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The association of accuracy of intraocular lens power estimation and preoperative macular thickness in phacovitrectomy for epiretinal membrane

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Statement of the Problem: Patients with epiretinal membrane usually have coexisting cataract at presentation. Phacovitrectomy has become a common procedure in epiretinal membrane cases and offers quicker visual rehabilitation and reduce costs for additional surgery. In this study, we evaluate the accuracy of intraocular lens power estimation and the factors associated with outcome including preoperative central macular thickness in phacovitrectomy for epiretinal membrane.

Methodology & Theoretical Orientation: We performed a retrospective case review of 42 consecutive patients that underwent phacovitrectomy for epiretinal membrane. Axial lengths were measured using ultrasound (A-scan) and optical biometry (IOL Master). Achieved and predicted refractions were compared to calculate the mean postoperative refractive prediction error (ME). Several preoperative and postoperative factors including preoperative central macular thickness measured by OCT related to the postoperative refraction were analyzed.

Findings: The goal diopters measured by A-scan and IOL Master were 0.05 ± 0.21 diopters (D) and -0.07 ± 0.34 D, respectively with no statistical significant difference between the diopters (p=0.168). The actual postoperative manifest refraction was -0.43 ± 0.43 D, which was statistically significant tendency to a myopic shift from the goal diopters (p<0.001, 0.003). ME of 23 eyes using A-scan and IOL Master were -0.48 ± 0.46 D and -0.36 ± 0.49 D, respectively. There was no statistically significant difference in the refractive outcomes between the refractive errors (p=0.407). Preoperative mean central macular thickness measured by ocular coherence tomography was significantly decreased after surgery from 462.50±48.30 µm to 372.39±47.70 µm (p<0.001). The decrease in central macular thickness showed the correlation with the magnitude of postoperative myopic shift (r=0.479, p=0.044; r=0.485, p=0.041).

Conclusion & Significance: Combined phacovitrectomy in epiretinal membrane showed small biometric errors within the tolerable range in most cases. The decrease in central macular thickness had a significant correlation with the magnitude of postoperative myopic shift.

Biography

Eun Jee Chugn is a Retina Specialist, focuses on clinical and research interests that include age-related macular degeneration, diabetic retinopathy, retinal vein occlusion and surgical management of vitreoretinal diseases. She has completed her Residency and Retina Fellowship at Yonsei University and obtained her Medical degree and PhD from Yonsei University.

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