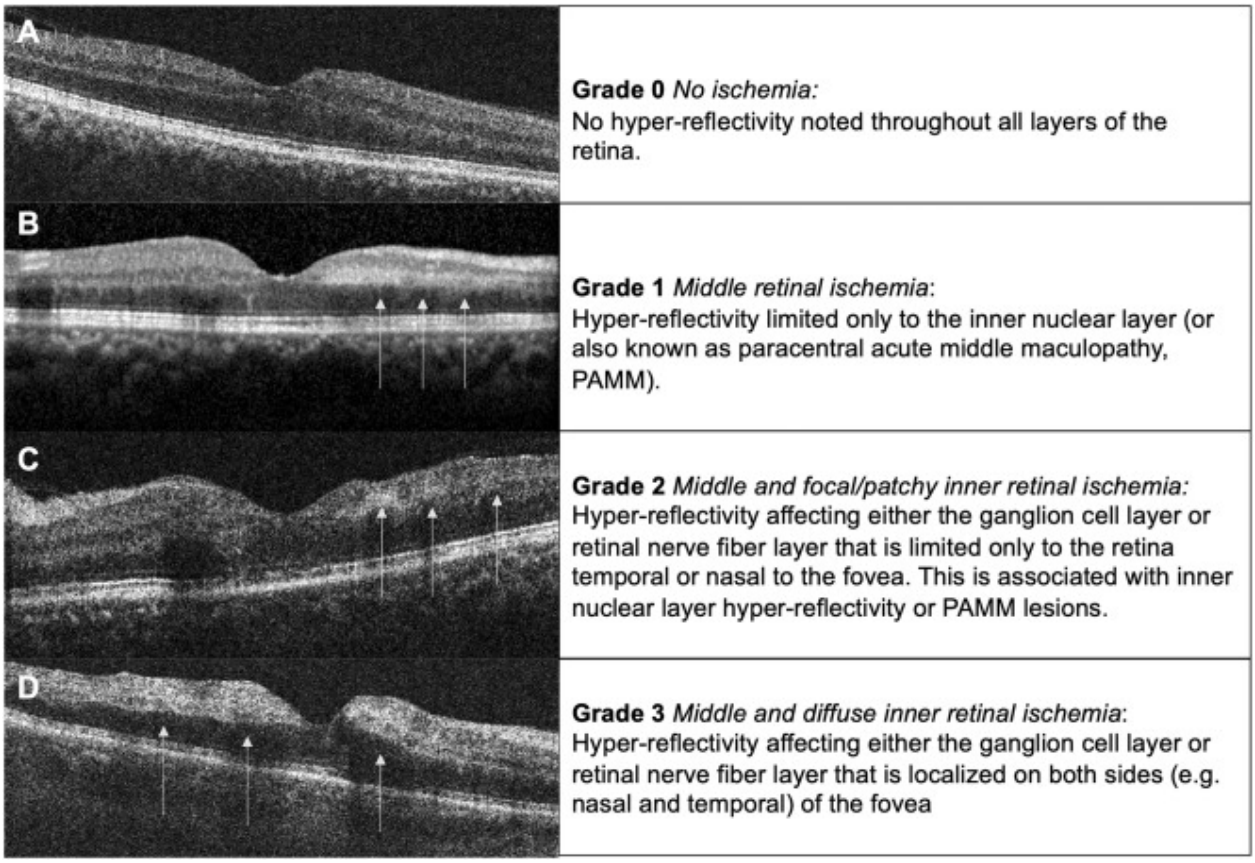
OCT Grading System of Macular Infarction Predicts Vision in Participants With Central Retinal or Hemiretinal Vein Occlusion: A Secondary Analysis of SCORE2



PURPOSE

To determine whether macular infarction measured as hyper-reflectivity of the middle and inner retinal layers predicts long-term visual acuity outcomes in participants with central retinal vein occlusion (CRVO) or hemi-retinal vein occlusion (HRVO).

DESIGN

Clinical cohort study using post hoc secondary analysis of phase 3 clinical trial data.

METHODS

This post hoc secondary analysis of the phase 3 Study of COmparative Treatments for REtinal Vein Occlusions 2 (SCORE2) clinical trial included 310 of the 362 participants with macular edema secondary to CRVO/HRVO who were randomized to injections of aflibercept or bevacizumab. Month 01 (M01) optical coherence tomography (OCT) images were analyzed using the following grading scheme: no infarction (grade 0), only middle retinal infarction (grade 1), diffuse middle and patchy inner retinal infarction (grade 2), and diffuse middle and inner retinal infarction (grade 3). Visual acuity letter score (VALS), central subfield thickness (CST), and number of anti–vascular endothelial growth factor (anti-VEGF) injections were correlated with the infarction severity grade at month 01.

RESULTS

More severe macular infarction, with both middle and inner retinal layer hyper-reflectivity (ie, grades 2 and 3), was associated with worse M00 VALS and was predictive of VALS at M01 to M60 ($P < .001$). More severe infarction was associated with greater CST at presentation; however, after the first anti-VEGF injection, CST decreased and was similar across all grades at all time points ($P > .05$) with similar number of injections.

CONCLUSIONS

Participants with more severe macular infarction at M01, as graded with OCT, exhibited worse visual outcomes despite significantly improved macular edema from month 6 to 5 years. This suggests that macular infarction may drive visual acuity after retinal fluid is treated with anti-VEGF.