Glaucoma is a severe human eye disease that causes permanent loss of vision. The main cause of glaucoma eye disease is the continuous loss of retinal nerve fiber layers due to the increase in the intraocular pressure inside the eyes. The function of these retinal nerve fibers is the transformation of recognized object information in the form of signals to the brain, where these signals are recognized as object. Damages to these nerve fibers generate blind spots and these blind spots leads to permanent blindness. Therefore, Retinal Nerve Fiber Layer Thickness is the main parameter to diagnose glaucoma. Other parameters also leading to glaucoma are Intraocular Pressure, Vertical Cup to Disc Ratio, Neuro Retinal Rim Thickness,
Central Cornea Thickness, Inferior Superior Nasal and Temporal Sector Ratio etc. Therefore, the identification of these parameters plays the major role in glaucoma assessment, since it allows timely treatment to prevent the vision loss caused by glaucoma. To estimate these parameters, clinical instruments such as Tonometry, Ophthalmoscopy, Heidelberg Retinal Tomography, Perimetry, Pachymetry, Optical Coherence Tomography, GDx etc are adopted. This paper presents the various parameters, as mentioned above, used to analyze and diagnose the Glaucoma disease and associated advantages, disadvantages and the different instruments used to analyze each clinical parameter.

References

- Online: http://www.stlukeseye.com/anatomy/cornea.html
- Roger J, Buckley MA, FRCS, FRCOphth and HonFCOptom, "The cornea Differentiating sight-threatening from non-sight-threatening eye disease", continuing education and training, April 2006.
- Budenz DL, Anderson DR and Feuer WJ. "Detection and prognostic significance of optic disc hemorrhages during the Ocular Hypertension Treatment Study".
Different Clinical Parameters to Diagnose Glaucoma Disease: A Review

Ophthalmology. 2006; 113(12):2137–2143.
- Dhivyabharathi, Ganesh Babu and venkatesh Rengaraj "measurement of rnfl thickness using oct images for glaucoma detection," ictact journal on image and video processing, august 2013, volume: 04, issue: 01.
- Online: http://www.bioptigen.com/imaging-technology/.
- Online: http://multiple-sclerosis-research.blogspot.com

Index Terms

Computer Science

Image Processing

Keywords
Intraocular Pressure  Retinal Nerve Fiber Layer  Optical Coherence Tomography  Inferior (I) Superior (S) Nasal (N) and Temporal (T) Rule and Vertical Cup to Disc Ratio