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Factors Associated with 5-Year Glaucomatous Progression in Glaucoma Suspect Eyes

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Title: Factors Associated with 5-Year Glaucomatous Progression in Glaucoma Suspect Eyes

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Background: The US Preventive Services Task Force found that treatment of early asymptomatic primary open-angle glaucoma reduces visual field defects. However, it remains unclear which factors are associated with glaucomatous progression and which patients are at higher risk. The purpose of this study was to assess demographic factors, medical comorbidities, Humphrey visual field (VF) results, and Cirrus optical coherence tomography variables that could be predictive for 5-year glaucoma progression.

Methods: A retrospective longitudinal study was conducted with the following inclusion criteria: glaucoma suspect eyes (defined as an asymmetric cup to disc ratio or an intraocular pressure >21mmHg), best-corrected visual acuity 20/100 or better, spherical equivalent better than -8 diopters and astigmatism less than 3 diopters. Two consecutive abnormal VF tests during a 5-year follow-up was considered glaucomatous progression.

Results: A total of 365 eyes (288 patients) were included in the study, of which 55 (15%) converted to glaucoma after 5 years. Logistic regression analysis showed that baseline mean deviation (MD), pattern standard deviation (PSD), VF index, and retinal nerve fiber layer (RNFL) colors were statistically significant in predicting 5-year glaucomatous progression. Though there were differences in glaucoma progression rates when analyzing sex, age, hypertension, diabetes mellitus, family history of glaucoma, and baseline intraocular pressure, these factors were not statistically significant.

Conclusions: The study found that VF test results (MD and PSD) and RNFL colors can strongly predict which patients are at an increased risk of glaucoma progression. Clinicians can consider these factors when initiating, or continuing, prophylactic treatment for patients with glaucoma suspect eyes.