

Clinical Outcomes of iStent Inject® Trabecular Micro-bypass Glaucoma Surgery

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Introduction

Over the last few years, Microinvasive Glaucoma Surgery (MIGS) is being used more often as an intermediate solution between medical glaucoma treatment and traditional filtration surgery. iStent inject is one of the most commonly used MIGS as there is substantial favourable evidence in terms of its efficacy and safety profile.

Aims

The aim of this retrospective audit was to look at the baseline characteristics of patients who underwent iStent inject insertion in our unit over the last 4 years and collect data on clinical outcomes and complication rates.

Methods

Retrospective audit examining cases of iStent insertion (1st and 2nd generation) combined or not with phacoemulsification, carried out at New Victoria Hospital in Glasgow between 29/03/2017 and 21/07/2021.

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 Microsoft Excel. T-test for dependent samples was used in our statistical analysis with the level of significance being set at $p<0.05$.

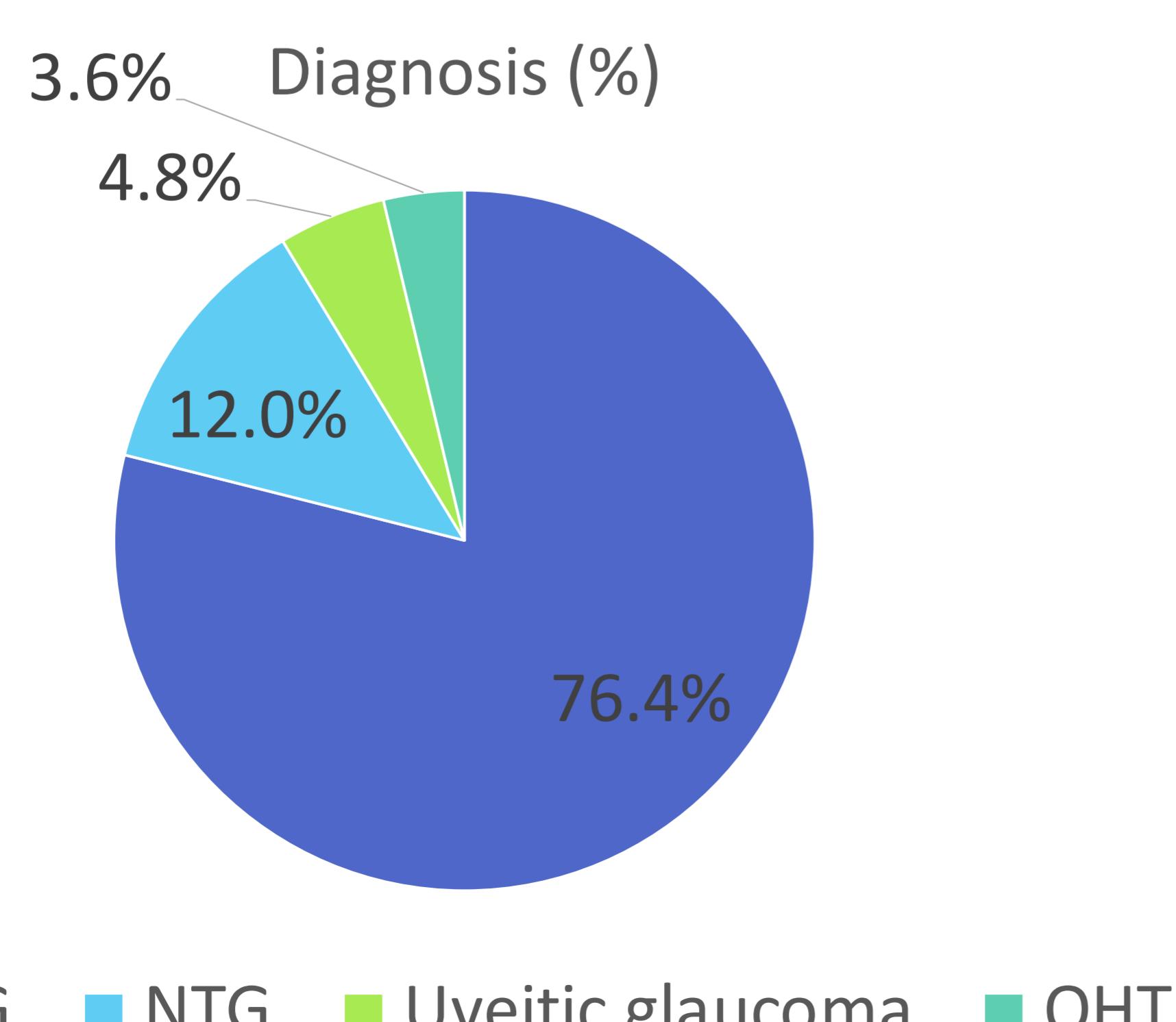
There are no published audit standards in terms of intraocular pressure targets at various time intervals for iStents. Comparisons were done with recently published literature in the topic.

