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

**Grant Agency:** Ministry of Health  
**Project Number:** 17-29241A

**Principal Investigator:** Hana Langrová

**Co-investigators:** Bláha V, Lánská M, Bláha M., Studnička J, Stepanov A., Kujovská Krčmová L., Dvořáková H, Kvasnička J.

**Starting date:** 01.04.2017  
**Duration (years):** 4

**Total funds allocated for project - Kč (thousands):** 9962

**Summary of 2019 results**

**Title of the presentation:** Prediction of long-term prognosis using baseline laboratory indicators – experimental clinical model

**Authors:** Bláha M, Langrová H, Bláha V, Andrýs C, Stepanov A, Lánská M, Vejražková E., Loefflerová V, Studnička J, Košťál M

**INTRODUCTION:** Determining a set of indicators that would make it possible to predict the future fate of patients at the time of disease detection would allow individual modifications to therapy method and intensity - "custom tailored medicine".

Age-related macular degeneration (AMD), a common cause of blindness, is a chronic disease. Our Department has clinical results available dating back more than 10 years.

**THE HYPOTHESIS/THEORY:** We formulated a hypothesis that a group of initial laboratory parameters would be suitable for the prediction of AMD prognosis. Laboratory indicators from the beginning of the treatment were compared among groups of successfully treated patients and patients who were not treated successfully, in an attempt to identify the relevant biomarkers for predicting success.

**GROUP OF PATIENTS AND METHODOLOGY:** 81 patients with the dry form of AMD were treated using rheopheresis and monitored for 9 years. The study group included 66 of these patients (28 males and 38 females) if the follow-up period was more than 5 years; mean age: 75.2±6.6 years. The patients were divided into two groups - successfully treated and unsuccessfully treated.

**RESULTS:** For further data analysis, multivariate statistical analysis was selected, with the use of discriminant analysis by means of Systat 13 software (Systat, Chicago, IL, USA). Prediction of prognosis based on the initial laboratory parameters was correct in 79% of unsuccessfully treated patients and in 60% of successfully treated patients; in total, prediction was correct in 64% of patients.

**CONCLUSION:** Implementation of discriminant analysis is a promising method for predicting prognosis, with the use of a group of selected indicators (especially lipoproteins) that are relatively commonly available at the beginning of treatment.

**ACKNOWLEDGEMENTS:** The study was supported by the grant AZV 1729241A.

**Address for correspondence:** Hana Langrová, MD, Ph.D, Charles University, Medical faculty in Hradec Králové, Šimkova 871, Hradec Králové, Czech Republic