ABSTRACT

In this work I present conclusions of clinical-laboratory research focused on the patients with diabetic macular edema (DME). We performed biochemical and immunochemical analyses of vitreous samples that were collected during the pars plana vitrectomy. Moreover, at patients with non-proliferative diabetic retinopathy (NPDR) we assessed morphological characteristics of DME using optical coherence tomography (OCT).

According to our findings, the vitreous and serum concentrations of uric acid and glucose were significantly higher in patients with diabetic retinopathy and DME compared to controls. Also total ratio (serum/ vitreous concentration) of uric acid and glucose was in diabetics significantly higher than in controls. The most important determinant of increasing concentration of both uric acid and glucose in the vitreous was the grade of diabetic retinopathy. Moreover, we demonstrated significant correlation between vitreous concentration of uric acid and concentration of the vascular endothelial growth factor (VEGF) in patients with DME and NPDR. We found further, that the volume of the macula (cube volume – CV) computed with the software of Cirrus HD-OCT correlates in diabetics significantly with the vitreous VEGF concentration, but not with uric acid. This OCT parameter could be used to assess the efficacy of anti-VEGF therapy in the clinical practice.

Our results suggest that uric acid should be considered as one of the causal factors in the pathogenesis and progression of diabetic retinopathy.

Key words: diabetic retinopathy, diabetic macular edema, vitreous, uric acid, optical coherence tomography, vascular endothelial growth factor