

A 12-Month Retrospective Comparison of the Efficacy and Complications of Device-Based and Non-Device-Based MIGS Procedures

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Background: Minimally Invasive Glaucoma Surgery (MIGS) encompasses a group of procedures designed to reduce trauma to the target tissue and reduce the incidence of complications. MIGS procedures can be divided into two overall categories: device-based procedures and non-device-based procedures. The purpose of this study is to compare the efficacy and complications of device-based and non-device-based MIGS procedures in eyes combined with phacoemulsification.

Methods: 55 eyes from 36 patients with combined MIGS (iStent, GATT, ABIC, BANG, and KDB) and phacoemulsification were included. The glaucoma diagnoses included primary open angle glaucoma (POAG), secondary open angle glaucoma (SOAG), and combined-mechanism glaucoma (CMG). The efficacy of the device-based and non-device-based procedures was determined by the mean postoperative IOP and glaucoma medication reduction. Early complications included adverse events and IOP spikes. Late complications included additional surgeries.

Results: At 12 months post-operatively, non-device-based eyes had a greater statistically significant reduction in IOP (3.6 ± 1.3 mmHg) when compared to device-based eyes ($.07 \pm 1.3$ mmHg). There was not a statistically significant difference regarding glaucoma medication burden change between the non-device-based eyes ($.58 \pm .20$, 29.7% reduction) and the device-based eyes ($.76 \pm .19$, 31.7% reduction) ($p = .52$). The occurrence of hyphema was not statistically significantly greater in device-based eyes compared to non-device-based eyes with the sample sizes in this study. The difference between IOP spikes in the two groups was not statistically significant.

Conclusion: Non-device-based MIGS procedures reduced the 12-month post-operative IOP more than the device-based MIGS procedures. There was not a statistically significant difference regarding glaucoma medication burden change between the study groups. Post-operative complications occurred at a similar frequency between the two groups.

Clinical Impact and Implications: The results of this study can help surgeons choose the appropriate MIGS procedure for their patients depending on the efficacy and safety profile.