Results

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

Number of eyes	85
Age (SD)	76.1 years (12.7) Range: 28-87 years
Previous Glaucoma surgery	5 patients (5.8%)
Number of eyes where iStent insertion combined with cataract surgery	72 (84%)
Mean baseline IOP (SD)	20.4mmHg (6.2)
Mean number of glaucoma drops pre-operatively	2.6 (1.09)
Patients on oral Acetazolamide pre-operatively	3 (3.5%)

The following graph presents the breakdown of glaucoma related diagnoses

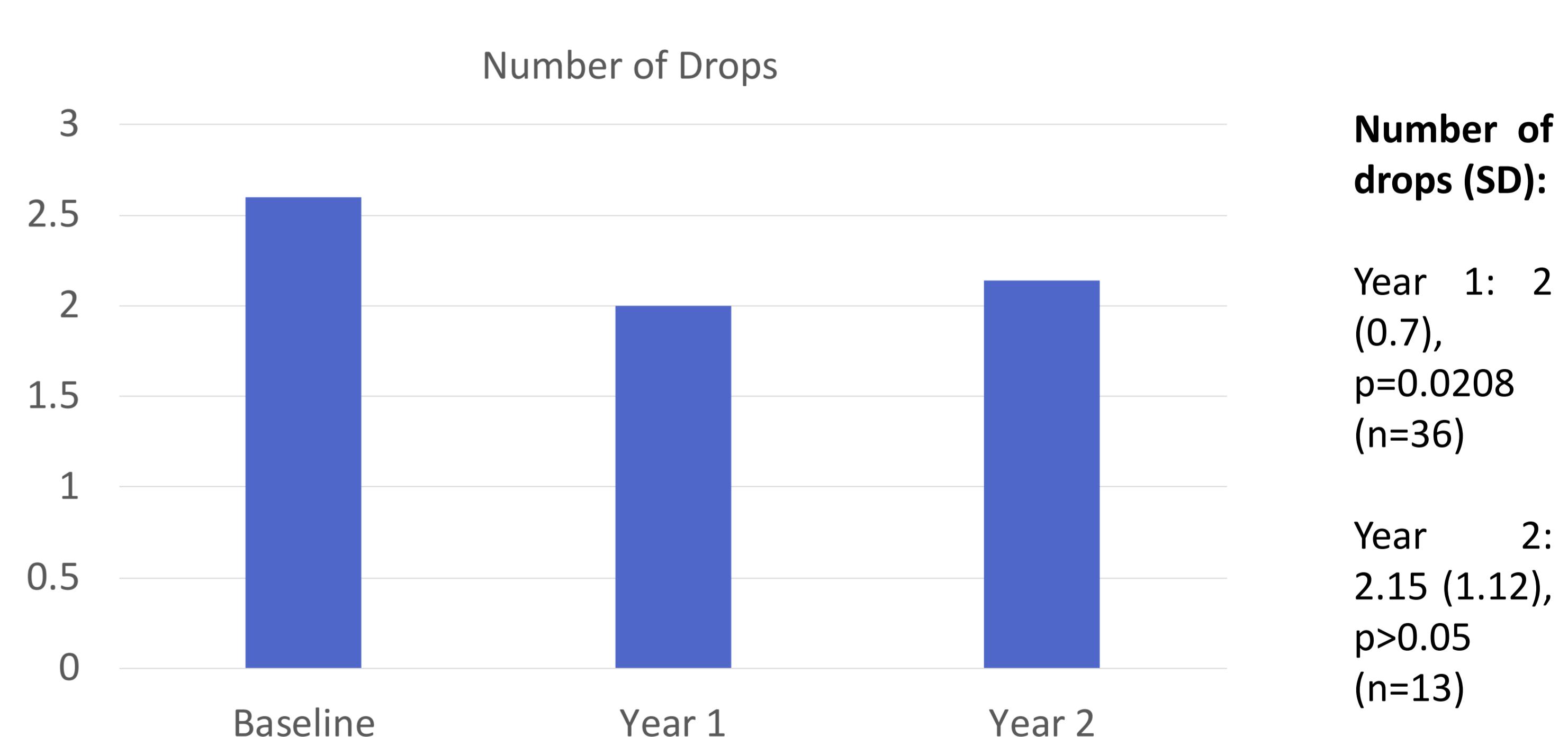


Results

The mean post-operative IOP values at various time intervals are presented below

Time point	IOP (SD) p level Number of eyes
Month 1	15mmHg (5.4) p=0.0089 n=28
Month 3	15.1mmHg (5) p<0.0001 n=43
Month 6	15.1mmHg (5) p=0.00214 n=29
Year 1	16.76mmHg (4.25) p=0.00629 n=38
Year 2	15mmHg (3) p=0.77 n=14

- 43% of eyes had a significant drop equal or over 20% compared to baseline at year 1. There is limited data for year 2.
- 6 patients (15.7% of the one year cohort – n =38) had an increase in their intraocular pressure at year 1 when compared to baseline figures. 2 of these were listed for trabeculectomy and one for SLT. One case was due to non compliance.
- Out of 68 patients that had follow up data on the electronic records system of over 18 months, only 4 patients (6%) went on to have a trabeculectomy on average a year after the surgery. 3 (4.4%) patients were subsequently listed for SLT.



There is no data on intra-operative complications as the notes were not readily available at the time of data collection.

With respect to early or late post-operative complications, there was only 1 patient who subsequently developed hypotony with choroidal detachments and an inferior RD. This patient underwent further surgery in the form of iStent removal and intravitreal gas injection. Pre-operative VA for this patient was 6/60 and post operative VA remained the same.

Conclusions

Our data confirms that iStent inject produces a meaningful reduction in IOP and number of glaucoma drops being used at year 1 post surgery with a good safety profile. Our results are comparable to recently published literature. Further research is needed on longer term outcomes and we plan to compare the outcomes between the first and second generation of iStents in the future.