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Abstract Information

Abstract Title:
Scanning laser polarimetery in open-angle glaucoma with hemifield defects

Purpose:
To evaluate retinal nerve fiber layer (RNFL) thickness using scanning laser polarimetry with variable corneal polarization compensator (SLP) in patients with chronic open-angle glaucoma with hemifield defect and to compare RNFL thickness with that of normative eyes.

Design:
Prospective comparative obsevational case series.

Participants:
Forty-eight eyes of 48 patients with chronic open-angle glaucoma with achromatic visual fields defects (Humphrey visual field, program SITA central 30-2) limited to superior or inferior hemifield, and 40 eyes of 40 normative subjects were enrolled in the study. The mean (+ SD) of age, refractive errors, and the mean defect (MD) of visual field was 54.3 + 11.5 years, -3.7 + 3.0 D, -6.27 + 3.29 dB, respectively for the glaucomatous eyes, and 50.5 + 10.9 years, -2.2 + 2.5 D, -0.51 + 1.60 dB, respectively for the normative eyes. There was no statistically significant age difference between glaucomatous and normative eyes.

Main Outcome Measures:
Differences in RNFL thickness between the superior and inferior sectors, and between glaucomatous and normal eyes were evaluated.

Methods:
The SLP was performed for each eye within three months of visual field testing. After imaging of a macular region, RNFL retardation measurements with image quality score over 8 were obtained. The superior and inferior averages of RNFL thickness measurements were used for analyses.

Results:
In glaucomatous eyes with superior hemifield defects (31 eyes) and those with inferior hemifield defects (17 eyes), the RNFL thickness corresponding to the

affected hemifield was significantly thinner than that corresponding to the apparently unaffected hemifield ($P < 0.001$ and $p = 0.004$), whereas no such a difference was observed in the normative eyes. The RNFL thickness of the unaffected hemifield in glaucomatous eyes was significantly thinner than in normative eyes ($P < 0.01$).

Conclusion:
In glaucomatous eyes with achromatic visual field defects limited to one hemifield, the SLP seems to detect glaucomatous damage of the RNFL in the unaffected hemifield.