NGF (nerve growth factor) inhibitors (fasinumab, tanezumab and fulranumab) have been tried in OA and have shown promising results in terms of pain relief and improved functional capacity. Nevertheless, their further investigation seemed controversial, so they are regarded as treatment option in exclusive OA cases by FDA. Nanotubes, magnetic nanoparticles, and other nanotechnology-based drug and gene delivery systems may be used for targeting molecular pathways and pathogenic mechanisms involved in OA development. Nanotechnology platforms may be combined with cell, gene, and biological therapies for the development of a new generation of future OA therapeutics.

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COMPARATIVE CLINICAL AND FUNCTIONAL PROFILE OF PATIENTS WITH COMORBID ASTHMA AND CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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The aim is to compare clinical and functional characteristics of patients with coexistence of asthma and chronic obstructive pulmonary disease.

The study population consisted of 30 patients defined as asthma-COPD overlap (ACO). Spirometry, 6-minute walk distance (6MWD), asthma-control test (ACT) and COPD Assessment Test (CAT) were evaluated. Measurements of blood eosinophils, total IgE levels and high-sensitivity C-reactive protein (hs-CRP) were done.

Among patients who fulfilled the ACO diagnostic criteria, there were 23 individuals (Group I) with persistent airflow limitation, reported asthma documentation before 40 years of age, 17 of them were current or former smokers and 11 patients were reported to be exposed to air pollution. 18 patients (78,3%) were in amoderate and severe persistent group and 5 patients (21,7%) were in the uncontrolled group according to ACT questionnaire.

Other 17 individuals (Group II) –patients with previous diagnosis of COPD, who developed respiratory symptoms (dyspnea, cough, sputum production and wheezing) above the age of 40 years, were found to have new adult-onset asthma.All of them were current or former smokers. Among these patients there were 4 with high degree of reversibilityof airflow limitation and 15 - with blood eosinophil count higher than 2% and 200 cell/ml. 14 patients were reported to have frequent (2-4 times per year) exacerbations due to respiratory infection.

Peripheral blood eosinophils and serum IgE levels were 1,5 and 2,7 times higher ($p<0,05$) among Group II subjects. FEV1 was higher in Group I by 3,9% than in Group II. The COPD Assessment Test score was higher in Group II ascomparedwith Group I, but no correlation between CAT and FEV1 was found. There was no difference in hs-CRP level between groups and hs-CRP did not correlate with spirometry.

ACO is a heterogeneous disorder, which include patients with confirmed asthma, who are current or former smokers and then develop COPD features (chronic productive cough, exertion dyspnea and persistent FEV1/FVC <0,7) and patientswith COPD,who developed adult-onset asthma,eosinophilic inflammation, atopic disposition and/or high degree of reversibilityof airflow limitation. Further research is needed to understand different patterns of lung inflammation and search for new possible diagnostic and therapeutic measures in patients with comorbidasthma and COPD.

Prysyazhnyuk V.P.

ECHOCARDIOGRAPHIC FEATURES IN NON-ALCOHOLIC FATTY LIVER DISEASE PATIENTS WITH DIFFERENT POLYMORPHIC VARIANTS OF DELETION POLYMORPHISM OF THE GLUTATHIONE-S-TRANSFERASE M1 GENE

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Epidemiological studies indicate a higher incidence of adverse cardiovascular events in patients with non-alcoholic fatty liver disease (NAFLD) as compared to the general population.

Indicators of central hemodynamics in these patients are characterized by an increase in systolic and diastolic blood pressure, heart rate, total peripheral vascular resistance. In response to hemodynamic changes, structural changes in the left ventricle, including its hypertrophy, stromal fibrosis and dilatation of the cavity develop. Despite a significant number of studies confirming higher susceptibility to cardiovascular disease in patients with NAFLD, it should be noted that cardiac pathology is not diagnosed in all patients with NAFLD and in case of comorbid combination of liver and cardiovascular diseases, the natural course of cardiovascular pathology may be different in patients with similar liver injuries. Those differences can be genetically determined, which indicates the relevance of the investigation of associative links between polymorphic gene variants and the peculiarities of changes in the cardiovascular system in NAFLD patients.

The aim of this study was to investigate possible associations of deletion polymorphism of the glutathione S-transferase M1 gene with the structural and functional parameters of the heart in non-alcoholic fatty liver disease patients.

The study included 104 NAFLD patients and 45 healthy individuals (control group). First group included 52 patients without deletion of the *GSTM1*gene, second group consisted of 52 patients with deletion of the *GSTM1*gene. The average age of patients in the first group was 55,1±12,2 years, BMI – 32,8±0,8, including 24 men and 28 women. The average age of patients in the second group was 55,4±13,9 years, BMI – 33,8±0,7, including 26 men, women - 26. The healthy individuals of control group were representative by age and gender distribution to main groups. All the enrolled patients and healthy individuals signed written consent to participate in the study. All the patients and practically healthy people underwent objective examination, determination of anthropometric parameters, general and biochemical blood tests, ultrasonographic examination of the abdominal organs, elastography of the liver, echocardiographic investigation, investigation of the *GSTM1*gene deletion polymorphism.

Null genotype of *GSTM1*gene (-) among patients with NAFLD was diagnosed in 52 patients (50,0%), absence of deletion - *GSTM1* (+) was also observed in 52 persons (50,0%). In the control group, the deletion of the *GSTM1*gene was found in 23 individuals (51,1%), its absence - in 22 persons (48,9%), which did not differ significantly from the distribution of genotypes in patients with NAFLD. Thus, deletion of the *GSTM1*gene was found to occur in patients with NAFLD and healthy people. In patients with deletion variant of the *GSTM1*gene, a larger diameter of the left atrium was noted by 8,3%, p = 0,007, end diastolic size of the left ventricle by 7,9%, p = 0,02 and end systolic size by 12,5%, p = 0,02, end diastolic volume by 23,2%,p = 0,03, end systolic volume by 34,5%,p = 0,04, left ventricular myocardial mass by 16,4%,p = 0,03 as compared to the corresponding values in patients without deletion of the *GSTM1*gene. For female patients with *GSTM1* (-) a greater left ventricular myocardial mass index by 24,6%, p = 0,02 was characteristic in comparison with female patients with *GSTM* (+).

The distribution of polymorphic variants of the glutathione-S-transferase M1 gene is not significantly different in patients with non-alcoholic fatty liver disease and healthy individuals. Deletion genotype of the glutathione-S-transferase M1 gene in non-alcoholic fatty liver disease patients is associated with larger diameter of the left atrium, end systolic and diastolic sizes and volumes of the left ventricle, left ventricular myocardium mass, and in female patients also left ventricle myocardium mass index as compared to the corresponding indicators in patients without deletion of the gene functional allele.

Repchuk Yu.V.

ARTERIAL HYPERTENSION PHENOTYPIC MANIFESTATIONS DEPENDING ON THE ANGIOTENZINOGEN GENE POLYMORPHISM (AGT 704 T>C)

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The aim of the study was to analyze the phenotypic manifestations of essential arterial hypertension (EAH) depending on the angiotensinogen gene polymorphism (AGT 704T>C).