

Abstract

TITLE: Effect of successful glaucoma surgery on retinal nerve fiber layer thickness and optic nerve head parameters assessed by Fundus Photography, Heidelberg Retinal Tomography and Optical Coherence Tomography

DEPARTMENT: Ophthalmology

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DEGREE AND SUBJECT: MS Ophthalmology

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OBJECTIVES:

To document optic disc and RNFL parameters using clinical examination, HRT and OCT pre-operatively and post-operatively and correlate with change in IOP

METHODS:

All patients underwent clinical examination with slit lamp and 78 D lens for optic disc assessment and objective measurement using HRT, OCT-ONH, OCT-RNFL 3.4 and disc photography pre-operatively and at 1, 3 and 6 months post-operatively. Intraocular pressure at each visit was measured using Goldmann Applanation Tonometry. All patients underwent trabeculectomy with or without cataract surgery. Paired T-test was used to assess significance of change in different parameters during the follow up visits. Correlation between HRT/OCT parameters and IOP and that between similar OCT and HRT parameters was assessed using Pearson's correlation coefficient.

RESULTS:

The results of our study were suggestive of reversal of cupping. There was decrease in the vertical and horizontal CDR after surgery which was statistically significant. On HRT, changes suggestive of reversal of cupping were noted in the nasal-superior quadrant. On OCT-ONH, cup area, horizontal CDR and cup disc area ratio showed significant change. OCT-RNFL revealed significant increase in the average and temporal quadrant RNFL thickness. OCT HCDR, global and temporal cup shape measure and VIRA showed moderate to strong correlation with decrease in IOP. Similar parameters measured by OCT and HRT showed strong correlation.

Keywords: reversal of cupping, OCT, HRT, glaucoma surgery, RNFL, retinal nerve fiber layer thickness, optic nerve head parameters