What is the greatest threat to vision for elderly patient's attending annual diabetic screening if they have early age-related macular degeneration (AMD)?

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Introduction

North Yorkshire Diabetic Eye screening programme (NYDESP) has approximately 45,000 patients with diabetes on its single collated list. Some of the these patients were found to have neovascular age-related macular degeneration (nAMD) as an incidental finding at their annual diabetic eye screening, often in the absence of any diabetic eye disease. Interestingly, these patients were found to have had a number of previous annual screening photos which demonstrated significant early AMD. We were interested in comparing the risk of needing treatment for nAMD with the risk of needing treatment for sight threatening diabetic retinopathy.

Methods

NYDESP trained graders to recognise early AMD features equivalent to Age-Related Eye Disease Study (AREDS) category 3. From March 2016, these patients were warned about this risk in their annual diabetic eye screening results letter. The letter suggested discussing the early AMD diagnosis (including Amsler monitoring and AREDS vitamin supplementation) with their optician and to report any new distortion urgently to their optician.

In January 2021, a bespoke SQL database search was performed to identify the patients who had received the early AMD warning letter.

In October 2021, a search of the electronic patient record (EPR) for patients attending 2 of the 3 major treatment centres (York and Scarborough Teaching hospitals) was made to identify those who had received hospital treatment for wet AMD or diabetic eye disease.

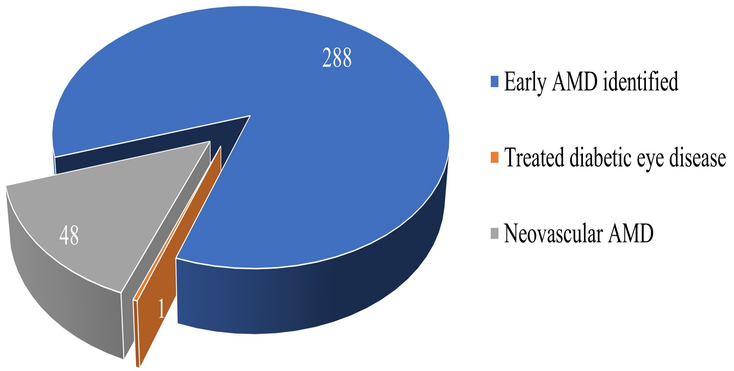
Exclusions:

- <3 year follow up
- Harrogate district hospital (no access to their AMD or hospital diabetic eye disease treatment record)
- Patients who had already started treatment for nAMD when they were first warned

Results

Between March 2016 and December 2020, 1616 unique patients received an early AMD warning message in their annual diabetic screening.

The cohort of patients available to our EPR (York and Scarborough) represents 1204 patients with early AMD - 74.5% of the AMD NYDESP cohort – of which 337 met the inclusion criteria.



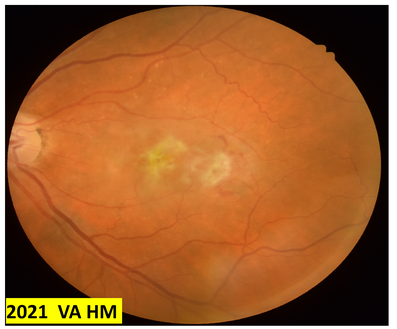
Of the 337 patients eligible for the study, 158 were female and 179 were male.

- 48 (14.2%) patients converted to wet AMD treatment after the NYDESP warning letter. With a median baseline acuity of 59 ETDRS letters and mean age at diagnosis of nAMD of 78 years
- 13 (3.9%) patients were referred for diabetic eye disease but only **1** patient required diabetic eye treatment (Focal laser)

Discussion

The risk of nAMD is significantly greater than the risk of needing diabetic eye treatment in our cohort. Diabetic graders can identify patients with early AMD who are at risk of nAMD. However the median VA at time of first injection for NYDESP patients who have been warned is approximately equal to the median visual acuity for first treated eyes in the national ophthalmic database (NOD 2023 [1]). We had hoped that the warning letter may have allowed patients in our cohort to present at an earlier stage and thus with better acuity. Further work is needed to improve the median visual acuity for first treated eyes.





Conclusion

Risk of needing treatment for sight threatening disease in this cohort is far greater for AMD than for diabetes but there is no nationally approved warning system for patients at risk. We are currently trialling a quarterly text message reminder system for this cohort to reinforce the important message of self monitoring. Self monitoring of vision at home to detect progression of AMD (with aids such as Amsler grid) has achieved better baseline acuity as a component of routine surveillance for AMD [2]

References 1. C Norridge, M Gruszka-Goh, M McKibbin, P Donachie 2023. *National Ophthalmology Database AMD Audit website.* [Online]. [12.4.23]. Available from: NOD - National Ophthalmology Database Audit (nodaudit.org.uk) 2. AREDS2-HOME Study Research Group. Chew EY, Clemons TE, Bressler SB, Elman MJ, Danis RP, Domalpally A, Heier JS, Kim JE, Garfinkel R. Randomized trial of a home monitoring system for early detection of choroidal neovascularization home monitoring of the Eye (HOME) study. *Ophthalmology.* 2014 Feb;121(2):535–44