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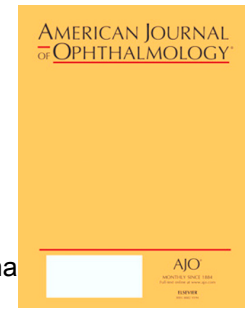

Visual function metrics in early and intermediate dry age-related macular degeneration for use as clinical trial endpoints

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ABSTRACT

Purpose: To evaluate and quantify visual function metrics to be used as endpoints of AMD stages and visual acuity (VA) loss in patients with early and intermediate AMD.
Design: Cross-sectional analysis of baseline data from a prospective study.
Methods: 101 patients were enrolled at Duke Eye Center: 80 patients with early AMD age-related eye disease study (AREDS) stage 2 (N=33) and intermediate stage 3 (N=47) and 21 age-matched, normal controls. A dilated retinal examination, macular pigment optical density measurements, and several functional assessments: best-corrected VA, MAIA mesopic microperimety, dark adaptometry, low luminance VA (LLVA) (standard using a log 2.0 neutral density filter and computerized method) and cone contrast test (CCT) were performed. Low luminance deficit (LLD) was defined as the difference in numbers of letters read at standard vs. low luminance. Group comparisons were performed to evaluate differences between the control and the early and intermediate AMD groups using two-sided significance tests.
Results: Functional measures that significantly distinguished between normal and intermediate AMD were standard and computerized (0.5 cd/m^2) LLVA, percent reduced threshold and average threshold on microperimetry, CCTs, and rod intercept on dark adaptation ($p < 0.05$). The intermediate group demonstrated deficits in microperimetry reduced threshhold, computerized LLD2 and dark adaptation ($p < 0.05$) relative to early AMD.
Conclusions and Relevance: Our study suggests that LLVA, microperimetry, CCT and dark adaptation may serve as functional measures differentiating early-intermediate stages of dry AMD.