



# Case-Matched Results of Trabectome Ab Interno Trabeculectomy versus Ahmed Glaucoma Implant

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## Background

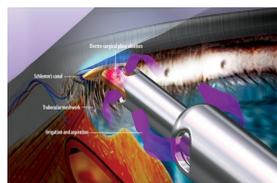
- Intraocular Pressure (IOP) outcomes for ab interno trabeculectomy with the Trabectome (T), a minimally invasive glaucoma surgery, have had relatively similar IOP results to trabeculectomy.[i,ii]
- T rarely causes serious complications and has about 10 times less non-serious complications compared to trabeculectomy or aqueous shunts and serious complications occur in <1%. [iii]
- Because of the above, we are now using T also in moderate to very advanced glaucoma for initial surgeries.
- No manuscript has yet compared IOP outcomes of T to Ahmed Glaucoma Implants (AGI).

## Purpose

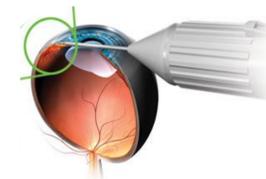
- To compare the IOP reduction, number of medications, and complications after trabecular meshwork ablation with T vs trabecular bypass with the AGI.

## Methods

Trabectome



Ahmed



- 1 year IOP ~ 15 mmHg
- fast, safe
- no permanent hardware
- needs clear cornea
- significant learning curve

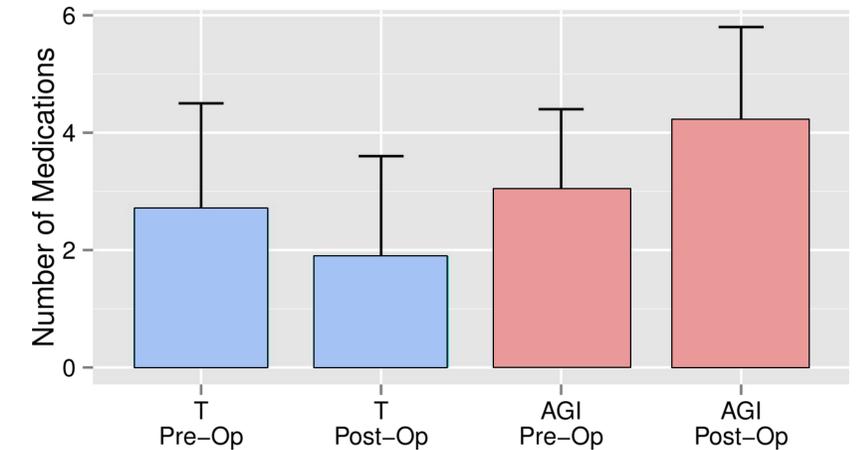
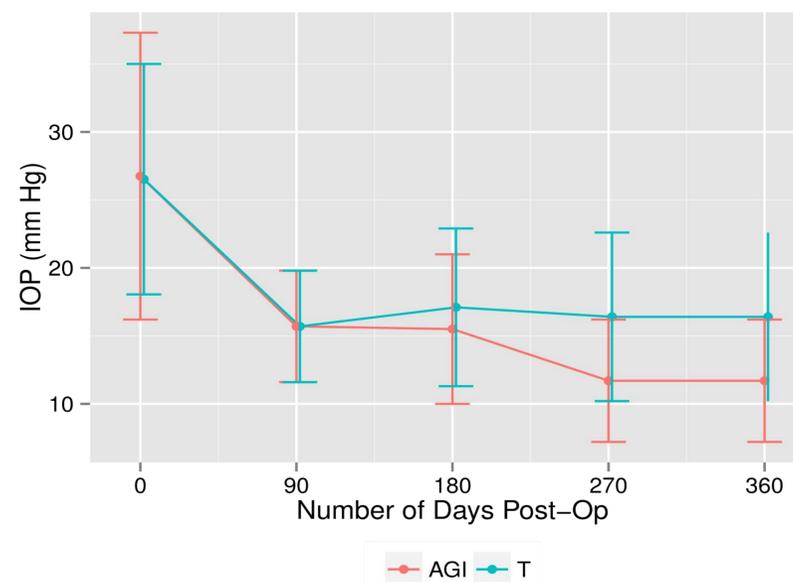
- 1 year IOP ~ 17 mmHg
- valved = fast IOP drop but can obstruct
- works well in uveitis
- tube can erode

- Retrospective study of outcomes of T (n=103) to AGI (n=41) up to 1 year.
- Cases were matched with propensity-score matching using a genetic algorithm based on age, gender, type of glaucoma, concurrent phacoemulsification, and baseline IOP and medications. Cases of T or AGI too different from their counterparts were excluded.
- Procedures were performed by the same group of surgeons on comparable patient populations for primary and secondary open angle glaucomas and chronic angle closure.
- Exclusion criteria consisted of neovascular glaucoma.
- IOP and number of medications were compared with a non-paired Student's t-test and considered significant if p<0.05.

## Results

- Prior to matching, T had a preoperative IOP of 20.8±8.1 mmHg on 2.7±1.8 medications. After 1 year, the number of medications decreased to 1.9±1.7.
- Prior to matching, AGI had a preoperative IOP of 30.0±13.4 mmHg on 3.0±1.4 medications. After 1 year, the number of medications increased to 4.2±1.6.
- After matching, there was no significant difference in IOP between AIT and AGI at 1 week, 1 month, 3 months and 6 months (all p>0.05).
- At 1 year, matched T (n=14) had a baseline IOP of 28.1±9.2 mmHg that decreased to 16.4±6.2 mmHg (42% decrease) compared to AGI (n=11) with a baseline of 26.9±8.5 mmHg that decreased to 11.7±4.5 mmHg (57% decrease, p<0.01).
- In T, transient cystoid macular edema (CME) occurred in 0.8% and 16% required further surgery. In AGI, there were choroidal effusions in 7% and 41% required further interventions.

# Days Post-Op	T, n	T Delta IOP (mmHg)	AGI, n	AGI Delta IOP (mmHg)	p-value
90	32	10.7±8.1	33	11.4±10.1	p>0.05
180	24	9.3±7.4	19	11.2±8.6	p>0.05
270	10	8.8±0.0	7	14.6±11.7	p>0.05
360	14	11.7±6.8	11	15.2±7.2	p<0.01



## Discussion

- T and AGI had similar IOPs for the first 6 months.
- At 12 months, the IOP was 4.7 mmHg lower with AGI than with T, p<0.01 but with twice as many medications.
- This further IOP decrease with AGI had a reintervention rate that was 5.9 times more frequent.
- In contrast to AGI, patients who underwent T had no serious complications.
- T offered a safer alternative to a mean final IOP of 16.4±6.2 mmHg, 42% lower than baseline.

## Conclusions

- After 12 months, AGI had a lower average IOP. AGI required more secondary interventions.
- Results of this study will allow informed design of RCTs or larger studies that can also match for medication strategies and justify crossover in case of failure.

## Disclosures

Sushma Kola (suk55@pitt.edu), Kevin Kaplowitz, Eric Brown, Steven Wang, Julia Polat, Rachel Davis, Joel Schuman: None. Nils Loewen (loewen.nils@gmail.com): Trabectome Trainer.

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