Multimodal imaging interpreted by graders to detect re-activation of diabetic eye disease in previously treated patients: the EMERALD diagnostic accuracy study

Noemi Lois,1* Jonathan Cook,2 Ariel Wang,2 Stephen Aldington,3 Hema Mistry,4 Mandy Maredza,4 Danny McAuley,1,5 Tariq Aslam,6 Clare Bailey,7 Victor Chong,8 Faruque Ghanchi,9 Peter Scanlon,3 Sobha Sivaprasad,10 David Steel,11,12 Caroline Styles,13 Augusto Azuara-Blanco,14 Lindsay Prior14 and Norman Waugh4 on behalf of the EMERALD Study Group

1The Wellcome-Wolfson Institute for Experimental Medicine, Queen’s University Belfast, Belfast, UK
2Centre for Statistics in Medicine, University of Oxford, Oxford, UK
3Gloucestershire Hospitals NHS Foundation Trust, Gloucester, UK
4Warwick Medical School, University of Warwick, Coventry, UK
5The Regional Intensive Care Unit, Royal Victoria Hospital, Belfast, UK
6The Manchester Academic Health Science Centre, Manchester Royal Eye Hospital and Division of Pharmacy and Optometry, School of Health Sciences, Faculty of Biology, Medicine and Health, University of Manchester, Manchester, UK
7Bristol Eye Hospital, Bristol, UK
8Royal Free Hospital NHS Foundation Trust, London, UK
9Bradford Teaching Hospitals NHS Foundation Trust, Bradford Royal Infirmary, Bradford, UK
10National Institute for Health Research Moorfields Biomedical Research Centre, London, UK
11Sunderland Eye Infirmary, Sunderland, UK
12Institute of Genetic Medicine, Newcastle University, Newcastle upon Tyne, UK
13Queen Margaret Hospital, Dunfermline, UK
14Centre for Public Health, Queen’s University Belfast, Belfast, UK

*Corresponding author n.lois@qub.ac.uk

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Plain English summary

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Plain English summary

More and more people are developing diabetes. Diabetic macular oedema and proliferative diabetic retinopathy are complications of diabetes, which could cause blindness. Thus, people with diabetic macular oedema and proliferative diabetic retinopathy need to be treated in a timely manner and reviewed in clinic for life.

The population in the world is ageing. As a result, there are more people with eye diseases. There are also more treatments now for people with eye diseases. The workload in hospitals is increasing, making it difficult for the NHS to cope with the demand. There are not enough ophthalmologists (eye doctors) to look after patients. Delayed appointments and treatment mean that patients may lose sight.

The goal of EMERALD (Effectiveness of Multimodal imaging for the Evaluation of Retinal oedema And new vesselS in Diabetic retinopathy) was to see if patients with treated and stable diabetic macular oedema or proliferative diabetic retinopathy could be followed by 'ophthalmic graders', who are not doctors but are trained to diagnose diabetic macular oedema and proliferative diabetic retinopathy. In EMERALD, trained ophthalmic graders examined photographs of the back of the eye of people with diabetic macular oedema and proliferative diabetic retinopathy. They checked if diabetic macular oedema and proliferative diabetic retinopathy remain inactive. If so, patients could continue follow-up with the ophthalmic graders. If diabetic macular oedema or proliferative diabetic retinopathy were active, graders would immediately refer patients to ophthalmologists.

EMERALD found that graders were excellent at detecting diabetic macular oedema, and this could give ophthalmologists time to see other patients. Graders were not quite as good at detecting active proliferative diabetic retinopathy. However, considering that patients had already had treatment, this may still be safe. Patients participating in focus group discussions mentioned that they would prefer to see ophthalmologists, so they could ask questions about their eye condition. If this was not possible, they would like to have immediate results from graders and still see the ophthalmologist from time to time.
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