Acta Ophthalmologica
Abstracts from the 2019 European Association for Vision and Eye Research Conference

Predictive value of screening tests for sight-threatening eye disease in a UK population

John Lawrenson, Bruno Fidalgo, Priya Dabasia, Anish Jindal, David Edgar, Irene Ctori, Tunde Peto
First published: 19 December 2019
https://doi.org/10.1111/j.1755-3768.2019.5092

Abstract

Background/Aims
To determine the performance of combinations of structural and functional screening tests in detecting sight-threatening eye disease in a cohort of elderly subjects recruited from primary care

Methods
505 subjects ≥ 60 years underwent: Frequency Doubling Technology (FDT) perimetry; iVue OCT (iWellness® and peripapillary retinal nerve fibre layer (RNFL) scans); IOP with the Ocular Response Analyzer (ORA), all performed by an ophthalmic technician. The reference standard was a full ophthalmic examination by an experienced clinician who was masked to the index test results. Subjects were classified as presence or absence of sight-threatening eye disease (clinically significant cataract, primary open angle glaucoma, intermediate or advanced AMD and significant diabetic retinopathy). Univariate and multivariate logistic regression was used to determine the association between abnormal screening test results and the presence of sight-threatening eye disease.

Results
171 subjects (33.8%) had one or more sight-threatening eye disease(s). The multivariate analysis found significant associations with any of the target conditions for visual acuity < 6/12, an abnormal FDT and peripapillary RNFL thickness outside the 99% normal limit. The sensitivity of this optimised screening panel was 61.3% (95% CI 53.5-68.7); specificity 78.8% (CI 74.0-83.1), positive predictive value 59.5% (CI 53.7-65.2) and an overall diagnostic accuracy of 72.9% (CI 68.8-76.8).

Conclusion
A subset of screening tests may provide an accurate and efficient means of population screening for significant eye disease in the elderly. This study provides useful preliminary data to inform the development of further larger, multicentre screening studies to validate this screening panel.