

# **The correlation between hemodynamic indexes, lipid metabolism and proinflammatory cytokines in patients with metabolic cardiomyopathy**

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The contemporary clinical and experimental data prove the fact that even insignificant increase of blood pressure may favor the development of cardiovascular pathology in patients with diabetes mellitus type 2 (DM-2). The influence of combination of different myocardial injury factors in patients with metabolic cardiomyopathy (MCMP) associated with DM-2 and increased indexes of blood pressure remains understudied.

The objective of the research was to evaluate the correlation between hemodynamic indexes and the state of lipid metabolism, activity of proinflammatory cytokines in patients with MCMP associated with DM-2.

Methods. 102 patients with MCMP associated with DM-2 were examined. The following data were analyzed: systolic blood pressure (SBP), diastolic blood pressure (DBP), average hemodynamic blood pressure (AHBP). The levels of cholesterol (CH), high-density lipoproteins (HDL), triglycerides (TG), low-density lipoproteins (LDL) were determined by biochemical method. The levels of interleukin-1 $\beta$  (IL-1 $\beta$ ) and interleukin 6 (IL-6) were determined by immune-enzyme assay. Control group consisted of 20 healthy individuals.

Results. The following reliable correlations ( $p < 0,05$ ) between hemodynamic indexes, lipid indexes and IL-1 $\beta$ , IL-6 were determined in examined patients: between SBP and CH ( $R = 0,28$ ), SBP and TG ( $R = 0,285$ ), SBP and LDL ( $R = 0,27$ ), SBP and IL-1 $\beta$  ( $R = 0,406$ ), SBP and IL-6 ( $R = 0,24$ ). The correlation coefficient between DBP and TG was 0,198 ( $p < 0,05$ ), DBP and IL-1 $\beta$  - 0,248 ( $p < 0,05$ ), DBP and IL-6 - 0,198 ( $p < 0,05$ ). A significant reliable correlation ( $p < 0,05$ ) was revealed between AHBP and the following studied indexes: between AHBP and CH ( $R = 0,256$ ), AHBP and TG ( $R = 0,28$ ), AHBP and LDL ( $R = 0,26$ ), AHBP and IL-1 $\beta$  ( $R = 0,38$ ), AHBP and IL-6 ( $R = 0,26$ ).

Conclusion. Received data prove, that even insignificant increase of hemodynamic indexes in patients with MCMP associated with DM-2 increases the risk of cardiovascular pathology development, which is caused not only by augmentation of dyslipidemia, but also by systemic inflammatory reaction due to the rise of levels of proinflammatory cytokines IL-1 $\beta$  and IL-6.