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## **„Diabetes epidemiology and analysis of its impact on selected eye diseases in Poland”**

### **Summary**

**Purpose:** The main objective the study was to investigate the impact of diabetes on selected eye diseases and their treatment in Poland based on the data of the National Health Fund (NHF).

**Materials and Methods:** The NHF databases were the main source of unit data on reimbursed medical services and drugs in the years 2010-2017 as well as patient demographic data. 2,635,249 diabetic patients, 310,815 diabetic retinopathy, and 5,069 corneal transplants were identified and analyzed during the study. The spatial correlation between poviats was evaluated for the epidemiological indicators of diabetes and diabetic retinopathy using the I Moran statistics and mathematical spatial models. The elements of the survival analysis, including Cox proportional hazard, were used to verify the factors of diabetic retinopathy occurrence. A logistic regression model was used to examine potential factors, including diabetes mellitus, influencing the admission to the hospital for corneal transplantation.

**Results:** According to the data of NHF, 5,42% and 6,44% of polish population suffered from diabetes in 2013 and 2017, respectively. It was estimated that 25% of people over the age of 70 have been reported with diabetes. Statistically significant discrepancies were found in the values of diabetes occurrence in poviats; The number of patients with diabetic retinopathy in Poland in 2017 was 310,815, which accounted for 0.81% of the total population of Poland (twice as much as in 2013). The most common method of treating diabetic retinopathy was laser photocoagulation. It was shown that the diabetic retinopathy occurrence was correlated with comorbidities, age, gender, and access to specialist diabetes care. Statistically significant inequalities in the prevalence of diabetic retinopathy in Poland were found. In addition, average salary, the prevalence of diabetes in poviats and the use of healthcare were the significant factors of diabetic retinopathy occurrence in poviats; The number of corneal transplantations increased from 914 in 2013 to 1250 in 2017. 22.43% of people with corneal transplantation suffered from diabetes. Diabetes was not correlated with the admission mode to corneal transplantation.

**Conclusions:** Diabetes mellitus is a significant and growing health problem in Poland. The occurrence of diabetes and diabetic retinopathy in Poland is not random in terms of spatial dependencies. Both arguments should stimulate decision-makers to prevent diabetes complications and the lack of their detection. Laser photocoagulation remains the gold standard of RC treatment in Poland; Despite the positive trend, the number of corneal transplants is still insufficient. Diabetes mellitus is relatively more

common among people undergoing corneal transplant, but is not correlated with the admission mode to corneal transplantation.