Ophthalmic Res 2017;58:242
DOI: 10.1159/000479159**Evaluation of the Macular Ganglion Cell-Inner Plexiform Layer and the Circumpapillary Retinal Nerve Fiber Layer in Early to Advanced Stages of Glaucoma: Correlation with Central Visual Function and Visual Field Indexes**

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Keywords

Glaucoma · Optical coherence tomography · Retinal nerve fiber layer · Ganglion cell-inner plexiform layer

Dear Editor,

We wholeheartedly appreciate your work in the study entitled “Evaluation of the macular ganglion cell-inner plexiform layer and the circumpapillary retinal nerve fiber layer in early to advanced stages of glaucoma: correlation with central visual function and visual field indexes” by Bambo et al. [1]. It is an extremely informative work in the direction of exploring the utility of an optical coherence tomography (OCT) device for differentiating different severity grades of glaucoma.

Your study concluded that inner macular parameters performed as well as the circumpapillary retinal nerve fiber layer (cpRNFL) parameter in patients with different stages of glaucoma and that inferior macular (ganglion cell-inner plexiform layer, GC IPL) sectors, minimum GC IPL thickness, and the inferior cpRNFL quadrant best differentiate disease severity and correlate with central visual function and visual field indexes.

At our hospital, we have conducted a similar study on both Cirrus and RTvue OCT devices and would like to share our experience. We recruited 30 healthy eyes and 90 glaucomatous eyes (30 mild, 30 moderate, and 30 advanced glaucomatous eyes – according to Hodapp-Parrish-Anderson criteria). Glaucomatous eyes in our study included all forms of primary glaucoma except primary congenital glaucoma.

Discriminating ability of different parameters between different glaucoma stages was assessed using the area under the receiver-operating characteristic curve (AUC). Our results concluded that RNFL thickness (average/global) measured with SD OCT can discriminate between the 3 stages of glaucoma. Global RNFL thickness performed best (highest AUC) in distinguishing each stage of glaucoma – early from moderate, moderate from advanced, and advanced from the rest (AUC 0.88–0.91). No significant difference

was found between the RTvue and the Cirrus OCT device in various parameters in different severity levels ($p = 0.42$). Even in discriminating the advanced stage of glaucoma from the rest, RNFL performed better than the macular parameters.

Elbendary and Mohamed Helal [2] studied RNFL thickness parameters between different stages of glaucoma in 3D OCT 2000 (Topcon, Tokyo, Japan) and concluded that average, superior, and inferior RNFL thicknesses were the best parameters to discriminate normal from early glaucoma (AUC 0.91–86), early from moderate (AUC 0.77–0.70), and moderate from advanced (AUC 0.85–0.83).

There is a paucity of literature on the discriminating ability of OCT devices in different stages of glaucoma. Most of the studies conducted previously discriminate normal from early glaucoma subjects using OCT, with few studies concluding that RNFL parameters perform similar to macular parameters, while others suggest that average RNFL measurement is superior to global GC IPL measurement for the detection of early glaucoma [3, 4]. We would like to add that it would be extremely advantageous to calculate and compare the AUC in your study for different parameters in different severity groups of glaucoma as this test can be performed even on nonparametric distribution of data [5].

We acknowledge your work which has enlightened our minds and directed our future research studies on OCT and glaucoma.

Disclosure Statement

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