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Intraocular pressure fluctuation measured using two tonometry methods in open angle glaucoma and a history of laser refractive surgery

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Purpose: To investigate the value of Goldmann applanation tonometry (GAT) in monitoring intraocular pressure (IOP) in patients with open angle glaucoma (OAG) and a history of laser refractive surgery, IOP fluctuations measured using GAT and dynamic contour tonometry (DCT) were compared.

Design: Retrospective, comparative study.

Methods: Patients were divided into one of two subgroups according to IOP fluctuation values using GAT: 43 eyes in the low IOP fluctuation group (LIFG [GAT fluctuation ≤ 1.7 mmHg]) and 55 eyes in the high IOP fluctuation group (HIFG [GAT fluctuation > 1.7 mmHg]). IOP fluctuation was defined as the standard deviation of all IOP values during follow-up. IOP parameters using GAT were compared with those of DCT. Correlation analyses were performed among IOP parameters and between IOP fluctuation and associated factors including central corneal thickness, corneal curvature and axial length.

Results: All IOP parameters showed significantly high values in the HIFG compared with those in the LIFG. Mean and peak IOP using DCT were significantly higher than those using GAT in both groups. However, there were no significant differences in IOP fluctuation and reduction using both tonometry methods in the HIFG ($p=0.946$ and $p=0.986$, respectively). Bland-Altman analysis revealed similar fluctuations using GAT and DCT. In multivariate analyses, there was significant correlation between fluctuations using GAT and DCT in the HIFG ($p=0.043$).

Conclusions: These results suggest that IOP monitoring using GAT is a reliable method of detecting IOP change in glaucoma patients with a history of laser refractive surgery.

Biography

Sangyeop Lee has his research interests on glaucoma and optic nerve diseases. He is working in the Department of Ophthalmology at the Yonsei University College of Medicine, Seoul, Republic of Korea.

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