

Surgical Retina

A NOVEL PREDICTOR OF PERSISTENT OCULAR HYPOTONY AFTER PARS PLANA VITRECTOMY FOR RHEGMATOGENOUS RETINAL DETACHMENT: THE INITIAL INTRAOCULAR PRESSURE DIFFERENCE BETWEEN THE DETACHED AND THE FELLOW EYE

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PURPOSE: To evaluate the predictive value of initial intraocular pressure (IOP) difference (IOPD) of the detached and fellow eyes of patients with complex rhegmatogenous retinal detachment (RRD) on postoperative persistent ocular hypotony.

METHODS: This retrospective observational study included 538 eyes of 538 unilateral complex RRD patients with a proliferative vitreoretinopathy grade of C-1 or higher, treated with silicone oil (SiO) endotamponade following pars plana vitrectomy (PPV). The patients were divided into Group A (patients having SiO removal without ocular hypotony; n=504) and Group B (patients with persistent ocular hypotony following SiO removal [n=8, 23.5%] and with retained SiO [n=26, 76.5%] due to the risk of persistent ocular hypotony; total n=34). Ocular hypotony was defined as an IOP of 6 mmHg on two or more occasions. Patients' demographics, including age, sex, and follow-up time, and ocular characteristics, including ocular surgical and trauma history, initial and final best-corrected visual acuity (BCVA), IOP and IOPD of the detached and fellow eyes, and anatomical success rates and postoperative complications, were retrospectively collected from the electronic patient files.

RESULTS: The initial IOP was significantly lower in the detached eyes of Group B than in Group A (8.3±3.5 vs. 12.9±3.3, p0.001). Also, the initial IOPD was significantly higher in Group B than in Group A (8.9±3.2 vs. 2.2±2.7 mmHg, p0.001). The receiver operating characteristic (ROC) curve analysis showed that the cut-off value of the initial IOPD was 7.5 mmHg for the risk of persistent ocular hypotony. The most influential factors on postoperative persistent ocular hypotony in the binary logistic regression analysis were the IOPD and the need for a retinectomy.

CONCLUSION: In eyes with complex RRD treated with PPV and SiO tamponade, the initial IOPD could be of value in predicting postoperative persistent ocular hypotony and could guide surgeons on the decision of SiO removal.

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