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More Than Meets the Eye: Cataract Surgery's Evolving Role in Glaucoma Treatment

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INTRODUCTION

- Glaucoma is a leading cause of permanent blindness world-wide affects 57.5 million people
- MIGS-treatment of glaucoma. Cataract surgery- important procedure in ophthalmology, aids in vision improvement/restoration + IOP reduction
- In POAG, phacoemulsification alone has shown efficacy in reducing IOP, particularly in mild cases
- MIGS- i.e. iStent, Hydrus Microstent, and GATT provides improved outcomes in patients with moderate to advanced disease
- This paper looks at the efficacy of cataract surgery with and without MIGS - iStent, HMS, and GATT in reducing IOP and medication burden. Also, safety profiles were evaluated.

METHODS

- A systematic literature review was performed using Ovid Medline and Embase
- Publications from 2015 were targeted, especially those published in journals with an impact factor of more than 2 or more
- Studies were identified and the impact of cataract surgery, with and without MIGS, on patients with POAG were then evaluated.
- The criteria evaluated were- IOP reduction, medication burden and safety of each procedures

RESULTS

HYRDUS

5-year outcomes of The HORIZON Study

Study type: Multi-Centre RCT | **Study Duration:** 5 years

No of centres: 26 in US | **Population:** 308 (HMS), 134 (CS)

	Pre-op	Post-OP	Decrease
HMS+CS (308)	*IOP (mmHg)*= 25.5±3.0 *MED*= 1.7±0.9	*IOP (mmHg)*= 16.8±3.1 *MED*= 0.5±0.9	*IOP* = 34.1% *MED*= 70.6%
CS (134)	*IOP (mmHg)*= 25.4±2.9 *MED*= 1.7±0.9	*IOP (mmHg)*= 17.2±3.2 *MED*= 0.9±0.9	*IOP* = 27.8% *MED*= 47%

Adverse effects- % of the popn	HMS + CS	CS
VF defect, >2.5 deterioration	8.4	9.6
Inflammation needing steroid use	5.9	3.7
PAS	14.7	3.7
BCVA loss >2 ETDRS lines	1.9	2.1

iStent

Efficacy of iStent on IOP with MIGS-Phaco vs Phaco

Study type: Prospective, Multi-Centre RCT | **Study Duration:** 2 years

No of centres: 1 | **Population:** 44 (iStent+CS), 36 (CS)

	Pre-op	Post-OP	Decrease
iStent+CS (44)	*IOP (mmHg)*= 26.6±1.09 *MED*= 2.5±0.89	*IOP (mmHg)*= 17.06±2.43 *MED*= 0.88±1.26	*IOP* = 35.9% *MED*= 64.8%
CS (36)	*IOP (mmHg)*= 26.0±0.00 *MED*= 1.86±0.69	*IOP (mmHg)*= 19.86±2.19 *MED*= 1.29±0.76	*IOP* = 23.6% *MED*= 30.1%

Adverse effects- no. of the popn	iStent + CS	CS
Microhyphaema	5	0
Sub-conjunctival haemorrhage	1	0
Corneal Oedema	0	1
Corneal inflammation	0	1

GATT

GATT combined with CS: Outcomes at 2 year follow-up

Study type: Consecutive case series study | **Study Duration:** 2 years

No of centres: 1 | **Population:** 58 (GATT+CS), 66 (GATT)

	Pre-op	Post-OP	Decrease
GATT + CS (58)	*IOP (mmHg)*= 26.40±6.37 *MED*= 3.12±0.80	*IOP (mmHg)*= 16.08 ± 2.38 *MED*= 0.45±0.96	*IOP* = 39.1% *MED*= 85.6%
CS (66)	*IOP (mmHg)*= 27.54 ± 8.09 *MED*= 3.35 ± 0.64	*IOP (mmHg)*= 15.50 ± 3.40 *MED*= 0.95 ± 1.50	*IOP* = 43.7% *MED*= 71.6%

Adverse effects- % of the popn	GATT + CS	CS
Microhyphaema	21	28
Macrohyphaema	25	25
IOP spike	10	36
Supracilliary effusion	15	26

DISCUSSION

- Cataract surgery with HMS implantation achieved a 34.1 % IOP reduction at five years compared to a 32.2 % reduction with phacoemulsification alone, indicating a modest but sustained incremental benefit.
- iStent + Cataract Surgery resulted in a 35.9 % drop in IOP at two years versus 23.6 % with cataract surgery alone.
- GATT with CS produced a 39.1 % decrease in IOP, closely matching the 43.7 % reduction seen with GATT alone.
- All three combined MIGS procedures significantly reduced glaucoma medication use compared to standalone cataract surgery, with Hydrus + CS decreasing medications by 1.2, iStent + CS by 1.62, and GATT + CS by 2.67 drops.
- The safety profiles of the combined procedures were favourable.

CONCLUSION

- Standalone CS remains an effective option for mild POAG, but Add-on MIGS should be considered for moderate to advanced disease to optimize pressure control and minimize topical therapy.
- Future long term, head to head randomized trials are needed to compare visual field preservation, patient reported outcomes, and cost effectiveness across MIGS modalities.

REFERENCE

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