Baerveldt Tube Shunts with Trabectome Surgery in a Matched Comparison to Baerveldt Tube Shunts

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Background

Baerveldt Tube Shunts (B)

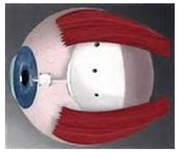
- Bypass the conventional outflow system
- Are used in advanced glaucoma
- Have a lower complication rate and a slightly higher success rate than trabeculectomy
- Often experience a hypertensive phase in the postoperative period
- Two IOP drops are typically needed to achieve IOP goal

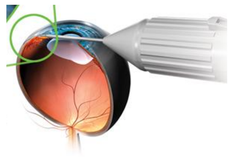
Trabectome Surgery (AIT)

- Has a nearly 20 fold lower complication rate than tubes
- Most commonly used in mild to moderate glaucoma

Hypothesis

- Compared with **B**, combining **B+AIT** will reduce IOP and IOP drops while blunting the hypertensive phase.
- The visual acuity after **B+AIT** is worse than after **B** during the postoperative period.
- The safety profiles of **B+AIT** and **B** are similar.





Methods

- Retrospective case control study
- All records from UPMC Eye center from 2008-2015 from 4 surgeons
- Patients undergoing same session cataract extraction treated the same as those not undergoing cataract surgery
- Patients matched by age, ethnicity, glaucoma type, preoperative IOP, preoperative number of glaucoma drops
- Primary outcomes:
  - IOP at each postop timepoint
  - number of postoperative IOP medications
- Secondary outcomes
  - LogMar best corrected visual acuity
  - operative and postoperative complications

Results

		Baerveldt	AIT-Baerveldt
Total		117	60
	With Phaco	53	36
Gender	Male	56	22
	Female	61	38
Ethnicity	Caucasian	72	37
	African American	43	21
	Other	2	2
Age	Years	66.3	71.38
Glaucoma type	POAG	65	38
	CAGC	10	6
	MMG	11	2
	PXFG	8	3
	PDG	5	3
	Traumatic	5	1
	SIG	6	2
	NTG	5	4
Plate Placement	ST	108	60
	IN	9	0
Tube Placement	Sulcus	92	3
	AC	22	57
	Pars plana	3	0

Table 1: Patient demographic data

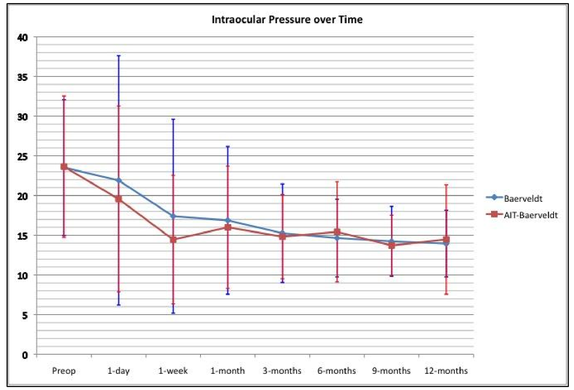


Figure 1: Intraocular pressure at each postoperative time point in patients who underwent Baerveldt tube implantation (blue) and combined AIT-Baerveldt (red). Error bars represent standard deviation. There was no significant difference in IOP at any postoperative time point.

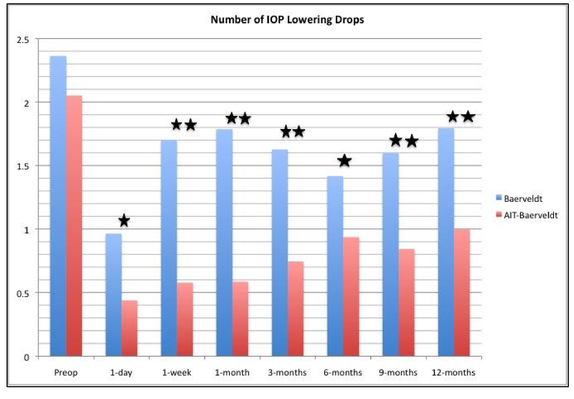


Figure 2: Number of IOP drops prescribed to patients undergoing Baerveldt tube implantation (blue) and combined AIT-Baerveldt (red). There was not a significant difference in preoperative medications, but number of IOP drops was significantly lower in the AIT-Baerveldt group at each postoperative time point (★ = $p<0.05$, ★★= $p<0.01$)

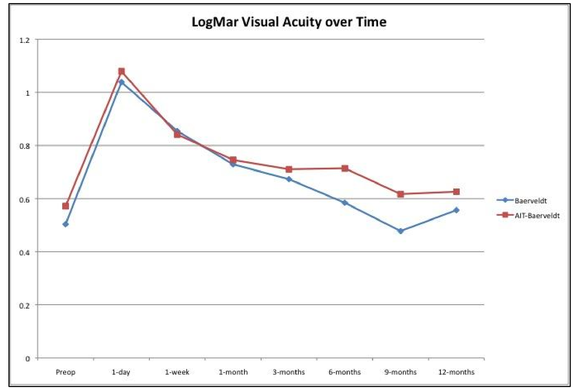


Figure 3: LogMar visual acuity in patients undergoing Baerveldt tube shunt implantation (blue) and combined AIT-Baerveldt (red). There was no significant difference in visual acuity at any time point.

Conclusions

- **B+AIT** and **B** have a similar IOP.
- **B+AIT** require fewer drops at every time point than **B**.
- **B+AIT** and **B** have a similar visual acuity.
- **AIT** can be used as an adjunct to **B** to decrease the need for IOP lowering drops.

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