Introduction

Glaucoma is a leading cause of irreversible blindness throughout the world. World Health Organization statistics, published in 1995, indicate that glaucoma accounts for blindness in 5.1 million persons. ***(Thylefors et al., 1995).***

In glaucoma, the essential pathologic process is the loss of retinal ganglion cells and their axons. In the clinical setting, glaucoma damage is commonly evaluated by funduscopy, photographs of optic disc and retinal nerve fiber layer (RNFL),and visual field testing. It has been shown that structural injury precedes visual field loss detectable by Standard Automated Perimetry (SAP) in many eyes with early glaucomatous optic neuropathy(GON) ***(Tuulonen et al., 1993)***.

Although SAP is the gold standard psychophysical test for glaucoma diagnosis, histopathologic studies showed that approximately 25% to 35% of retinal ganglion cell axons may be lost before visual field abnormalities are detected using conventional SAP ***(Kerrigan-Baumrind et al.,2000).***

Abnormalities of the RNFL were present in 60% of eyes as much as 6 years before visual field damage was detectable ***(Sommer et al., 1991).***

Optical coherence tomography (OCT) is high resolution, cross-sectional imaging technique that allows in vivo measurement of tissue thickness ***(Hee et al., 1995).***

The stratus OCT is a third-generation machine that has a resolution of 8 to 10 µm and is capable of differentiating healthy eyes and eyes with glaucoma ***(Wollstein et al., 2005).***

The stratus OCT with its internal normative data base showed high sensitivity and specificity for diagnosing glaucoma with manifest visual field (VF) defects .However , there are few reports regarding the use of OCT for detecting glaucomatous damage before detectable changes in SAP ***(Donald Budenz et al. , 2005).***

SAP measuerements of visual sensitivity and OCT measurements of RNFL thickness are collerated measures of the underlying population of retinal ganglion cells (RGCs). Employing procedures to drive RGCs from corresponding visual field location and RNFL sectors produced agreement between these two methods of assessing retinal neurology, both of retinae with normal population of RGCs and for retinae with progressively decreased population of RGCs from the neuropathy of glaucoma. Thus, when measurements are translated to their common parameters of RGCs there is concordance between the structure and function of normal and defective vision from glaucoma***(Ronald Harwerth, et al., 2007).***