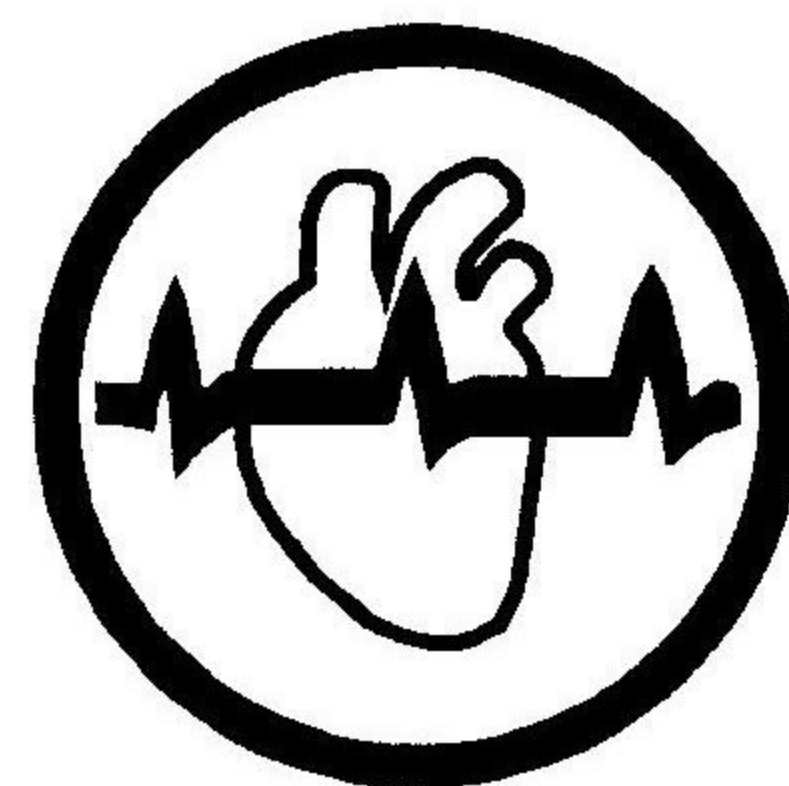


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на 6,2 %, а при призначенні торасеміду – на 17,1 % ($p=0,026$); через 6 міс при схемі з фуросемідом – збільшилась на 22,5 %, а при призначенні торасеміду – на 33,9 % ($p=0,033$).

При щоденному прийомі торасеміду, внаслідок статистично значущого покращення ендотеліальної функції судин відбувається ефективна корекція нейрогуморальної складової у хворих з декомпенсованою ХСН. Покращення периферичних судиннорушливих реакцій та функціонального стану ендотелію судин є важливим компонентом прогнозуючого впливу торасеміду на хворих з ХСН.

The changes of the cell immunity in dilation of the left ventricle in bronchoobstructive syndrome

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Echocardiographic changes in patients with bronchoobstructive syndrome testify of the presence of hypertrophy and dilatation of the left ventricle (LV). A number of studies are aimed to elucidate the pathogenetic mechanisms of heart remodeling in lung pathology. Nowadays the role of immunological changes in bronchoobstructive syndrome is widely discussed.

The aim: to reveal the role of changes in CD3+, CD4+ and CD8+ subsets of T-lymphocytes in heart remodeling in patients with chronic obstructive pulmonary disease (COPD) of B and C groups (GOLD 2014).

Material and methods. We examined 42 patients with COPD of B and C groups aged 60.2 ± 1.2 years old, including 21 males and 21 females. The duration of the disease lasted on average 14.0 ± 1.8 years. The study included echocardiography and identification of CD3+, CD4+, CD8+ T-lymphocytes with monoclonal antibodies.

Results. The patients with COPD of B and C groups showed decreased CD3+, CD4+ and CD8+ T-lymphocytes. Ejection fraction of the LV correlated with CD3+ ($r=0,32$) ($p<0,05$), CD4+ and CD8+ ($r=0,70$) ($p<0,05$) T-lymphocytes. End systolic and end diastolic volume of the LV correlated with CD3+ ($r=-0,40$; $r=-0,43$) ($p<0,05$) and CD4+ ($r=-0,42$; $r=-0,44$) ($p<0,05$) T-lymphocytes. Thus, dilation of the left ventricle is accompanied by the decrease of CD4+ lymphocytes, while contractile activity is associated with reduced CD8+ lymphocytes.

Conclusions. The decrease of cell immunity in COPD is associated with heart remodeling and might be of the target therapy.

