Twenty-four month clinical outcomes of iStent Inject®Trabecular Micro-bypass Glaucoma Surgery in West of Scotland

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Introduction

Microinvasive glaucoma surgery (MIGS) offers a favourable efficacy and safety profile enabling us to better individualize patient care in glaucoma by providing more surgical options for glaucoma patients. Clinicians are now able able to offer in selected cases a stepwise approach which was not possible in the past.

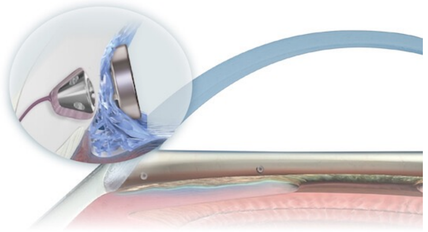
The iStent ® (Glaukos Corporation, San Clemente, California), is the first ab interno glaucoma implant that was approved by the FDA in 2012 and it is the smallest implantable medical device approved for use in humans. The most recent G2W version is measuring 360 microns in height and 360 microns in diameter. The central inlet and outlets measure 80 microns. With the use of a specially designed injector, 2x stents are implanted in the Schlemm's canal bypassing the TM and allow aqueous humor to drain directly from the anterior chamber into Schlemm's canal.

The aim of this audit was to evaluate the Clinical outcomes and Safety profile of the iStent Inject®Trabecular Micro-bypass glaucoma surgery in West of Scotland over a period of 3 years.



iStent G2 inject.

Image from Glaukos corporation



Implanted iStent inject in the Schlemm's Canal.

Image from Glaukos corporation

Methods

This is a retrospective audit examining cases of iStent Inject® (G2-M-IS and G2W) implantation at University Ayr Hospital in Ayr and New Victoria Hospital in Glasgow by three glaucoma specialists between 2018 and 2021.

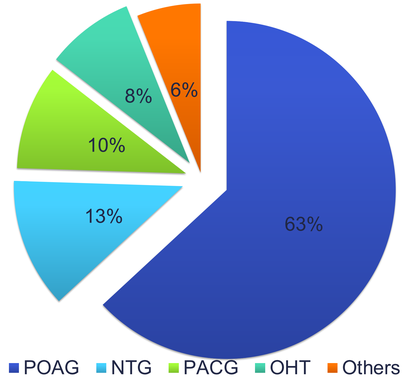
The patients' details were identified through the IT department upon completion and approval of a confidentiality form. The pre-operative details and post-operative outcomes, where available, were retrieved using our trust's electronic medical records system. Data was analysed using SPSS. T-test for dependent samples was used in our statistical analysis with the level of significance being set at $p<0.05$.

Results

The baseline characteristics of the cohort are presented in the table below.

Number of eyes	130
Age (SD)	75.7 years (10.8) Range: 28-97 years
Previous Glaucoma filtering surgery	5.3% of cases
Previous SLT	6.1% of cases
Stand Alone Implantation of iStents	14.6% of cases
Mean baseline IOP (SD)	21.6 mmHg (6.7)
Mean number of glaucoma drops pre-operatively	2.5 (1.22)

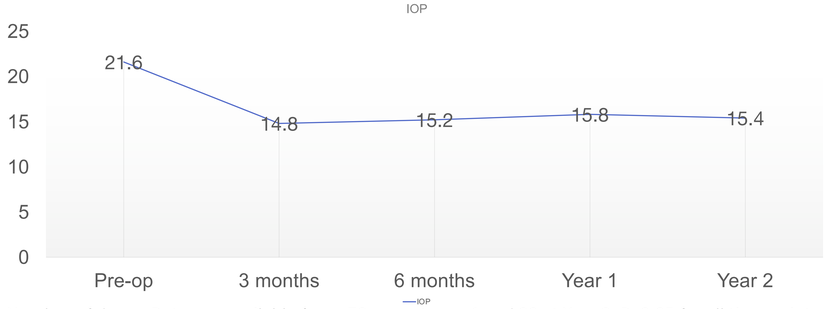
The following graph presents the breakdown of glaucoma related diagnoses



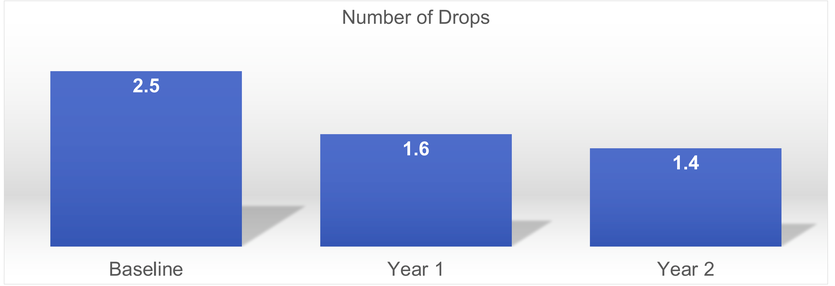
*Others included cases of PXG and PDG

Results

The mean post-operative IOP (mmHg) values at various time intervals are presented below. Data was available for n=70 eyes at 3 months, 46 eyes at 6 months, 71 eyes at 12 months and 34 eyes at 24 months. The IOP reduction when compared to baseline was statistically significant $p<0.05$ at all time points



Number of drops: Data was available for n=70 eyes at year 1 and 33 at Year 2. $P<0.05$ for all time points



There were no intra-operative complications. Post-operative complications included 2 cases of resolved CMO, 1 case of resolved hyphaema and 1 case of hypotony which required removal of the iStents.

7 eyes went one to have trabeculectomy surgery on average 12 months post iStent implantation and three eyes required SLT due to IOP being above target.

Conclusions

The above real word data shows that the use iStent Inject® (combined with cataract surgery in the 85.4% of cases included in this study) produces a clinically and statistically significant reduction in IOP and number of IOP lowering drops in year 1 and 2 post surgery and is accompanied by a very good safety profile.

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