fibers. Thus, in patients of subgroup 3, in comparison with patients of subgroup 1, there was a decrease in the peak speed of myocardial systolic movement in the MZHP, lateral and lower wall. According to tissue dopplerography in patients of subgroup AG 3, the high level of blood pressure caused significant changes in the functional state of longitudinal fibers. Thus, in patients of subgroup 3, in comparison with patients of subgroup 1, there was a decrease in the peak speed of the systolic movement of the ventricles, lateral and lower wall. It should be noted that the initial indicators of the regional state of lies did not differ significantly in subgroups 1 and 2. During the follow-up period,

the deterioration of the diastolic false function in patients of 2 subgroups was associated with the ineffectiveness of hypotensive therapy. Thus, antihypertensive therapy is associated with a decrease in systolic and diastolic blood pressure with reliable dynamics only in subgroup 1 patients with an initial value of  $E/Em < 8$ . A decrease in SAQB and DAQB indicators was observed in patients of subgroup 2 against the background of antihypertensive therapy, but these dynamics were not enough to prevent the appearance of symptoms of diastolic dysfunction. Compared to the initial data in the background of therapy in patients of subgroup AG 3, the decrease in SAQB and DAQB indicators was reliable, but these dynamics were not enough to improve the diastolic false function.

Thus, when there are signs of regional impairment of the systolic or diastolic false function, more significant dynamics of sad and dad indicators are required to further improve its indicators. Regular antihypertensive therapy, especially when the target level of blood pressure is reached, not only does not prevent the development of diastolic dysfunction, but also contributes to its normalization during the 6-month follow-up.

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