The 7th World Congress on
Controversies to Consensus in Diabetes, Obesity and Hypertension (CODHy)
Sorrento, Italy April 11-13, 2019
www.codhy.com codhy@codhy.com

HYPERGLYCEMIA AND INCREASED LEVEL OF GLYCATED HEMOGLOBIN A_1C AFFECT HEMOSTASIS

K. Sarkisova[2], I Jarek-Martynowa[1], M Shestakova[1], L Nikankina[1], Shamkhalova Shamkhalova[1], L Chirkova[1]
[1]*Endocrinology Research Centre, Endocrinology Research Centre, Russia*
[2]*I.M. Sechenov, First Moscow State Medical University, Russia*

Background and aims: Hyperglycemia can be a risk factor for adverse cardiovascular and cerebrovascular events. However, Changes in platelets and coagulation hemostasis during hyperglycemia have not been extensively studied.The aim of this study was to assess the impact of level of fasting plasma glucose, HbA_1c on hemostasis in patients with Diabetes Mellitus type 1(DM1). **Materials and methods:** We examined 88 patients with DM1 (39 male and 49 female; age 27[23;33] years; HbA_1c 8,9[7,8;9,9]%).On the background euglycemia (fasting plasma glucose(fpg)≤6,5(5,7±1,06) mmol/l), and hyperglycemia (fpg≥12(13,2±2,35) mmol/l) were measured induced platelet aggregation (IPA) in whole blood using thrombin, collagen, ADF, arachidonic acid, ristocetin by multiple electrode platelet aggregometry; physiological anticoagulants (protein S, protein C, AT-III), von Willebrand factor, plasminogen activator inhibitor (PAI-1) and tissue plasminogen activator (tPA) were determined by ELISA. Statistical analysis was performed with SPSS 22,0, *p*0.05. **Results:** Platelet aggregation after adding collagen, thrombin, ADF, arachidonic acid, ristocetin was significantly increased on the background of hyperglycemia compared with euglycemia (p=0,004, p=0,000, p=0,000, p=0,044, p=0,023*).* Additionally, tPA was increased on the background of hyperglycemia as compared with euglycemia (p=0.000*)*.Increased level of plasma glucose was correlated positively with tPA(p=0,008;r=0,469) and increased platelet aggregation after adding collagen(p=0,001;r=0,394),thrombin(p=0,001;r=0,410), ADF(p=0,000;r=0,482).Level of HbA_1c was correlated positively with PAI-1 (p=0,001;r=0,541), proteinC(p=0,032; r=0,374) and increased platelet aggregation after adding collagen(p=0,028;r=0,268), ADF(p=0,035;r=0,262), arachidonic acid (p=0,018;r=0,297). **Conclusions:** Hyperglycemia and increased level of HbA_1c are associated with platelet hyperactivity and a decrease in the systemic fibrinolytic balance via increased PAI-1 activity. However, these changes are compensated by the activation of free protein C, an increase of tPA and the preservation of increased concentrations of Protein S and AT-III.