

Results and discussion. Patients with hypertension and sinus rhythm were younger than patients with AF (44 [38; 52] vs 48 [43; 54] years, $p=0.03$), however their gender structure was the same (male patients predominated, 84% vs 76%, $p>0.05$). Patients of both groups had no differences in their body mass index (31.3 [28.4; 34.1] vs 31.5 [27; 30.6] kg/m², $p>0.05$) and around a half of patients in each group had obesity (57% vs 48%, $p>0.05$). Patients of both groups had no difference in prevalence of diabetes mellitus and anemia ($p>0.05$).

Laboratory parameters of patients didn't demonstrate any significant differences. According to the results of transthoracic echocardiography, patients with hypertension and AF had significantly higher left atrial diameter (41.0 [38; 44] mm vs 36.0 [34; 38] mm, $p=0.001$) than patients with sinus rhythm.

Also patients with AF showed a significant increase in left ventricle (LV) end-systolic volume ($p=0.012$) and decrease in LV ejection fraction (LVEF) values (60 [57; 65] vs 65 [63; 69] %, $p=0.013$). Patients of both groups didn't have differences in values of systolic diameter of interventricular septum ($p=0.214$) and LV posterior wall ($p=0.052$), however both diastolic diameters were higher in AF patients ($p=0.047$ for interventricular septum and $p=0.038$ for LV posterior wall).

No significant differences were found in other echocardiographic parameters.

Conclusion. Comparative analysis of echocardiographic characteristics showed that linear and volumetric characteristics of the left atrium and left ventricle of the patients with combination of hypertension and AF exceed similar parameters in patients with hypertension and sinus rhythm. A possible connection between the obtained results and future adverse outcomes of AF requires further study.

HEART FAILURE WITH REDUCED EJECTION FRACTION: DIFFERENCES BETWEEN ATRIAL FIBRILLATION AND SINUS RHYTHM

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Introduction. Atrial fibrillation (AF) is a common comorbidity in chronic heart failure (HF) patients, with a prevalence that has been reported from 10% up to 50-60%, depending on age and severity of HF. The majority of current data suggest that AF is associated with increased mortality in patients with HF and preserved ejection fraction and in those with reduced ejection fraction (HFrEF). By contrast, the HF long-term registry of the European Society of Cardiology showed that AF was not associated with poor outcomes in patients with HFrEF, which makes our research relevant.

Aim of the study. To evaluate clinical, laboratory and echocardiographic differences in patients with and without AF in HFrEF.

Materials and methods. The study included 91 patients with heart failure and LVEF less than 50% who were admitted to the Grodno State Cardiological Center for treatment from January to November 2024. Group 1 included 57 (63%) patients with HF and paroxysmal or persistent form of AF while Group 2 included 34(37%) patients with HF and sinus rhythm.

Exclusion criteria from the study were: acute myocardial infarction, unstable angina, valvular pathology of the heart requiring surgical correction, prosthetic heart valves, oncological diseases and severe concomitant extracardiac pathology. All patients underwent clinical, laboratory, and instrumental studies, including transthoracic echocardiography. Statistical analysis was performed using the STATISTICA 12.0 software.

Results and discussion. Patients with AF and sinus rhythm were comparable in age (62 [56; 69] vs 60 [55; 67] years, $p>0.05$) and gender (male patients 83% vs 91%, $p>0.05$). Patients with HFrEF and AF had significantly higher body mass index (31 [27; 35] vs 27 [25; 30] kg/m², $p=0.005$) and more often had obesity (62% vs 26%, $p=0.001$) than patients with HFrEF and sinus rhythm. Patients of both groups had no difference in prevalence of hypertension (88% vs 79%, $p>0.05$) and diabetes mellitus (29% vs 23%, $p>0.05$). It is interesting to say, that patients with HFrEF and sinus rhythm more often had stable angina (53% vs 34%, $p=0.03$) and more often suffered from myocardial infarction (44% vs 26%, $p=0.048$) than patients with HFrEF and AF.

Laboratory parameters of patients didn't demonstrate any significant differences, except for renal function tests. Patients with AF had significantly higher levels of urea ($p=0.007$), creatinine ($p=0.018$) and slightly lower eGFR ($p=0.06$).

According to the results of transthoracic echocardiography, patients with HFrEF and AF had significantly higher size of the left atrial diameter (47.2 [44; 51] mm vs 45.8 [41; 48] mm, $p=0.03$) and the right atrial diameter (44.4 [42; 46] mm vs 42.9 [39; 46] mm, $p=0.017$) than patients with sinus rhythm. However, patients didn't have differences in values of end-diastolic volume of the left ventricle ($p=0.548$), end-systolic volume of the left ventricle ($p=0.360$), and LVEF (40.7 [36; 47] % vs 38 [28; 48] %, $p=0.423$). Contractility index was higher in patients with sinus rhythm (1.72 [1.38; 2.13] vs 1.51 [1.19; 1.81], $p=0.032$).

Conclusion. Patients with HFrEF and sinus rhythm more often had ischemic origin of cardiomyopathy, while in patients with HFrEF and AF cardiomyopathy was of dilated or mixed origin, which is confirmed by differences in sizes of atria and contractility index.