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*Key words: chronic non-specific lung diseases, pulmonary heart disease, heart failure, hypertrophy of the myocardium, myocardial atrophy, lipid peroxidation, antioxidant defense.*

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### RELATION OF GROWTH-DIFFERENTIATION FACTOR-15 LEVELS AND NUMBER OF CIRCULATING ENDOTHELIAL PROGENITOR CELLS IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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Background: risk stratification of patients with established type 2 diabetes mellitus (DM) is under scientific discussion and appears to be controversial issue.

The objective: to investigate relationship between levels of growth differentiation factor-15 (GDF-15) and circulating number of endothelial progenitor cells (EPCs) with angiopoietic phenotypes: CD34<sup>+</sup>CD14<sup>+</sup>CD309<sup>+</sup>, and CD34<sup>+</sup>CD14<sup>+</sup>CD309<sup>+</sup>Tie2<sup>+</sup> in patients with type 2 DM.

**Materials and Methods.** The study retrospectively involved 76 patients with type 2 DM aged 38 to 55 years and 30 healthy volunteers. Data collection included demographic and anthropometric information, hemodynamic performances and biomarkers of the disease. EPCs' populations were determined by flow cytometry.

**Results.** The levels of GDF-15 in peripheral blood of diabetics associated with age ( $r = 0.31$ ,  $P = 0.044$ ), high-sensitive C-reactive protein [hs-CRP] ( $r = 0.40$ ,  $P = 0.001$ ), smoking ( $r = 0.38$ ,  $P = 0.001$ ), body mass index [BMI] ( $r = 0.34$ ,  $P = 0.001$ ), LDL cholesterol ( $r = 0.28$ ,  $P = 0.001$ ), glycated hemoglobin [HbA1c] ( $r = -0.28$ ,  $P = 0.001$ ), number of CV risk factors ( $r = 0.26$ ,  $P = 0.001$ ). In univariate logistic regression analysis we found that level of GDF-15  $\geq 618$  pg/mL, hs-CRP  $\geq 7.12$  mg/L, HbA1c  $\geq 6.4\%$ , fasting glucose  $\geq 6.7$  mmol/L, and BMI  $\geq 27.3$  kg/m<sup>2</sup> predicted deficiency of both angiopoietic phenotypes of EPCs. In multivariate logistic regression model GDF-15  $\geq 618$  pg/mL demonstrated the best odds ratio values for declining of EPCs in diabetics in comparison with other predictors including BMI, HbA1c and hs-CRP.

In conclusion, GDF-15 was extremely evaluated in type 2 DM population to healthy volunteers and it was an independent factor that contributes to mobilization and probably proliferation of endothelial precursors with high angiopoietic activity.

*Key words: growth differentiation factor-15; endothelial progenitor cells; type 2 diabetes mellitus.*

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### MARKERS OF ENDOTHELIAL INJURIES IN PATIENTS WITH CORONARY HEART DISEASE AND AUTOIMMUNE THYROIDITIS

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According to WHO, coronary heart disease (CHD) has been on the top of the list of 10 leading causes of death in the world over the years, and its share is 12.8% [1,2]. CHD mortality among working age population is 28.3% [2]. At the same time, there is a significant increase in autoimmune thyroiditis (AIT) in society: particularly, in Ukraine the prevalence of AIT has increased by 68% over the past 10 years [3,4]. Today, endothelial dysfunction (ED) is considered to be the pathogenetic basis for the formation of atherosclerotic vascular lesions. ED, formed in conditions of chronic systemic inflammation (CSI), is the earliest stage of atherogenesis, and it plays a leading role in the progression of