Correlation between the Ganglion Cell Complex and functional measures in glaucoma patients and suspects

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PURPOSE: To correlate functional measures evaluated with standard automated perimetry (SAP) and structural measures provided by Ganglion Cell Complex (GCC) analysis of the Fourier-Domain optic coherence tomography (FD-OCT) in glaucoma patients and glaucoma suspects.

METHOD: Retrospective study with 73 eyes (39 patients) with diagnosis of glaucoma or glaucoma suspects who underwent SAP and FD-OCT. Perimetry’s Mean Deviation (MD) and Pattern Standard Deviation (PSD) were correlated with GCC with Pearson’s correlation coefficients.

RESULTS: The strongest correlation was found between GLV% and MD (R = -0.70), followed by INF and MD (R = 0.67), AVG and MD (R = 0.67) and GLV% and PSD (R = 0.67). Other Pearson’s coefficients were between AVG and PSD (R = 0.62), SUP and MD (R = 0.61), SUP and PSD (R = 0.55), INF and PSD (R = 0.64), FLV% and MD (R = 0.6) and FLV% and PSD (R = 0.64). All these correlations achieved statistical significance (p < 0.0001). Non-significant association was found between S-I and MD (R = -0.05, p = 0.66), S-I and PSD (R = 0.09, p = 0.44), S-I SD and MD (R = -0.06, p = 0.61) and S-I SD and PSD (R = 0.08, p = 0.47).

CONCLUSION: Most of structural measures from FD-OCT (GCC) showed good correlation with function parameters from SAP. GCC can be used as a structural biomarker in glaucoma.