FACTORS ASSOCIATED WITH 5-YEAR GLAUCOMATOUS PROGRESSION IN GLAUCOMA SUSPECT EYES: A RETROSPECTIVE LONGITUDINAL STUDY

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BACKGROUND

- Glaucoma is a multifactorial progressive optic neuropathy that is characterized by progressive neurodegeneration of retinal ganglion cells and their axons.
- The development of glaucoma has been associated with several factors such as age, family history of glaucoma, diabetes, hypertension, and more.
- Early diagnosis and treatment of glaucoma can significantly delay vision loss if factors associated with progression are addressed.
PURPOSE

- To identify factors potentially associated with glaucomatous progression in glaucoma suspect eyes
METHODS

- A 5-year longitudinal retrospective study was performed.
- Optical Coherence Tomography (OCT) parameters included retinal nerve fiber layer thickness (RNFL) of the superior, inferior, nasal, temporal, and average regions, cup volume, disc and rim area.
- We calculated the percentage of glaucoma suspect eyes that progressed to glaucoma within 5 years.
- The study subjects were divided into two groups: eyes that progressed to glaucoma and those that did not.
SELECTION CRITERIA

Inclusion Criteria:

- glaucoma suspect eyes (i.e., suspicious cup-to-disc ratio and/or intraocular pressure >21 mm Hg)
- age ≥ 30 years old
- follow-up time of 5 years
- best-corrected visual acuity 20/100 or better
- spherical equivalent better than −8 diopters
- astigmatism less than 3 diopters

Exclusion Criteria

- eyes with glaucoma, which was determined by at least 2 consecutive reliable visual field tests
- eyes with any significant retinal or neurological disease
RESULTS

- A total number of 365 eyes of 288 patients were analyzed (323 eyes with suspicious cup-to-disc ratio and 42 eyes with ocular hypertension).

- Overall, 55 (15.07%) eyes progressed to glaucoma within average ± SD of 19.12 ± 4.23 months.

- Bivariate analysis showed eyes that progressed to glaucoma had significantly thinner average, superior and inferior RNFL, and more severe average, superior, and inferior RNFL damages at baseline.

- OCT parameters showed no statistically significant difference between the study groups in terms of nasal and temporal RNFL thicknesses, cup volume, disc area and rim area at baseline.

- Logistic regression analysis showed severe inferior RNFL damage was significantly associated with 5-year glaucomatous progression.
DISCUSSION

- In our study, we found eyes in the progressed group have significantly thinner baseline average, superior and inferior RNFL thicknesses in bivariate analysis.

- However, the logistic regression analysis did not show any significant association between average, superior and inferior RNFL thicknesses and 5-year progression of glaucoma.

- In bivariate analysis, we found that the progressed group had significantly more severe average, superior and inferior RNFL damage.

- Interestingly, the logistic analysis showed that only severe inferior RNFL damage was significantly associated with 5-year glaucomatous damage.

- In conclusion, we found that severe baseline inferior RNFL damage was significantly associated with 5-year glaucomatous progression in glaucoma suspect eyes.
SIGNIFICANCE

- Identifying factors related to glaucoma progression early can lead to better patient outcomes.
- More factors in the future can be tested for and can help us catch glaucoma progression and treat accordingly.
- Patient for example with thinner RNFL at baseline can be treated for future progression of glaucoma sooner rather than later.
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