

STUDY OF THE ROLE OF P-SELECTIN IN THE DEVELOPMENT OF DIABETIC MACULAR EDEMA

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Introduction: Diabetic retinopathy develops in almost a third of patients with diabetes. The role of inflammatory and prothrombogenic factors in the development and progression of diabetic retinopathy has not been fully elucidated.

Purpose: To investigate the role of P-selectin in the development of diabetic macular edema in diabetic retinopathy and type 2 diabetes.

Methods: We observed 124 patients (124 eyes) with type 2 diabetes mellitus who had mild (29 eyes, group 1), moderate or severe (35 eyes, group 2) nonproliferative diabetic retinopathy according to the ETDRS classification and proliferative diabetic retinopathy (31 eyes, 3rd group). The control group consisted of 29 eyes without diabetes. All patients underwent comprehensive ophthalmological examinations. The content of P-selectin in the blood was determined by the immunoenzymatic method (Invitrogen ThermoFisher Scientific, USA). Statistical processing of the obtained results was performed using MedStat and MedCalc v.15.1 software packages (MedCalc Software bvba).

Results: It was established that the blood level of P-selectin in diabetic retinopathy was statistically significantly increased compared to the control group (by 1.3 times; $p < 0.001$). This persisted when stratified only for proliferative diabetic retinopathy. The increase in P-selectin content had a direct correlation with the level of glycated hemoglobin and the central thickness of the retina. In proliferative diabetic retinopathy, the content of P-selectin in the presence of diabetic macular edema was higher than without it (by 1.2 times; $p < 0.001$). The association of increased P-selectin content with the development of diabetic macular edema was confirmed in regression analysis (OR = 1.02; 95% CI 1.01–1.03). ROC analysis showed that this model had satisfactory criteria only in proliferative DR (AUC = 0.85; 95% CI 0.68–0.95), which allowed us to calculate the threshold level of prediction, which was equal to 128.7 ng/ml (sensitivity of the test is 77.8% and specificity is 69.2%).

Conclusion: Our research established the effect of an increase in P-selectin in the blood with the development of diabetic macular edema in proliferative diabetic retinopathy. Based on the obtained results, a prognostic model of the development of diabetic macular edema in patients with diabetic retinopathy and type 2 diabetes was developed.