Comparative Assessment of Peripapillary Vessel Density in Patients with Pseudoexfoliation Glaucoma and Primary Open-Angle Glaucoma

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Purpose: To compare the peripapillary vessel density (VD) in patients with pseudoexfoliation glaucoma (PXG) and primary open-angle glaucoma (POAG), and to evaluate correlation with thickness of retinal nerve fiber layer (RNFL).

Methods: Two groups of patients with PXG (24 eyes) and POAG (26 eyes), and a control group of healthy patients (24 eyes) were included in this study. Average age of patients was 69.5±2.3 years in the first, 71.3±1.5 years in the second and 67.3±2.4 in the third group, respectively. Peripapillary VD in the radial peripapillary capillaries was measured using optical coherence tomography angiography (OCTA). Peripapillary RNFL thickness was determined by spectral-domain optical coherence tomography (SD-OCT). Comparative analysis of received data was performed.

Results: All eyes with glaucoma had reduced peripapillary VD. The mean peripapillary vessel density was lower in the eyes with PXG than in the eyes with POAG (PXG: 51.28±2.71; POAG: 53.51±3.45) compared with the healthy eyes (control group: 64.34±2.25). Glaucomatous eyes had a significant correlation between peripapillary vessel density and RNFL thickness (PXG: r = 0.73, p = 0.002; POAG: r = 0.76, p = 0.001).

Conclusions: Peripapillary VD was lower in eyes with PXG compared with POAG eyes. The strong correlation between peripapillary VD and RNFL thickness in both groups of glaucoma patients was identified.