**Zakhidova K.Kh. Dynamics of N-terminal fragment of the brain natriuretic peptide as a marker and prognostic factors in patients with chronic heart failure and anemia**

International Heart and Vascular Disease Journal. 2015; 5: 25-32

**Abstract**

**Aim.** To determine plasma levels of the N-terminal of the prohormone brain natriuretic peptide (NT-proBNP) in pa-tients with chronic heart failure (CHF) and anaemia during different treatments with the use of basic drugs and iron supplements.

**Materials and methods.** An open, randomized study included 208 patients aged 45-75 years (mean age 60.6±1.4) with New York Heart Association (NYHA) class I-IV CHF of ischaemic origin (mean class 3±0.85). Among 174 patients, there were 78 men (44.8%) and 95 women (55.2%). Depending on the therapy, all patients were divided into 4 groups: Group I received basic drugs only; Group II received basic drugs and methoxy polyethylene glycol-epoetin beta; Group III (which included patients with iron deficiency) received basic drugs and iron supplements; Group IV received combination therapy comprising basic drugs, methoxy polyethylene glycol-epoetin beta, and iron supplements. Before and after treatment, the levels haemoglobin, iron, ferritin, transferrin, erythropoietin, NT-proBNP, and systolic and diastolic function of the left ventricle were determined.

**Results.** In all groups of patients with CHF and anaemia, an increase in NT-proBNP plasma levels was diagnosed. During the therapy with basic drugs, a decrease in NT-proBNP plasma levels was not significant. In the three other groups with different combinations of therapy, a decrease in NT-proBNP plasma levels was statistically signifi-cant.

**Conclusion.** These results reflect the prognostic value of determining NT-proBNP plasma levels in patients with CHF of isch-aemic nature and anaemic syndrome in order to select an effective treatment and evaluation of treatment.

**Keywords**

Chronic heart failure, anaemia, N-terminal of the prohormone brain natriuretic peptide

**Report of the European Congress of Cardiology 2015**

International Heart and Vascular Disease Journal. 2015; 7: 46-48

**Summary**

**Object.** Explore the structural-functional state of the left ventricle (LV) in female patients with post-infarction chronic heart failure (CHF) II–III functional class (FC) (NYHA).

**Materials and methods.** The study included 105 female patients with CHF II–III FC of non-valvular etiology; all of the patients were post-menopausal. The median age was 59 ± 6.7 years. All patients, included in the study, were performed echocardiog-raphy on ultrasound scanners «Vivid-7, Dimension» (USA).

**Results.** Analysis of the ECG results showed, that CHF occurs predominantly in women with preserved LV systolic function. Restrictive type of the diastolic LV relaxation was defined only in 6 patients (6.2 %), abnormal type of diastolic re-laxation was observed in 32 patients (31.3 %) and in 63 (61.7 %) patients the type of violation of diastolic relaxation could not be determined. It should also be noted, that 8 patients (8.16 %) had a combination of LV systolic dysfunc-tion, defined in terms of LVEF, and signs of violation of diastolic relaxation, i.e. mixed LV dysfunction. In 23.5 % cases concentric LV hypertrophy was defined, in 48 % cases — eccentric hypertrophy without dilatation, in 15.7 % cases — eccentric LV hypertrophy with dilatation and in 9.8 % cases — mixed hypertrophy of LV.

**Conclusion.** Post-infarction CHF in women is combined with the preserved LV systolic function. In cases with post-infarction CHF II–III FC, the most common type of LV remodeling is eccentric hypertrophy without dilatation.

**Key words**

Сhronic heart failure, diastolic dysfunction, remodeling

**Averin E.E. Safety of chronic heart failure complex therapy: results of randomized crossover study BASTion.**

International Heart and Vascular Disease Journal. 2016; 11: 31-36

**Summary**

**Objective.** To estimate the safety of complex therapy of patients with chronic heart failure after adding to treatment diureticswith different influence on potassium excretion.

**Matherials and methods.** 19 patients over 18 years with stable chronic heart failure (CHF), II and III NYHA class, were included in random-ized crossover study. All patients were administered with standard CHF therapy: β-blocker, angiotensin-converting enzyme (ACE) inhibitor, mineral-corticoid receptor inhibitor and diuretic. Patients’ therapy did not changeuntil one month before randomization. After randomization patients were subdivided into two groups: first group (8 persons) started diurethic therapy with furosemide, second one (11 persons) started diuretic therapy with to-rasemide. Therapy was estimated after one month and patients who took torasemide started to take furosemidefore one more month and vice versa, patients who previously received furasemide changed it to torasemide. Allpatients received medicines in necessary doses according with their clinical condition.

**Results.** Average age of patients included in the study was 68,2±9,5 years. 52,6% of patients were males. Average dose oftorasemide in the study was 24,5±7,4 mg per week, and average dose of furosemide was 111,6±16,8 mg per week. Used average doses of four-component therapy did not lead to occurrence of hyperkaliemic conditions. Results of6-minute walk tests revealed improved tolerability of physical exercise after torasemide treatment. Torasemidewas better tolerated by patients.

**Conclusion.** Lack of reflex tachycardia in response to torasemide therapy allows to recommend it for the majority of patientswith CHF especially to the ones with comorbid pathologies.

