Progression of geographic atrophy with subsequent exudative neovascular disease in age-related macular degeneration: AREDS2 Report 23

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Purpose:
To examine whether the rate of geographic atrophy (GA) enlargement is influenced by subsequent exudative neovascular age-related macular degeneration (NV-AMD), hence to explore indirectly whether non-exudative NV-AMD may lead to slower GA enlargement.

Methods:
Design: Prospective cohort study within a controlled clinical trial.
Participants: Age-Related Eye Disease Study 2 (AREDS2) participants, aged 50–85 years.
Methods: Baseline and annual stereoscopic color fundus photographs were evaluated for (i) GA presence and area, and (ii) exudative NV-AMD presence. Two cohorts were constructed: eyes with GA at study baseline (prevalent cohort) and eyes that developed GA during follow-up (incident cohort). At least two sequential visits with GA without simultaneous or prior exudative NV-AMD were required for eligibility. Mixed-model regression of the square root of GA area was performed according to the presence/absence of subsequent exudative NV-AMD.
Outcome Measures: Change over time in square root of GA area.

Results:
The incident cohort comprised 757 eyes that developed GA. Of these, over mean follow-up of 1.5 years (SD 0.7), 73 (9.6%) developed exudative NV-AMD. GA enlargement was significantly slower in the group with subsequent exudative NV-AMD, at 0.20 mm/year (95% CI 0.12–0.28), compared to 0.29 mm/year (0.27–0.30) in the group without (p=0.037). The prevalent cohort comprised 456 eyes with GA at baseline. Of these, over mean follow-up of 1.9 years (SD 1.0), 63 (13.8%) developed exudative NV-AMD. GA enlargement was similar in the groups with and without subsequent exudative NV-AMD, at 0.31 mm/year (0.24–0.37) and 0.28 mm/year (0.26–0.29), respectively (p=0.37).

Conclusions:
In this large study, in eyes with recent appearance of GA, subsequent appearance of exudative NV-AMD was associated with slower GA enlargement. This is consistent with the idea that non-exudative NV-AMD adjacent to a GA lesion may slow GA enlargement. This study relies on using subsequent exudative NV-AMD as a proxy for a period of presumed non-exudative NV-AMD. However, similar findings were not observed in the prevalent cohort. This hypothesis warrants further evaluation in prospective studies.