Eye (2021) 35:2327–2328
https://doi.org/10.1038/s41433-020-01149-7

The ROYAL COLLEGE of OPHTHALMOLOGISTS

CORRESPONDENCE

Response to: "Comment on: 'Comparison of perimetric glaucoma staging systems in Asians with primary glaucoma'"

Tung Thanh Hoang[1,2] · Anh Van Bui[3] · Vuong Nguyen[2] · Peter J. McCluskey[2] · John R. Grigg[2] · Simon Edward Skalicky[2,4]

Received: 29 July 2020 / Revised: 30 July 2020 / Accepted: 13 August 2020 / Published online: 21 August 2020

To the Editor:

We highly appreciate the interesting points raised in the letter by Dr. Brusini.

Firstly, the Advanced Glaucoma Intervention Study (AGIS) is a widely recognized landmark glaucoma trial, the quality of AGIS Score in glaucoma staging is high and using it as a comparator for other staging systems is consistent with the prior literature [1]. Despite the fact that the AGIS system is not a practical method for day-to-day use, it is analytical, accurate, and a standardized classification of functional loss severity that might be employed in scientific and clinical studies [2].

Secondly, in discussing the relative merits of mean deviation (MD) versus visual field index (VFI), it is true that VFI is less affected by media opacity and has a central weighting, indicating a closer link with daily visual function [3]. We agree that a potential drawback of VFI is that it is not available on every machine today, but this may be a legacy effect and become a lesser problem with the passage of time.

Thirdly, MD and pattern standard deviation (PSD) themselves cannot definitively diagnose glaucomatous visual field defects. Early visual field changes can be affected by incorrect refraction, rim artefacts, media opacity, concentration/fixation lapses, or cognitive issues. Hodapp–Parish–Anderson (HPA) criteria help to separate these artefacts from a true glaucomatous scotoma. HPA criteria has been proven to be one among the most reliable methods to detect the earliest glaucomatous damage since it was first introduced more than 40 years ago; this is why, like the AGIS, HPA is commonly used in clinical studies to measure glaucoma severity [4]. Modified glaucoma staging system (mGSS), HPA, and Bascom Palmer GSS all recruit these criteria to define stage 0 while enhanced GSS (eGSS) completely rely on MD and PSD. This may be why eGSS was less sensitive to early functional damage—a finding from our study that is consistent with the literature [5]. We concede however to tone down the statement that the eGSS could not differentiate between normal and abnormal, as eGSS still has good clinical utility especially where the VFI is not available such as older machines or alternative models.

Fourthly, the conclusion was drawn within the framework of our study. MGSS was thought to be better than eGSS not only because of our statistical analysis but also its algorithm and values of VFI. Due to limitations declared in the discussion, we warned readers to interpret our results with caution. The readers must remember that this is a retrospective study confined by the limited resources of a large, publicly funded national tertiary referral glaucoma centre.

In the era of advanced perimetric technologies, traditional staging systems may not be typically used in daily clinical practice to monitor glaucoma progression, but their capability of triaging patients and guiding resource allocation in a busy public hospital setting requires further recognition and validation. Therefore, we would like to highlight this crucial clinical importance which was poorly discussed in previous papers to determine the relative values of glaucoma staging systems including eGSS.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

✉ Tung Thanh Hoang
tung.hoang@sydney.edu.au

[1] Department of Ophthalmology, Hanoi Medical University, Hanoi, Vietnam

[2] Save Sight Institute, The University of Sydney School of Medicine, Sydney, NSW, Australia

[3] Glaucoma Department, Vietnam National Institute of Ophthalmology, Hanoi, Vietnam

[4] Department of Surgery and Ophthalmology, University of Melbourne, Melbourne, VIC, Australia

References

1. Hirasawa K, Shoji N, Morita T, Shimizu K. A modified glaucoma staging system based on visual field index. Graefes Arch Clin Exp Ophthalmol. 2013;251:2747–52.
2. Brusini P, Johnson CA. Staging functional damage in glaucoma: review of different classification methods. Surv Ophthalmol. 2007;52:156–79.
3. Skalicky SE, Martin KR, Fenwick E, Crowston JG, Goldberg I, McCluskey P. Cataract and quality of life in patients with glaucoma. Clin Exp Ophthalmol. 2015;43:335–41.
4. Chakravarti T. Assessing precision of Hodapp-Parrish-Anderson Criteria for staging early glaucomatous damage in an ocular hypertension cohort: a retrospective study. Asia Pac J Ophthalmol. 2017;6:21–7.
5. Brusini P, Filacorda S. Enhanced Glaucoma Staging System (GSS 2) for classifying functional damage in glaucoma. J Glaucoma. 2006; 15:40–6.