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RETICULAR PSEUDODRUSEN AND THE FIVE-YEAR RISK OF PROGRESSION FOR LATE AMD

2015: João Pedro Marques, João Quadrado Gil, Inês Laíns, Miguel Ângelo Costa, Sandrina Nunes, Maria Luz Cachulo, Rufino Silva

TAKEAWAY

RetmarkerAMD was used in this study that concluded that RPD are an independent risk factor for progression of AMD patients

Multimodal retinal imaging and careful assessment of these high-risk lesions is recommended for all patients at-risk

Retmarker

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PURPOSE

Despite recent advances in retinal imaging, reticular pseudodrusen (RPD) remain an under-reported and under-researched retinal phenotype. The presence of RPD has been recognized as a significant risk factor for exudative age-related macular degeneration (eAMD) but a long-term follow-up is lacking. We conducted a retrospective observational clinical study to assess the influence of RPD on the 5-year risk of progression to late-stage disease, in a population of unaffected fellow eyes of eAMD.

METHODS

Only fellow eyes of patients with unilateral eAMD were included. Minimum follow-up was 5 years, unless progression to late-AMD occurred first. Using an innovative grading software – RetmarkerAMD® (Retmarker SA, Coimbra, Portugal) – the areas of both drusen and RPD were measured in baseline color fundus photographs (CFP), fundus auto-fluorescence (FAF), infra-red (IR) and red-free (RF) images. Presence of RPD was assumed whenever noticeable in at least one imaging modality. Images were classified by 2 independent graders. The % of agreement and the Weighted Kappa Coefficient were used for assessment of inter-grader agreement. Main outcome measures were the incidence of choroidal neovascularization (CNV) and geographic atrophy (GA).

RESULTS

Sixty-three patients, mean-aged 76.19 ± 6.63 years and with a mean follow-up of 66.03 ± 20.95 months, were included. Prevalence of RPD was 55.56% (n=35). RPD were more frequently recognized in IR and FAF (52.4% for both) than in CFP (15.8%). Forty-one (65.1%) of the study eyes progressed to late-stage AMD: 82.9% (n=34) developed CNV and 17.1% (n=7) developed GA. Time to progression was not significantly different between patients with and without RPD (30.64 and 31.77 months respectively, p=0.79). After correcting for age and sex, presence of RPD was significantly associated with the development of late-stage AMD (OR=3.96, p=0.01). Significance was maintained for CNV (OR=3.96, p=0.011) but not for GA (OR=0.943, p=0.94). Mean total area of RPD did not correlate with the risk of progression, regardless of the imaging modality used for measurement. Mean drusen area also did not significantly impact the 5-year risk of progression for late AMD (p=0.99).

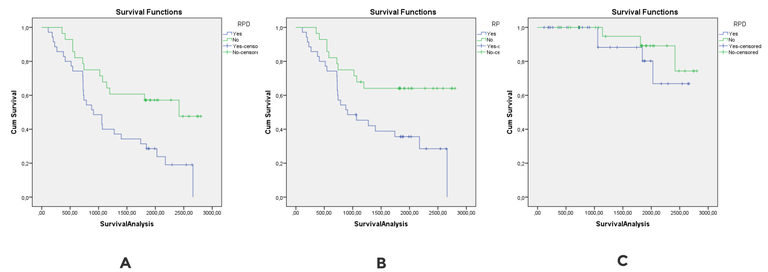

Figure 3 Kaplan-Meier plots of time until progression to late-stage AMD (A), CNV (B) and GA (C)

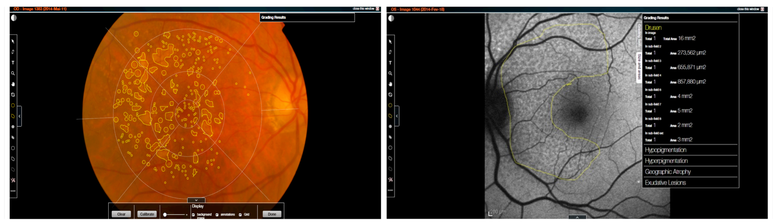

Figure 2 Real-time grading using RetmarkerAMD® (Retmarker SA, Coimbra, Portugal). Calibration is achieved after manually identifying the fovea and establishing the optic disk diameter. The software generates a reference grid according to the International Classification and Grading System for AMD. Both free forms and predefined circles (63, 125, 175, 250, and 500 µm) can be used for quantifying fundus features, as depicted here

CONCLUSIONS

Our study confirms that RPD are an independent risk factor for the 5-year progression rate in fellow eyes of patients with unilateral eAMD. This additional risk is significant even in the presence of other known risk factors like intermediate or large drusen. The long follow-up considered on this study expands our previous knowledge on this particular AMD phenotype. Comprehensive multimodal retinal imaging and careful assessment of these high-risk lesions is recommended for all patients at-risk.

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COMMERCIAL RELATIONSHIPS

- J. P. Marques, J. Q. Gil, I. Laíns, M. A. Costa, S. Nunes and M. L. Cachulo: None
- R Silva: Novartis (Consultant), THEA (Consultant), Allergan (Consultant), Bayer (Consultant), Alimera (Consultant)

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