

Risk of Intermediate Age-Related Macular Degeneration Progression in Patients with Systemic Beta-Blocker Use

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Abstract:

Purpose: To determine if there is an effect of systemic beta-blocker use over time on the progression of intermediate to advanced age-related macular degeneration (AMD).

Methods: This was a prospective cohort study utilizing the University of Colorado Age-Related Macular Degeneration Registry from the UCHealth Sue Anschutz-Rodgers Eye Center. Patients enrolled in the registry with intermediate AMD (iAMD) from October 2014 to November 2021 were included in the study. At the time of enrollment, patient demographics and medication history were collected. Beta-blocker use was collected at enrollment and at each subsequent follow-up visit. Participants were followed over time and classified into intermediate advanced non-neovascular (NNV) or neovascular (NV)

AMD by two vitreoretinal specialists using multimodal imaging. Time to conversion was plotted with Kaplan-Meier curves for each advanced phenotype of AMD and for any type of conversion by beta-blocker status. Progression of AMD from intermediate to advanced AMD, either the NNV or NV phenotype based on imaging including optical coherence tomography, color fundus photography, and fundus autofluorescence of the posterior pole.

Results: In total, 292 patients were included in the study with 22.6% using a systemic beta-blocker and 36.6% (n=107) converting from iAMD to advanced AMD in at least one eye. Patients on a beta-blocker at time of enrollment were more likely to convert to NV AMD [(HR: 1.92 (95%CI: 1.04, 3.55), p-value=0.036)], but this association was no longer significant after adjusting for age and treated hypertension. There were no significant differences in conversion to advanced NNV or any advanced AMD between groups (all p > 0.05).

Conclusions: There were no significant associations between use of a systemic beta-blocker and risk of conversion from iAMD to advanced NV and NNV AMD in adjusted analyses.