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ORIGINAL PAPER

Predictors of visual acuity and improvement in macular morphology after idiopathic epiretinal membrane surgery

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ABSTRACT

Aim of the study: To assess the predictors of functional and anatomical improvement in patients with idiopathic epiretinal membrane (ERM).

Material and methods: A two-center retrospective cohort study. A review of consecutive patients with ERM who underwent pars plana vitrectomy with ERM peeling from January 2017 to December 2019. Best-corrected visual acuity (BCVA) and optical coherence tomography markers (central macular thickness [CMT], ectopic inner foveal layer [EIFL] thickness, outer nuclear layer [ONL] thickness, presence of cotton ball sign, ellipsoid zone disruption, cystoid macular edema [CME]) were collected at baseline and at one year, and included as covariates in a multivariate logistic regression model with final BCVA improvement as a binary outcome.

Results: One-hundred twenty eight eyes (125 patients) were enrolled in the study. At one-year follow-up, BCVA improvement was observed in 98 eyes (group 1 – 76.6%; BCVA 0.52 vs. 0.17, $p < 0.001$). BCVA stabilization or deterioration was observed in 30 eyes (group 2 – 23.4%; BCVA 0.34 vs. 0.38, $p = 0.32$). In group 1, preoperative BCVA was worse than in group 2 (0.52 vs. 0.34, $p < 0.001$). Good preoperative BCVA (OR = 2.16, $p = 0.001$) and young age (OR = 0.87, $p = 0.011$) were found to be predictors of postoperative BCVA improvement. Young age (OR = 0.81, $p = 0.049$) and high preoperative CMT (OR = 24.93, $p = 0.048$) had a positive effect on the normalization of CMT. The presence of CME had a negative effect on the normalization of CMT (OR = 0.02, $p = 0.014$), but no effect on the change in BCVA (OR = 0.4, $p = 0.239$).

Conclusions: None of the morphological signs included in this study precluded good visual recovery in long-term follow-up. Younger patients had better functional and anatomical gains.

KEY WORDS: epiretinal membrane, optic coherence tomography, biomarkers, pars plana vitrectomy, OCT, ectopic inner foveal layer, EIFL.