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## Retinal vascular net and parameters of oxidative stress in patients with diabetes mellitus type II

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**Statement of the Problem:** Diabetic retinopathy (DR) is a vision-threatening microvascular complication of diabetes. A biomarker, or biological marker, has been defined as a biological molecule found in blood or body fluids, or tissue which represents a sign of normal or abnormal processes of condition or a disease. To detect early stages of DR new diagnostic tool is necessary. Intensive oxidative stress and chronic inflammation are present in patients with DM and underlies the development of a microvascular complication of DMT2.

**Aim:** The aim of this paper was to investigate the correlation between the levels of advanced oxidation protein product (AOPP), thiobarburic acid reactive substances (TBARS), and total sulfhydryl groups (SH groups), in blood samples with morphometric parameters of retinal blood vessels in patients with diabetic retinopathy.

**Methodology:** Patient were matched by sex and years of life. Blood laboratory examination of 51 patients included the measurement of glycemia, HbA1C, total cholesterol, LDL-C, HDL-C, triglycerides. Morphometric analysis was performed with the ImageJ software for digital retinal photography. We measured the number and diameter of retinal blood vessels in five different parts. Differences between the morphometric parameters and blood test analysis results were evaluated using the Student's t – test. One Way ANOVA was used to establish the significance of differences in the number of vessels and their mean outer diameter between the zones.

**Findings:** AOPP and TBARS levels were moderately higher in the group of patients with severe DR. Levels of total SH groups, were high in group with mild form of DR. Levels of AOPP correlated with diameter of retinal blood vessels in patients with mild DR.

**Conclusion:** AOPP and TBARS levels may be valuable for the follow-up of diabetic retinopathy, while AOPP may be biomarker of early stages of disease.

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