An intra-patient comparison audit of two different Minimally Invasive Glaucoma Surgery (MIGS) devices - iStent Inject vs. Hydrus

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Background and Aims

Currently, there is only one reported study comparing the efficacy of the iStent Inject and Hydrus MIGS devices in the same patient[1]. This previous study assessed intraocular pressure (IOP), medication load and adverse events in patients undergoing sequential surgery.

We provide the first intra-patient comparison for the efficacy of phacoemulsification + iStent Inject vs. phacoemulsification + Hydrus in patients undergoing bilateral immediately sequential (same day) surgery with additional outcome measures, including visual field data.

Methods

20 patients (40 eyes) with glaucoma or ocular hypertension had same day bilateral phacoemulsification + MIGS device implant (iStent Inject W in one eye; Hydrus in the contralateral eye). A single consultant surgeon (author JD) performed all cases in a single centre. Mean follow up was at 63.6 ± 31.1 weeks. Outcome measures that were analysed pre- and post-treatment were IOP, medication load, visual acuity (VA), mean-deviation (MD), pattern standard deviation (PSD) and cup-disc ratio (CDR).

Results and Conclusion

Mean VA (LogMAR ± SD)

	Pre-op	Post-op	P Value
iStent	0.35±0.24	0.19±0.30	0.03
Hydrus	0.28±0.17	0.17±0.21	0.01

Mean IOP (mmHg ± SD)

	Pre-op	Post-op	P Value
iStent	21.7±5.5	15.1±2.4	<0.005
Hydrus	21.6±5.5	14.6±2.2	<0.005

Mean glaucoma drops (n ± SD)

	Pre-op	Post-op	P Value
iStent	1.9±1.6	0.9±0.7	<0.005
Hydrus	1.8±1.3	0.9±0.9	<0.005

There was no significant difference between mean pre- and post-treatment MD, PSD or CDR for both MIGS devices.

There was no significant difference between the two MIGS devices for any of the outcome measures in intra-patient comparison.

Our study is the only intra-patient comparison of these MIGS devices in patients undergoing bilateral same-day surgery and that has analysed visual field data.

Both MIGS devices resulted in a significant post-operative improvement in VA, IOP and medication load; both devices resulted in stable post-operative visual field parameters and CDR.

We demonstrate equal efficacy between both devices for VA, IOP, medication load, visual field parameters and disc appearance.

References:

1. Shultz M, Chorbajian A, Zohouralen A. Comparative Effectiveness and Safety of Two Different Trabecular MIGS Devices With and Without Ab Interno Canaloplasty in Patients with Primary Open-Angle Glaucoma. *Ophthalmol Ther*. 2023;12(6):3307-3322.