Decision-making in Glaucoma: A Clinical Vignette Study

Esi K. Aggrey; Paul H. Artes; Asma Zahidi; Mahesh R. Joshi

University of Plymouth

Correspondence: esi.aggrey@plymouth.ac.uk

PURPOSE

- Clinical decision-making requires clinicians to combine baseline disease prevalence with diagnostic test evidence
- Inadequate integration of these factors can lead to inaccurate estimates of disease probability, potentially resulting in inappropriate clinical decisions, overdiagnosis and unnecessary referrals
- This vignette study systematically evaluates how optometrists integrate epidemiological evidence and optical coherence tomography (OCT) in Primary Open-Angle Glaucoma

METHODS

- We developed 5 clinical vignettes incorporating demographic risk factors and OCT findings
- Reference pre-test probabilities were based on age-and ethnicity-specific prevalence estimates[1]
- Post-test probabilities were calculated by applying OCT-derived likelihood ratios to pre-test values[2]
- 13 optometrists provided pre- and post-test estimates using a natural frequency scale

RESULTS

Pre-test and post-test results showed underestimation of disease probability

For the post-test, participants misweighted OCT evidence when updating their estimates

Normal OCT: participants underweighted the evidence, and their estimates shifted less (towards Normal) than the reference update

Abnormal OCT: participants overweighted the evidence, and their estimates shifted more (towards Abnormal) than the reference update

Figure 1. Participant mean estimates compared with the reference

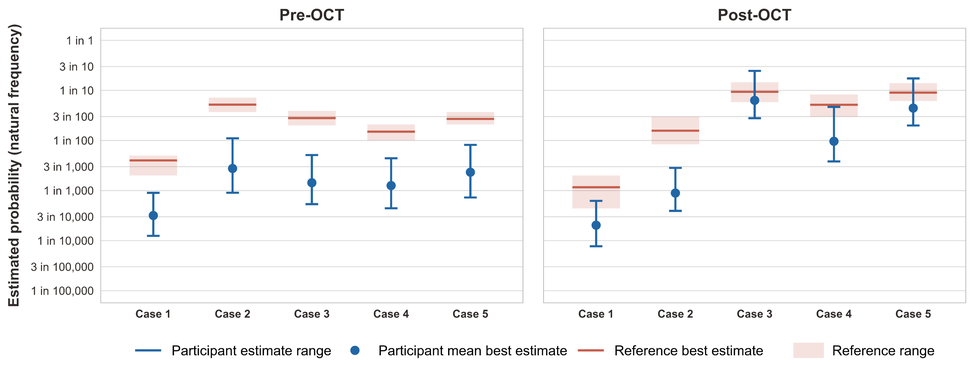
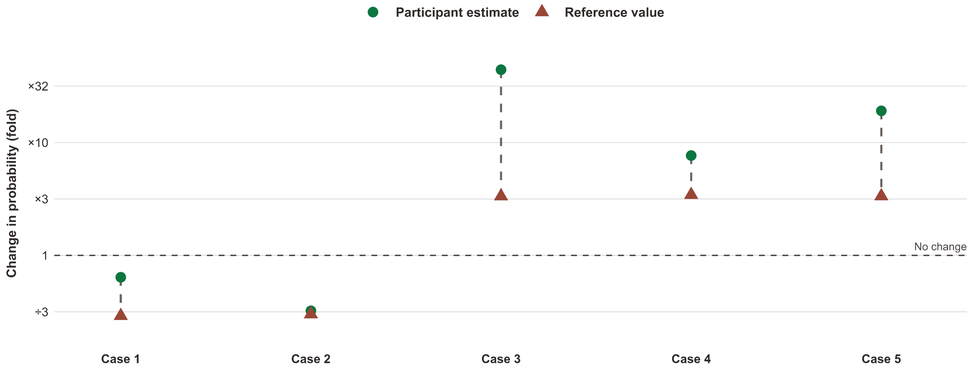


Figure 2. Post-OCT: Observed vs Reference change in estimated probability



SCAN TO TAKE PART

https://tinyurl.com/ycp72btj

CONCLUSION

- Participants underestimated disease probabilities both before and after OCT
- Despite this underestimation, participants overweighted OCT evidence for both normal and abnormal findings when updating their probability estimates
- Clinical vignettes can be an important method in investigating biases in clinical decision-making

REFERENCES

1. Kapetanakis, V. V., Chan, M. P., Foster, P. J., Cook, D. G., Owen, C. G., & Rudnicka, A. R. (2016). Global variations and time trends in the prevalence of primary open angle glaucoma (POAG): a systematic review and meta-analysis. *British Journal of Ophthalmology*, *100*(1), 86-93

2. Virgili, G., Michelessi, M., Cook, J., Boachie, C., Burr, J., Banister, K., ... & Azuara-Blanco, A. (2018). Diagnostic accuracy of optical coherence tomography for diagnosing glaucoma: secondary analyses of the GATE study. *British Journal of Ophthalmology*, *102*(5), 604-610