Outcomes of Phacoemulsification with iStent inject in patients with narrow angle glaucoma

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Purpose

To assess the outcomes of phacoemulsification with iStent inject Implantation (phaco-iStent) in patients with narrow angle glaucoma (NAG) at a single tertiary eye center.

Methods

Patients undergoing phaco-iStent for narrow angle glaucoma (NAG) between March 2018 and October 2020 under the glaucoma team at a tertiary referral hospital were followed up and latest clinical data were analysed.

Primary outcomes::
- Intraocular pressure (IOP) reduction
- Medication reduction

Secondary outcomes:
- Post-operative complications
- Further interventions
- Change in visual field mean deviation

Success definitions in IOP control:
≤ 21mmHg and ≤ 15 mmHg with (qualified) or without (complete) drops. Failure was repeat glaucoma surgery or loss of light perception (LP).

Baseline Characteristics Mean ± SD (range) n=59	
Age (years)	73.3 (49.9 - 94.5)
Male:female (%)	41:59
Follow-up (months)	20 (1-36)
Pre-operative IOP (mmHg)	19.8 ± 4.1 (12-28)
Pre-operative drops (number)	2.2 ± 0.7 (0-5)
Pre-operative mean deviation (dB)	- 6.8 ± 7.2 (0.8 - -26.6)
Previous procedures	
None	21 (36%)
Peripheral iridotomy	38 (64%)
Deep Sclerectomy	3 (5%)
Glaucoma type	
Chronic narrow angle glaucoma	40 (67.8%)
Ocular hypertension with narrow angles	16 (27.1%)
Normal tension glaucoma with narrow angles	1 (1.7%)
Pigment Dispersion Glaucoma with narrow angles	2 (3.4%)

Results

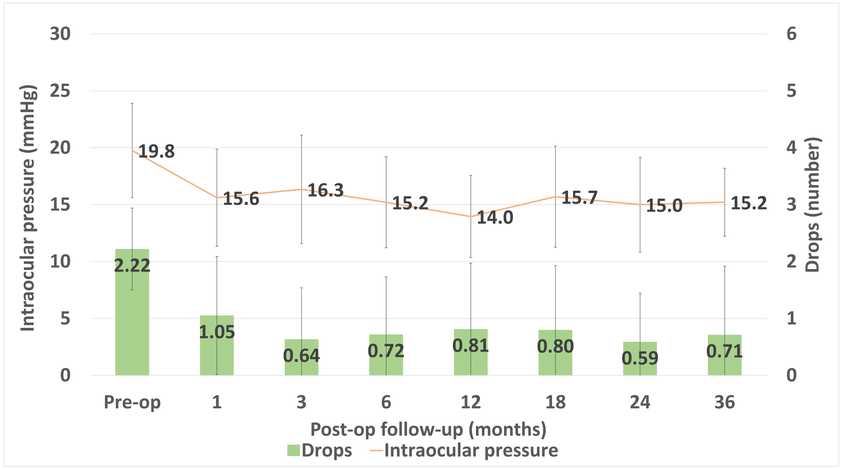


Figure 1 IOP and medication outcomes pre-operatively and post-operative time points

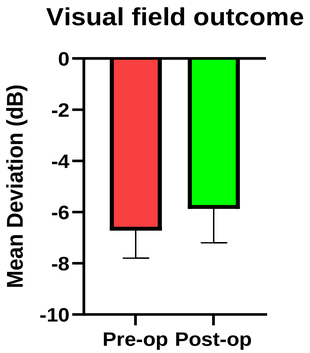


Figure 3 Visual field mean deviation pre-operatively and post-operatively

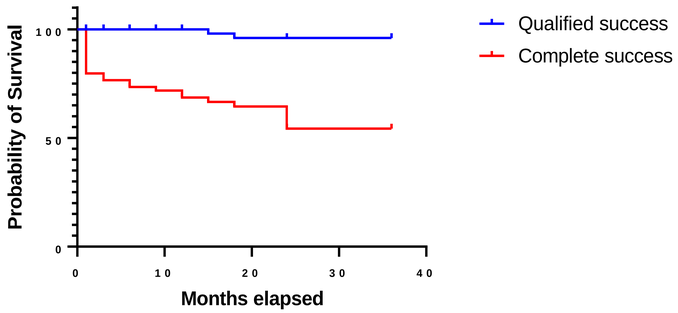


Figure 2 Kaplan–Meier survival plot for complete and qualified success at IOP ≤ 21 mmHg

N=2 (3%)	Further glaucoma surgery due to visual field progression
N= 1 (1%)	Peri-ocular steroids due to cystoid macular oedema

Table 1 Long-term complications

Discussion

To date, there has been 2 studies comparing efficacy of phaco-iStent vs phaco alone in patients with narrow angles which showed added benefit of iStent device in this cohort of patients.(1,2)

Our efficacy data showed phaco-iStent would yield a similar pressure reduction and medication reduction as compared to the other 2 studies.

Our cohort study also demonstrated this reduction is sustained for at least 3 years. The qualified success rate is high at 92% at 36 months with failure mainly due to visual field progression despite IOP less than 21 or patient preference to further reduce medication burden.

Limitation of this study is that there is no control group of patients undergoing phacoemulsification alone. This is due to surgical team preference to carry out phaco-iStent procedures in all narrow angle candidates suitable for cataract surgery who are on two or more glaucoma medications for ocular hypertension or glaucoma.

Conclusions

The results supports that phacoemulsification with iStent in narrow angle glaucoma yields effective IOP control with a reduction of topical glaucoma medication. The duration of this effect can last 3 years or more.

References

1. Chen DZ, Sng CCA, Sangtam T, Thomas A, Shen L, Huang PK, Cheng J. Phacoemulsification vs phacoemulsification with micro-bypass stent implantation in primary angle closure and primary angle closure glaucoma: A randomized single-masked clinical study. Clin Exp Ophthalmol. 2020;48(4):450-61.

2. Salimi A, Abu-Nada M, Harasymowycz P. Matched Cohort Study of Cataract Surgery With and Without Trabecular Microbypass Stent Implantation in Primary Angle-Closure Glaucoma. Am J Ophthalmol. 2021;224:310-20.

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