575 patients (1150 eyes) with type II DM aged 55,9±7,8 years with absence of glaucoma in anamnesis were examined. In addition to standard ophthalmologic methods optical coherent tomography of the retina and optic nerve was performed. Lamina cribrosa thickness was measured with the help of SD OCT using LC Thickness programm and main low noise filters programm, based on the adaptive compensation algorithm for eliminating a high-level noise in the deep layers of the optic nerve and improving the visualization of the posterior border of the lamina cribrosa, as well as for processing B-scan with a set of 3 digital filters: Butterworth Low-pass Filter inverion image, Wavelet Low-pass Filter Analysis Daubechies original and inversion image. The area of lamina cribrosa scleral canal was measured with the help of SD OCT using the LC cut position programm for choosing the depth of measurement and LC diameter calculation programm for improvement of the selected image by the main digital filters and determination of the most qualitative one for measuring the area of the lamina cribrosa scleral canal.

Analyzing the results of examination, the correlation between the type and stage of DON and scleral lamina cribrosa thickness in patients with DM was revealed. A thickening of scleral lamina cribrosa in average 1.9 times greater as compared to healthy persons of appropriate age was found. In 78.9% of eyes of the patients with DM a mild thickening of scleral lamina cribrosa (<700 μm) was observed; in 16.6% of eyes a moderate thickening (700-900 μm), and in 3.8% of eyes – a significant thickening (<900 μm) was observed. An average index of lamina cribrosa thickness in patients with DM without diabetic optic neuropathy was 1.4 times higher than that of the control group; in subclinical stage of axial DON – 1.9 times higher, in initial stage – 2.1 times higher, in severe stage of axial DON and diabetic papillopathy – 2.6 times higher, in anterior ischemic DON – 2.7 times higher, in dystrophic stage – 3.1 times higher than that of the control group (303+56 μm) ($p<0,001$). Scleral canal area in diabetic papillopathy is 35% less and in anterior ischemic DON is 21,6% less than it is in healthy persons of an appropriate age. A direct correlation was determined between the area of scleral canal of the lamina cribrosa and the state of the optic nerve head in diabetic papillopathy and ischemic diabetic optic neuropathy ($r=0,89$, $p<0,001$ and $r=0,93$, $p<0,001$ correspondingly).

As a result of the study a direct correlation between the type and stage of DON and scleral lamina cribrosa thickness in patients with DM was revealed. Narrowing of scleral canal of lamina cribrosa and a thickening of lamina cribrosa were found to play an essential role in the pathogenesis of diabetic papillopathy and ischemic diabetic optic neuropathy.

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BIOMARKER-PREDICTOR OF VISUAL OUTCOME IN RESOLVED ACUTE FORM OF CENTRAL SEROUS CHORIORETINOPATHY

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The natural history in the vast majority (80-90%) of central serous chorioretinopathy (CSC) cases is the spontaneous resolution within 3-4 months. Recovery of visual acuity usually follows, but some eyes suffer permanently diminished visual acuity and have poor visual outcomes. It is frequently difficult to discern the exact duration of the episode in patients with CSC, so it is rational to observe the patient's optical coherence tomography (OCT) – specifically the layers indicating photoreceptors integrity (M. Colucciello, www.retinalphysician.com, August 2017). Treatment prior to photoreceptor disruption would prevent vision loss.

Aim - to study the morphologic changes of outer nuclear layer (ONL) at the fovea and their relationship with visual acuity in patients with the resolved acute form of central serous chorioretinopathy.

The study comprised 24 patients (24 eyes) with acute form (fluid persisting <3 months) of central serous chorioretinopathy with subretinal fluid resolution. Patients underwent visual acuity testing, fundus examination, and spectral-domain optical coherence tomography at every visit with the intervals of 3 to 4 weeks until subretinal fluid (SRF) resolved. OCT (RTVue-100, Optovue, USA) was performed by acquiring six radial scans, 6 mm long, centered in the fovea using the fast macular scan function. The outer nuclear layer thickness at the central fovea and integrity of the photoreceptor inner and outer segment (IS/OS) junction were measured and assessed.

The average ONL thickness at the central 1-mm foveal zone was from 69,8 μm to 105,7 μm. In patients with visual acuity 0,4-0,5 and less the average ONL thickness at the central fovea was significantly ($P < 0.01$) thinner than that in patients with visual acuity 0,6-0,9. The ONL thickness was correlated with the visual acuity ($r=0.61$; $p<0,001$). Disorganization of photoreceptor IS/OS junction was observed in patients with visual acuity 0,3-0,4 and less and was absent in patients with visual acuity 0,6-0,9.

Also, the ONL thickness within the central foveal zone is positively correlated with the visual acuity in resolved acute form of CSC. Disorganization of photoreceptor IS/OS junction within the central foveal zone was observed in eyes with visual acuity 0,3-0,4 and less. Our results suggest that evaluation of outer nuclear layer morphology at the fovea may be used as biomarker-predictor of visual outcome in the acute form of central serous chorioretinopathy and for the definition of instances when treatment instead of observation may be desirable.