Correspondence

Re: Abe et al.: Predicting vision-related disability in glaucoma (Ophthalmology. 2018;125:22-30)

TO THE EDITOR: We read with great interest the recent cross-sectional cohort study by Abe et al1 describing the factors associated with the development of vision-related disability in glaucomatous eyes.

Although the findings seem to be a very promising step toward indentifying potential predictive risk factors associated with vision-related disability, we noticed some critical points in the paper we would like the authors to clarify. The authors used the binocular summation model,2 which has been previously found to accurately generate an integrated binocular visual field (VF) based on monocular standard automated perimetry threshold sensitivities of the right and left eyes.3 However, instead of using the binocular summation model evaluated by Nelson-Quigg et al3 with Humphrey 30-2 full-threshold VF tests, the authors performed binocular summation using the Swedish interactive threshold algorithm (SITA) 24-2 VF tests. The 30-2 program tests a grid of 76 points over the central 30° of the VF. In contrast, the 24-2 program tests a grid of 52 points that cover the central 24°, and the 2 points located at 27° nasally, thereby omitting 22 additional peripheral points. Although the SITA 24-2 VF has the advantage of shorter testing time, information on peripheral scotomata may be potentially sacrificed. Binocular summation revealed that overall binocular VF sensitivity loss was better than expected compared with monocular loss owing to overlap of VF points, which occurs centrally. The accuracy of binocular summation model in predicting binocular VF has never been tested and verified on SITA 24-2 VFs and, as such, information on peripheral points that may be even more important in early detection of glaucoma and vision-related disability. We would assume a SITA 24-2 VF would give more detailed information on the central area of the VF compared with a SITA 30-2 VF.

We also seek further clarification about the Latent Transition Analysis model, where 169 patients classified as nondisabled at baseline had an 85.8% probability of remaining in this classification at the end of the follow-up and a 14.2% probability of transitioning from a nondisabled to a disabled state during the follow-up. We would be curious to understand how exactly these probabilities figures were obtained.

Finally, the authors stated that the diagnosis of glaucoma was based on the presence of repeatable (≥2 consecutive) abnormal standard automated perimetry Humphrey 24-2 VFs results at baseline with corresponding optic nerve damage, with VFs being considered reliable if <33% fixation losses and <15% false-positive errors. However, these reliability criteria may be too lenient in light of the current manufacturer recommendations for SITA that were used in this study, which suggests a cutoff of <15% false positives and <20% fixation losses (or, in alternative if at least <20% false positives) to define VFs as “reliable.”4,5

We commend the author’s frank acknowledgement in the discussion of the limitations of the present study, but seek clarification of the points we have raised.

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References