The effect of age difference on the serum level of advanced glycated end products in patients with post infarction heart failure

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Introduction: post-infarction heart failure with preserved ejection fraction (HFpEF) determines a great mor-

idity and mortality, and given the physiopathology implications of advanced glycation end products (AGEs) in the genesis of myocardial dysfunction. Glycation refers to a non-enzymatic reaction of reducing sugars with the amino group of amino acids, nucleic acids, lipids and proteins. These targets of glycation processes undergo rearrangements to form stable heterogeneous compounds called AGEs. AGEs like pentosidine, N-carboxymethyl-lysine (CML) are formed oxidatively (glycoxidation products), but methylglyoxal-derived hydroimidazolone MG-H1, the major AGE, is formed non-oxidatively. AGEs are end-products formed by oxidative and non-oxidative reactions between sugars and proteins. AGEs form cross-links with long-living tissue proteins, which cause them to accumulate in the body over time. AGEs can bind to the receptor of AGE (RAGE) and thereby induce cardiovascular dysfunction. RAGE has a C-truncated secretory isoform, soluble RAGE (sRAGE), that circulates in plasma. sRAGE has been proposed to have an atherosclerotic-protective function. However, AGE-RAGE interaction can also cause inflammation and increased AGE-accumulation. AGE-accumulation in turn can cause up regulation of RAGE. Through decreased compliance of the heart and the vasculature, AGE accumulation is considered to be related to the onset and progression of HF.

As known endothelial dysfunction is an independent predictor for cardiovascular disease. L-Arginine is the amino acid with potential to improve endothelial function which leading to prevention and treatment of cardiovascular diseases, and we think that L-Arginine may decrease the serum AGEs.

We aimed to estimate the value of AGEs in post-infarction HFpEF patients, and detect the effect of L-Arginine on the serum level of AGEs in post-infarction HFpEF pts.

Materials and methods. All individuals (25) included aged 40 to 80 years, 20 (80%) males and 5 (20%) females were diagnosed with (HFpEF) according to ESC guidelines (2012), and their functional class according to NYHA classification for HF. 20 (80%) patients of them have myocardial infarction in anamnesis. 1st group: 13 patients with HFpEF and history of myocardial infarction with L-Arginine added to their standard treatment. 2nd group: 7 patients with HFpEF and history of myocardial infarction with standard treatment (without L-Arginine). Comparison group: 5 patients with HFpEF with standard treatment. We prescribed L-Arginine aspartate (Tivortin 4.2gm) intravenously once daily for 10 days for all 1st group patients. The levels of total cholesterol, triglycerides, glucose, white blood cells, erythrocyte sedimentation rate and AGEs serum level were determined.

Results. Median level of AGE in observed pts was 1.59 [1.38; 1.83] mg/ml, increased level was estimated in 21 (95.5%) pts at baseline. The level of AGE was highly correlated in age ($R=0,68$) ($p<0,05$), MI anamnesis presence ($R=0,71$) ($p<0,05$). > 60 years old patients with CHF characterized by significant higher AGEs level in compare with 40-59 years old pts group ($p=0,02$) at the baseline and after 2 weeks observation.

After 2 weeks of treatment with L-Arginine mean AGEs was decreased by 19% on the whole ($p<0,01$), in compare with standard therapy – on 5% ($p=0,03$). After 2 weeks of L-Arginine supplementation the AGEs level was significantly less than in standard therapy group depend-

ing on age structure. Maximal dynamic of AGEs level decreasing was estimated in >60 years old patients ($\Delta = -23.3\%$) compare with 40–59 years old pts ($\Delta = -1.4\%$), $p < 0.05$. The inclusion of L-arginine aspartate contributed to the significant decrease AGEs level compare with standard treatment in both age subgroups ($p < 0.05$). Should be noted no significant changes in the level of AGEs in patients without MI in anamnesis ($p > 0.05$).

Conclusion:

- 1) AGEs serum level increased markedly in old age pts (>60 years old) with post infarction HFpEF.
- 2) Inclusion of L-arginine aspartate in complex of treatment for post infarction HFpEF contributed to the significant decrease AGEs level in >60 years old patients.

The features of ECG changes and hemodynamics in patients with chronic heart failure and preserved ejection fraction

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The aim of the study was to determine the features of ECG changes and hemodynamics in patients with chronic heart failure (CHF) and preserved ejection fraction (EF) depending on age.

