ABSTRACT

Structural evaluation of the optic nerve head

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Precise morphological evaluation of the optic nerve head is essential to accurately diagnose glaucoma, especially in diverse patient populations. Interpretation of the physical structure of the optic nerve head includes optic disc size, cup to disc ratio, vertical disc diameter and retinal nerve fiber layer thickness. I hypothesize that there are subtle differences in the optic nerve head appearance based on age, gender, race and refractive error that can predict an increased likelihood of glaucoma development and degree of irreversible vision loss. Detailed measurements of the optic nerve head were taken using advanced imaging technology called an optical coherence tomography (OCT). Data were analyzed using regression analysis to determine potential correlations between the impact of the physical characteristics of the optic nerve with the development of glaucoma. Individual variables were compared using ANOVA. On average, subjects with high myopia included in the study were shown to have larger disc areas than those with mild to moderate myopia and have an increased risk of developing glaucoma. In addition, patients with a positive family history of glaucoma are more likely to develop advanced versions of the disease.

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