Comparison of ganglion cell and retinal nerve fiber layer thickness in pigment dispersion syndrome and pigmentary glaucoma with spectral-domain OCT

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Purpose: To evaluate the ganglion cell complex (GCC) and circumpapillary retinal nerve fiber layer (RNFL) thickness in pigment dispersion syndrome (PDS) and pigmentary glaucoma (PG) with RTVue spectral domain optical coherence tomography (SD-OCT).

Methods: A total of 102 subjects were enrolled: 29 with PDS, 18 with PG and 55 normal subjects. Full ophthalmic examination including visual field analysis was performed. Spectral domain optical coherence tomography (SD-OCT) was used to analyze GCC superior, GCC inferior and average RNFL thickness. To compare the discrimination capabilities between GCC, and RNFL thickness measurements, the areas under the receiver operating characteristic curves (AUROCs) were assessed.

Results: Superior GCC, inferior GCC and RNFL thickness values of patients with PG were statistically significantly lower compared with those of eyes with PDS (p ≤ 0.001) and healthy individuals (p < 0.001 for all). No statistically significant difference was found between PDS and normal subjects in same parameters (p > 0.05). Among the comparison of the visual field indexes within groups, the largest AUROC was found in mean deviation comparison between eyes with PDS and PG with the area of 0.839.

Conclusions: The SD-OCT-derived GCC and RNFL thickness parameters can be useful to discriminate PG from both PDS and normal subjects.