

## **RISK FACTORS OF THE SEVERITY OF DIABETIC MACULAR EDEMA IN TYPE 2 DIABETES MELLITUS**

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**Background.** International diabetic federation (IDF) evaluated 463 million world population of t diabetes mellitus (DM) patient in 2019 and predict it growth up to 700 million in 2045. Diabetic retinopathy (DR) and diabetic macular edema (DME) remain the most common complication of DM and remain the main cause of blindness in adult workforce patient. To date, the correlation between the development of diabetic retinopathy (DR) according to the stages and severity of diabetic macular edema (DME) in the conditions of type 2 diabetes mellitus (T2DM) has not been definitively clarified.

**Aim of the study** - to investigate the risk factors of the severity of diabetic macular edema and type 2 diabetes mellitus.

**Materials and methods.** Observation involved 81 patients (81 eyes) with T2DM who were diagnosed with a mild (10 eyes, group 1), moderate or severe form (33 eyes, group 2) non-proliferative DR and proliferative DR (38 eyes, 3rd group) according to International clinical DR severity scale of the American Academy of Ophthalmology (2002); the control group consisted of 50 patients (50 eyes) with T2DM, with a disease duration up to 5 years, normalized carbohydrate metabolism, DR 0 ( no retinopathy) and no DME. All patients underwent generally accepted ophthalmological examinations, SWEPT source OCT optical coherence tomography (OCT). DME was set at a retinal thickness greater than the values of the normative database on the ETDRS fields of the spectral domain OCT software. MedStat and MedCalc v.15.1 (MedCalc Software bvba) software packages were used for statistical research.

**Results.** 1. In patients with T2DM, who at the time of the first visit for specialized eye care had DR and DME, a direct connection between the stage of DR and the degree of severity of DME was established ( $p=0.043$ ). Spearman's rank correlation analysis showed a positive connection between the stage of DR and the degree of DME ( $r=0.25$ ; 95% BI 0.04-0.45;  $p=0.022$ ). When comparing patients by stages of DR or degree of severity of DME, the correspondence of clinical and ophthalmological parameters (age, intraocular pressure, blood glucose and glycated hemoglobin) was established. A positive dependence of the duration of T2DM on the degree of severity of DME was established ( $p=0.021$ ), but not on the stage of DR ( $p=0.603$ ). The conducted study revealed the peculiarities of patients with T2DM, DR, and DME who sought specialized eye care for the first time.

Conclusion. 1. The conducted study revealed that in patients with T2DM, who at the time of the first visit for specialized eye care had DR and DME, a direct connection between the stage of DR and the degree of severity of DME was established ( $p=0.043$ ). 2. When comparing patients by stages of DR or degree of severity of DME, the correspondence of clinical and ophthalmological parameters (age, intraocular pressure, blood glucose and glycated hemoglobin) was established. 3. A positive dependence of the duration of T2DM on the degree of severity of DME was established ( $p=0.021$ ), but not on the stage of DR ( $p=0.603$ ).

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