Methods. retrospective analysis of 198 patients with heart failure and preserved ejection fraction. The average EF ($M \pm m$) – (63.8 ± 6.3) %. 53.5 % were males ($n=106$), 46.5 % – females ($n=92$). Patients were divided into 3 groups according to age: the 1st – 40–59 years old ($n=74$), the 2nd – 60–75 ($n=73$), the 3rd – >75 years old ($n=51$). Indicators of hemodynamics were assessed by echocardiographic examination on the unit «VIVID 3», GE Medical Systems – USA at B, M, 2D, CFM, PW – pulse sensor modes 3 S (3.5 MHz) in the left lateral position. Measurements were carried out according to the recommendations of the American Society of echocardiography. Statistic processing was conducted using the methods of biostatistics implemented in the software package Statistica v.6.1.

Results. Hypertension was diagnosed among 169 patients (85.4 %). 17 (23 %) patients from the first group had a myocardial infarction in anamnesis (over six months), 23 (31.5 %) – in the second group and 12 (23.5 %) – in the third group. Conduction (block) were in 11 (14.9 %) patients from the first group, in 5 (6.8 %) – from the second group and in 11 (21.6 %) from the third group. Extrasystole was in 11 (14.9 %) patients from the first group, in 15 (20.5 %) from the second group and in 7 (13.7 %) from the third group. Atrial fibrillation was detected in 6 patients (8.1 %) from the first group, in 17 (23.2 %) from second group, in 7 (13.7 %) from the third group. Level of indicators such as myocardial infarction history, extrasystole, atrial fibrillation increases with age, but the highest in the age 60–75 years.

Significant structural and functional changes of hemodynamics were observed among patients with CHF with

preserved ejection fraction from different age groups. It was found that significantly increases with age those indicators as average pulmonary artery pressure (21.4 ± 7 mm Hg in the 1st and 33.2 ± 4.3 mm Hg in the 3rd group), and frequency of registration changes of aortic root (83.8% in the 1st and 96 % in the 3rd group). The size of the left atrium significantly increased in accordance with age (3.8 ± 0.4 sm in the 1st and 4.4 ± 0.4 sm in the 3rd group) ($p < 0.05$). But, further analyzing hemodynamic showed that they vary differently with age. Thus, the second group of patients in the range of 60–75 years compared with patients of the first group was significantly increased end-systolic volume (LV ESV) to 21.3 % ($p < 0.05$) and end-systolic size (LV ESS) to 41.8 % ($p < 0.05$). However, in the age group over 75 years there were no LV ESV and LV ESS increase registered. Increase in LV ESV and LV ESS may indicate a poor prognosis in the age group of 60 to 75 years.

Conclusion. The highest level of myocardial infarction history, extrasystole and atrial fibrillation was in the age 60–75 years. Significant structural and functional changes of hemodynamics were found in patients with CHF and preserved ejection fraction depending on age which may indicate a poor prognosis in patients of this category.

Gallbladder: target organ of eccentric hypertrophy of left ventricle

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Left ventricle (LV) hypertrophy is associated with increased risk of cardiovascular diseases (CVD), death from CVD, all-cause mortality, various arrhythmias, and sudden cardiac arrest (Chatterjee S. et al., 2014; Reinier K. et al., 2011). Eccentric hypertrophy (EH) of LV is an independent predictor of sudden cardiac arrest, increasing the odds by over 2 fold compared to normal LV geometry (D. Phan et al., 2016). Subjects with EH are more likely to have coronary artery disease than patients with concentric geometry (Zabalgaitia M. et al., 2001). It is widely discussed that CVD and gallbladder (GB) disorders share the same complex of etiological factors (obesity, insulin resistance, endothelial dysfunction) (Belyalov F.I., 2009). Obesity leads to abnormal fat deposition in the GB wall, which results in structural and functional damage (Tsai C.J., 2009; Goldblatt M.I. et al., 2005). Such damage can be explained by lipotoxicity phenomenon and inflammation caused by adipocytokines (Colak Y. et al., 2016). One of the major clinical manifestations of cholecystitis is a thickened GB wall (Ramos-De la Medina A. et al., 2008). It is worth mentioning that thickened GB wall is associated with biliary stones and GB polyps independently of blood lipids and other risk factors (Xu Q. et al, 2012). Our previous works proved that GB can be considered as a target organ in patients with arterial hypertension. There is a theory that cardiac disorders and GB pathologies are mediated by leptin, which regulates GB motility and bile composition (Goldblatt M.I. et al., 2002; Sarac S. et al., 2015).

The aim of our study was to compare clinical, laboratory and abdominal ultrasound parameters in sub-