25th Global

DIABETES SUMMIT AND MEDICARE EXPO

Relationship of pigment epithelium derived factor and C1q/TNF-related protein 9 to metabolic syndrome and vascular damage in patients with type-2 diabetes

David Karásek¹, Jaromíra Gajdová¹, Veronika Kubíčková¹, Ondřej Krystyník¹, Lubica Cibičková¹ and Helena Vaverková¹ ¹University Hospital Olomouc, Czech Republic ²Palacky University Olomouc, Czech Republic

Introduction & Aim: Pigment epithelium derived factor (PEDF) and C1q/TNF-related protein 9 (CTRP-9) belong to novel adipokines, which may contribute on insulin resistance and vascular damage. Aim of the study was to compare their circulating levels in type-2 diabetes patients with and without metabolic syndrome (MS) to healthy controls. Their relations to risk cardiovascular factors and markers of vascular damage were also detected.

Methods: Fifty (50) individuals with type-2 diabetes (23 men, 27 women) and forty (40) healthy controls (15 men, 25 women) were included in the study. PEDF, CTRP-9, lipids, anthropological parameters, markers of insulin resistance and diabetes compensation were investigated in all subjects. Diabetics were divided into two groups: With MS (n=30; 11 men, 19 women) and without MS (n=20; 12 men, 8 women). Von Willebrand factor and plasminogen activator inhibitor-1 (PAI-1) served as markers of endothelial dysfunction. Markers of arterial stiffness; augmentation index (AI) and pulse wave velocity (PWV) were measured as other parameters of vascular damage.

Results: Compared to healthy controls only diabetics with MS had higher levels of PEDF [14160 (10240-16000) ng/ml versus 11120 (8560-14400) ng/ml; p<0.05]. CTRP-9 levels did not significantly differ between groups. In all subjects PEDF significantly (p<0.05) correlated: Positively with BMI, waist circumference, hs-CRP, triglycerides, non-HDL cholesterol, apolipoprotein B, fasting glucose, glycated hemoglobin, C-peptide and insulin; negatively with HDL-cholesterol and apolipoprotein A1. Additionally, in patients with diabetes a negative correlation of PEDF with PWV (ρ =-0.34; p<0.05) and in diabetics with MS a negative correlation of PEDF with vWF (ρ =0.46 p < 0.05) were found. CTRP-9 levels positively correlated with vWF (ρ =0.56; p<0.05) and PAI-1 (ρ =0.57; p<0.05) only in group of diabetics with MS.

Conclusion: Patients with type-2 diabetes and MS have significantly higher levels of PEDF, which are associated with symptoms of MS and insulin resistance. A negative correlation of PEDF with some markers of vascular damage may point out its vascular protective role.

Biography

David Karásek is an associate professor of Internal Medicine at Faculty of Medicine and Dentistry of Palacky University in Olomouc, Czech Republic. He works as Deputy Head of Third Department of Internal Medicine – Nephrology, Rheumatology and Endocrinology of University Hospital Olomouc. He manages the Center for diabetes of University Hospital Olomouc and as specialist doctor is involved in the activities of the Clinic for endocrine diseases and the Center for lipid metabolism disorders. His research is focused on the issue of dyslipidemia, metabolic syndrome, insulin resistance, visceral obesity and their relationship to early cardiovascular involvement. He is the author or co-author of several chapters in monographs or textbooks and of about one hundred scientific papers. He is the editorial board member for the two scientific journals. For his research, he received a number of medical awards (Prizes of the Czech Society for Internal Medicine, Czech Society) and the Minister of Health of the Czech Republic Prize for research and development.

david.b.karasek@gmail.com

Notes: