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Abstract Information

Abstract Title:

Cohort studies on the optic disc

Purpose:

To evaluate which morphologic features of the optic disc are predictive factors for progressive neuroretinal rim loss in chronic open-angle glaucoma

Design:

Prospective observational cohort study

Participants:

The study included 394 eyes of 257 Caucasian patients with chronic open-angle glaucoma. Mean follow-up time was 31.8 months (median 39.7 months). Progression of glaucoma was defined as loss of neuroretinal rim as detected by disc photographs. Presence of optic disc hemorrhages was not taken into account

Main Outcome Measures:

Qualitative and quantitative morphologic optic nerve head parameters

Methods:

All patients underwent repeated qualitative and morphometric evaluation of color stereo optic disc photographs. Statistical analysis included Kaplan-Meier curves, and bivariate and multivariate Cox regression analysis adjusted for patients age. Dependency of left and right eyes from the same subject was taken into account

Results:

Progression of glaucomatous optic nerve changes was detected in 42 (11%) eyes. At baseline of the study, neuroretinal rim area was significantly (total area  $P=0.03$ ) smaller and beta zone of parapapillary atrophy (total area  $P=0.04$ ) was significantly larger in the progressive study group compared with non-progressive study group. Both study groups did not vary significantly in size and shape of the optic disc, optic cup depth, alpha zone of parapapillary atrophy, and diameter of the retinal arteries and veins ( $P>0.05$ ). Multiple Cox-regression analysis revealed that the progression of glaucoma depended significantly on the area of the

neuroretinal rim (temporal sector,  $P=0.003$ ) and beta zone of parapapillary atrophy (temporal upper sector  $P=0.02$ ).

**Conclusion:**

Important morphologic predictive factors for progression of the glaucomatous appearance of the optic nerve head in Caucasians are small size of neuroretinal rim and large area of beta zone of parapapillary atrophy. Progression of glaucomatous optic nerve head changes is independent of size and shape of the optic disc, size of alpha zone of parapapillary atrophy, retinal vessel diameter, and optic cup depth