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MARKERS OF PLATELET ACTIVATION (SCD40 L, SP-SELECTIN, MPV) AND PLATELET COUNT IN TYPE 2 DIABETES PATIENTS DEPENDING ON THE PERCENTAGE OF GLYCOSYLATED HEMOGLOBIN (HBA1C)

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Background: Platelet hyperactivity with the elevated concentration of soluble CD40 ligand (sCD40L), soluble P-selectin (sP-selectin) and mean platelet volume (MPV) have been observed in type 2 diabetic patients. The aim of this study was to investigate the aforementioned parameters and platelet count (PLT) depending on HbA1C in diabetic cases.
Methods: The study group consisted of 84 patients suffering from type 2 diabetes, divided into: 1st group with the HbA1C ≤7.0% (32 patients,mean age 70.1) and the 2nd group with the HbA1C >7.0% (52 patients,mean age 67.1. The control group consisted of 30 healthy subjects (mean age 66.1). The sP-selectin and sCD40L concentrations were determined in the serum with the use of ELISA method. MPV and PLT were determined with the use of hematological analyzer and HbA1C with the use of biochemical analyzer in whole blood. Mann-Whitney's test was used in order to compare significant differences between two groups of patients and a control group. Differences were considered statistically significant for P ≤0.05.
Results: The sCD40L and sP-selectin medians were statistically higher in the 1st group (115.5 pg/mL and 84 ng/mL respectively) as well as in the 2nd group (139 pg/mL;101 ng/mL) than in healthy subjects (90.5 pg/mL; 68ng/mL) (P <0.05). The differences between the groups of patients were also significant (P <0.05). MPV medians were significantly higher in both groups of patients (9 fl) than in a control group (8 fl). The difference between the groups of patients was not significant (P ≥0.05). Platelet count median was a little bit higher in the 2nd group (241.5x103/μL) compared to the 1st group (233x103/μL) and healthy subjects (211.5x103/μL), but these values were not statistically significant (P ≥0.05).
Conclusions: Type 2 diabetes is associated with platelet hyperactivity (increased MPV, sP-selectin and sCD40L concentration), which is connected with the percentage of HbA1C. Improved glycaemic control might lead to correct abnormal platelet activation and thus may decrease the risk of cardiovascular and thrombotic complications in type 2 diabetes patients. OM. Koper and J. Kamińska were supported by a scholarship Studying, researching, commercialization-PhD students of the Medical University of Bialystok support program.

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LIPID PROFILE IN DIABETIC PATIENTS ACCORDING TO THEIR GLYCAEMIC CONTROL

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Background: Diabetes mellitus is associated with abnormalities in lipid profile which can indicate the risk for development of diabetic complications. The aim of this study was to investigate the lipids in diabetic patients with good and poor glycaemic control.
Materials and Methods: This study included 76 patients with diabetes mellitus type 2 (average age 52±3.2 years, average duration of disease 8, 5±2.3 years) and 30 healthy persons (average age 49±4.7 years) as control group. The patients were divided into two groups depending on their level of glycosylated haemoglobin (HbA1c): patients with good glycaemic control (GGC) with HbA1c ≤8% (n=42) and patients with poor glycaemic control (PGC) with HbA1c ≥8% (n=34). K3EDTA plasma samples were used for measurment of: HbA1c, triglycerides, total cholesterol, HDL and LDL. HbA1c was measured by ion exchanging chromatography and the other parametars were measured photometrically.
Results: The levels of triglycerides and total cholesterol in PGC group were significantly increased (P <0,01) compared to GGC and control groups. LDL was significantly increased (P <0,01) in both diabetic groups compared to the control group. HDL was significantly decreased (P <0,001) in both diabetic groups compared to control group.
Conclusion: Lipid abnormalities are present in both diabetic groups but they are lower in patients with good glycaemic control. Good glycaemic control is important to decrease the risk of development of diabetic vascular complications.