**Difference in N-terminal pro-B-type natriuretic peptide (NT-proBNP) levels in patients with heart failure withpreserved ejection fraction (HFpEF) and non-cardiac comorbidity.**

Multiple studies have already revealed a direct link between non-cardiac comorbidities and the development of HFpEF, emphasizing that it is challenging to assess how significant is a role of comorbidities and their combinations in elevation of plasma NT-proBNP levels.

**Purpose.**To estimate the difference between NT-proBNP values in patients with HFpEF, who have one or more concomitant non-cardiac diseases that were diagnosed prior or during hospitalization, or doesn’t have any of comorbidities.

**Materials and methods.** We enrolled 80 haemodynamically stable patients with HFpEF, confirmed clinically (signs and symptoms), instrumentally (echocardiography with careful evaluation of left ventricle diastolic function) and laboratory (elevated plasma NT-proBNP level). After additional examination (plasma levels of glucose and HbAc1, Hb, ferritin, GFR, calculated by CKD-EPI and spirometry) patients were divided into 4 groups: with 1, 2 or 3 and more concomitant diseases, or without them.

**Results**.Comorbidity was present in 57 (71,25%) pts. Group 1 included 22 pts (27,5%), Group 2 – 12 (15%), Group 3 – 23 (28,75%) and Group 4 – 23 (27,5%). They didn't differ in age (63,2±10,9 vs 63±6,9 vs 69,9±6,6 and 65±7,7 years), gender (12 (54,5%) vs 7 (58,3%) vs 10 (43,5%) and 8 (61,5%) males) and body mass index (30,9±4,3 vs 28,1±1,9 vs 30,9±4,1 and 28,8±2,7); all p>0,05. NT-pro-BNP date are demonstrated in the table.The revealed comorbidities distributed following way: type 1 diabetes mellitus – 23 (28,75%) pts, anemia– 16 (20%) pts,chronic renal impairment– 34 (42,5%), ventilation disorders (obstructive, restrictive and combined) – 29 (36,25%).

**Conclusions:** Benefits of using comorbidity-oriented approach to assessment of patients with HFpEF can be proven by statistically important difference in mean NT-proBNP levels between groups of patients with concomitant non-cardiac diseases and a group with none of them. Combination of non-cardiac comorbidities, when 3 or more are present, can cause higher levels of NT-proBNP.

NT-proBNP levels in groups of patients

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| --- | --- | --- | --- | --- |
|  | **Gr1 (n=22)**  **(M±m)** | **Gr2 (n=12)**  **(M±m)** | **Gr3 (n=23)**  **(M±m)** | **Gr4(n=13)**  **(M±m)** |
| **NT-pro-BNP** | 420,6±231,6\* | 615,4±323\*\* | 947,4±402,9\*\*\* | 287,4±132,2 |

\*p<0,001 compared to group 3; \*\*p=0,012 compared to group 4; \*\*\*p<0,001 compared to group 4.