Exudative Progression of Treatment-Naïve Non-Exudative Macular Neovascularization in Age-Related Macular Degeneration: A Systematic Review with Meta-Analyses

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Purpose: To systematically review and report the rate of exudative progression over time in patients with non-exudative macular neovascularization (MNV) in age-related macular degeneration (AMD).

Design: Systematic review with prevalence meta-analyses and individual participant meta-analysis.

Methods: We searched 10 literature databases on March 26, 2023, for studies of consecutive patients with treatment-naïve non-exudative MNV in AMD. The primary outcome of interest was time from diagnosis to exudative progression. We conducted meta-analyses on the prevalence of exudative progression at 1 and 2 years. Where possible, we extracted individual participant data from studies and conducted an individual participant meta-analysis and explored the exudative progression using a time-to-event curve.

Results: We identified 16 eligible studies with a total of 384 eyes with non-exudative MNV. Exudative progression had occurred in

20.9 % (95 % CI: 13.1-29.8) of eyes at 1 year and in 30.7% (95%CI: 21.8-40.4%) at 2 years. Similar results were observed in the individual participant meta-analysis, showing exudative progression in 18.9% (95%CI: 13.5-26.3%) of eyes at 1 year and 31.3% (95%CI: 24.2-40.0%) at 2 years. Risk factors for a fast exudative progression were the presence of subretinal lipid globules, large MNV areas, rapid MNV growth, growth in pigment epithelium detachment height and width, appearance of a branching pattern, and development of a hyporeflective halo around the MNV.

Conclusions: Non-exudative MNVs in AMD are at high risk of exudative progression. Recognition of these lesions may allow for better individualized follow-up regimens in which closer monitoring may facilitate earlier diagnosis of exudative progression.

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