**Keywords**

Torasemide, chronic heart failure, hyperkalemia, hypokalemia, 6-minute walk test

**Kamilova U.K., Rasulova Z.D., Nuritdinov N.А., Ibabekova Sh.R.**

**Left ventricular diastolic function characteristics in patients with chronic heart failure, in relation to the degree of chronic kidney disease, and their dynamics during treatment.**

International Heart and Vascular Disease Journal. 2018; 20: 12-17

Objective. To study the dynamics of left ventricular diastolic function (LV DF) in patients with I –III functional classes (FC) of chronic heart failure (CHF) during lisinopril and losartan treatment, depending on stage of chronic kidney disease.

Materials and methods. We examined 223 patients with coronary artery disease and I –III FC of CHF initially and after 6 months of treatment. The first group (I) contained 118 patients with I –III FC of CHF, who received lisinopril as a standard therapy, whereas the second group (II) received losartan, and included 105 patients with I –III FC of CHF (the average dose of lisinopril was 7.8 ± 2.6, losartan -76.3 ± 25.6 mg/day). All the patients underwent doppler echocardiography, glomerular filtration rate was quantified using MDRD formula (eGFR). Patients were divided into groups according to eGFR levels: 30<сGFR ≤60 mL/min/1.73 m3 — 67 patients, and 156 patients with eGFR>60 mL/min/1.73 m3.

Results. The analysis of initial DF characteristics revealed diastolic dysfunction (DD) in 81.8 % of patients with CHF, and in 59.3 % of cases disturbances like delayed relaxation were prevalent. DF correlated with eGFR. Patients with eGFR≤60 mL/min/1.73 m2 had significant reduction (by 6.8 %) of E-wave velocity (p<0.05) compared to patients with eGFR>60 ml/min/1.73 m2; there was a moderate positive correlation between eGFR and E-wave velocity. Patients improved their LV DF characteristics after treatment, with better results for losartan group. Patients of the first and second groups with eGFR≤60 ml/min/1.73 m2 had an increase of E-wave velocity by 14.8 % and 15.7 % (p<0.02), respectively; patients with eGFR>60 mL/min/1.73 m2 had a trend of E-wave increase by 2.7 % and 7.5 %, respectively, compared to baseline.

Conclusion. 81.8 % of patients had DD with the prevalence of disturbances of delayed relaxation type. DF correlated with eGFR. Patients with I –III FC of CHF had an improvement of LV DF characteristics with better results for the group of losartan therapy. Patients of both groups with eGFR≤60 ml/min/1.73 m2 had a significant increase of E-wave velocity during treatment.

Keywords

Chronic heart failure, left ventricle diastolic function, renal dysfunction.

**F. Cabello Montoya, A.F. Safarova, Zh.D. Kobalava, A.E. Soloveva, T.V. Lobzhanizde.**

**Lung ultrasound in patients with decompensated heart failure with preserved or reduced left ventricular ejection fraction: a prospective study.**

International Heart and Vascular Disease Journal. 2019; 22: 3-12

**Objective.** To estimate the prognostic value of left ventricular ejection fraction (LVEF) and B-lines (lung ultra- sound) in patients with decompensated heart failure (DHF).

**Material and methods.**162 patients with DHF underwent routine physical examination and 8-zone scanning lung ultrasound (66 % men, average age 68 ± 12 years, 97 % with arterial hypertension, 44 % with myocardial infarction, 60 % with atrial fibrillation, ejection fraction (EF) 40 ± 14 %, EF <40 %, 46 %, NT-proBNP 4246 (1741;

during admission and discharge. The sum of B-lines ≤5 was considered normal, 6–15, 16–30 and > 30 — mild, moderate and severe pulmonary congestion, respectively.

**Results.** LVEF ≥ 50 % was detected in 49 of 162 (30.2 %) patients with DHF on admission, EF 40–49 % — in 38 (23.5 %), EF <40 % — in 75 (46.3 %). 31 % of patients had mild pulmonary congestion during initial lung ultrasound, 68 % — severe.

By the time of discharge 33, 15 and 4 % of patients had mild, moderate and severe pulmonary congestion, re- spectively. During multivariate regression analysis, which included sex, age, functional class of HF and swelling of jugular veins by the time of discharge, the sum of B-lines ≥5 was independently associated with increased all-cause mortality (hazard ratio (HR) 2.86 with 95 % CI 1,15–7,13, p = 0.024) during one year of follow-up after discharge and the sum of B-lines ≥15 — with a high probability of HF readmission (HR 2.83, CI 1,41–5,67, p = 0,003). There was no significant correlation between LVEF, all-cause mortality (HR 0.72, 95 % CI) 0.61–1.41, p = 0.880) and HF readmission (HR 0.52, CI 0.24–1.09, p = 0.169) during one year of follow-up after discharge.

**Conclusion.** Heart failure hospitalization is associated with poor long-term prognosis and an increased cardio- vascular risk, regardless of LVEF. Lung ultrasound may be a simple, available non-invasive method for assessing the severity of pulmonary congestion, control its progression and may have prognostic value in patients with DHF.

**Keywords**

Decompensated heart failure, left ventricular ejection fraction, B-lines, prognosis.

**Kovalenko E.V., Lozhkina M.V., Markova L.I., Arabidze G.G.**

**A new direction of medical correction of chronic heart failure with low ejection fraction.** International Journal of Heart and Vascular Diseases. 2020; 8 (27): 38-49

**Summary**

The review article presents the results of randomized clinical trials on the use of hypoglycemic agents in patients with cardiovascular diseases. The article reveals the mechanism of action of sodium glucose cotransporter-2 inhibitors (SGLT2), the pathogenetic validity and evidence base of their use in patients with chronic heart failure, both with and without type 2 diabetes mellitus.

**Key words**

Chronic heart failure, diabetes mellitus, sodium glucose cotransporter-2 inhibitor.