Title of the project: Proprotein convertase subtilisin/kexin 9 (PCSK9) in the pathophysiology a treatment of dry age-related macular degeneration

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Summary of 2017 results

Title of the presentation: Decrease of PCSK9 in the treatment with rheopheresis in age-related macular degeneration

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Aim: Hypotheses on the causes of age-related macular degeneration (AMD) indicate a possible role of lipoproteins. The aim of our study was to examine the dynamics of PCSK9 during therapy of AMD with rheopheresis

Methods and group of patients: 19 patients with dry form of AMD (9 females and 10 males, age 77.8±4.3, median 69) were treated with rheopheresis - 8 procedures for 10 weeks. We used extracorporeal plasma filtration. Reduction of blood viscosity increases the flow in the microcirculation and support of the recovery processes in the retina. The PCSK9 level was examined (Quantikine ELISA PCSK9 kit). The control group included blood donors (54 healthy individuals, 28 males, 26 females, age 54.9±6.7 years, median 56 years).

Results: The baseline patients' PCSK9 level was increased - median 192ng/L, 136ng/L in the controlled group (p=0.02). The values are significantly reduced following the procedures (p<0.0001). The PCSK9 level correlates with the level of total cholesterol, it does not correlate with LDL, HDL cholesterol, fibrinogen, viscosity of plasma and blood, apolipoprotein B, IgM and alpha2-macroglobulin. The PCSK9 level is not significantly different in patients who succeeded with therapy compared to those who did not.

Conclusion: The acquired knowledge verifies the theory on possible contribution of lipoprotein metabolism disorders in the development of AMD. Currently, when even the treatment with monoclonal antibodies against PCSK9 is available, they have not only theoretical but also practical clinical potential.

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