Long-Term Follow-up in Preperimetric Open-Angle Glaucoma: Progression Rates and Associated Factors

Kim KE(1) , Jeoung JW(2) , Kim DM(1) , Ahn SJ(3) , Park KH(1) , Kim SH(4)

1 Department of Ophthalmology, Seoul National University College of Medicine, Seoul, South Korea; Department of Ophthalmology, Seoul National University Hospital, Seoul, South Korea.
2 Department of Ophthalmology, Seoul National University College of Medicine, Seoul, South Korea; Department of Ophthalmology, Seoul National University Hospital, Seoul, South Korea. Electronic address: neuroprotect@gmail.com.
3 Department of Ophthalmology, Seoul National University College of Medicine, Seoul, South Korea; Department of Ophthalmology, Seoul National University Bundang Hospital, Seongnam, South Korea.
4 Department of Ophthalmology, Seoul National University College of Medicine, Seoul, South Korea; Department of Ophthalmology, Seoul National University Boramae Hospital, Seoul, South Korea.

PURPOSE: To investigate the rate of progressive visual field (VF) loss and associated factors for structural or functional progression in preperimetric open-angle glaucoma (OAG) .

DESIGN: Longitudinal, observational study.

METHODS: We included 127 eyes of 127 preperimetric OAG patients who were treated with topical medication and followed for more than 5 years. All patients underwent stereo optic disc photography, red-free retinal nerve fiber layer (RNFL) photography, frequency doubling technology perimetry, and standard automated perimetry (SAP) . Progression was defined as a structural (glaucomatous change confirmed by stereo optic disc and red-free RNFL photography) or functional (new glaucomatous defect on SAP) deterioration. The progression rate of SAP mean deviation (dB/year) and factors associated with progression were evaluated.

RESULTS: Glaucoma progression was detected in 72 of 127 eyes (56.7%) . Mean rate of VF progression was -0.39 ± 0.64 dB/year in all patients; -0.66 ± 0.60 dB/year in progressors and -0.03 ± 0.24 dB/year in nonprogressors. A multivariate Cox proportional hazard model revealed that optic disc hemorrhage (hazard ratio [HR] = 1.718, P = .031) and the percentage reduction in intraocular pressure (IOP; HR = 0.964, P = .002) were significantly associated with disease progression. Patients with disc hemorrhage had a greater cumulative probability of progression than those without disc hemorrhage (P = .014 by log-rank test) .

CONCLUSIONS: Our results support the importance of lowering IOP, even at the preperimetric stage. Preperimetric glaucoma patients with disc hemorrhage and insufficient IOP control should be carefully monitored for greater risk of progression.

Copyright © 2015 Elsevier Inc. All rights reserved.

PMID: 25448320
http://www.ncbi.nlm.nih.gov/pubmed/25448320