Purpose: To investigate the relationship between sleeping body position continuously measured with a mobile device, and visual-field (VF) loss in glaucoma patients.

Methods: The bilateral primary open-angle glaucoma (POAG) patients with asymmetric VF loss were enrolled. Asymmetric VF loss was defined as a difference in mean deviation between the two eyes of at least 2 dB, and the better eye and worse eye were defined. Home recordings of sleep body position were made over three consecutive nights. A mobile device with the application measuring body position was worn each night at bedtime. The sleep position was recorded in degrees every two seconds, with positive angles indicating right lateral decubitus position, and negative angles indicating left lateral position, zero degrees in supine position. The overall sleep time in each position was measured. In the patients with asymmetric VF loss, the preferred type of sleep body position and the overall sleep time in each position was examined for a correlation with asymmetry of VF loss.

Results: The percentage of cumulative sleeping time with worse-eye-dependent lateral decubitus position (LDP) was significantly high compared with the percentage with better-eye-dependent LDP (35% vs 2.5%; p < 0.001). The percentage of supine position time was 62.5% ± 12.4%.

Conclusion: The quantitative measurement of sleep body position with a mobile device may be helpful investigating the association between sleep position and visual field loss.