

Visual Acuity and Strabismus Pre- and Post-Baerveldt 350 Glaucoma Drainage Device Placement



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No relevant financial disclosures



BACKGROUND

- BV350 implants are typically placed superotemporally and in adults can cause exotropias and hypertropias from restriction of adjacent rectus muscles
- Paucity of post-operative strabismus information in children with refractory glaucoma who undergo BV350 surgery

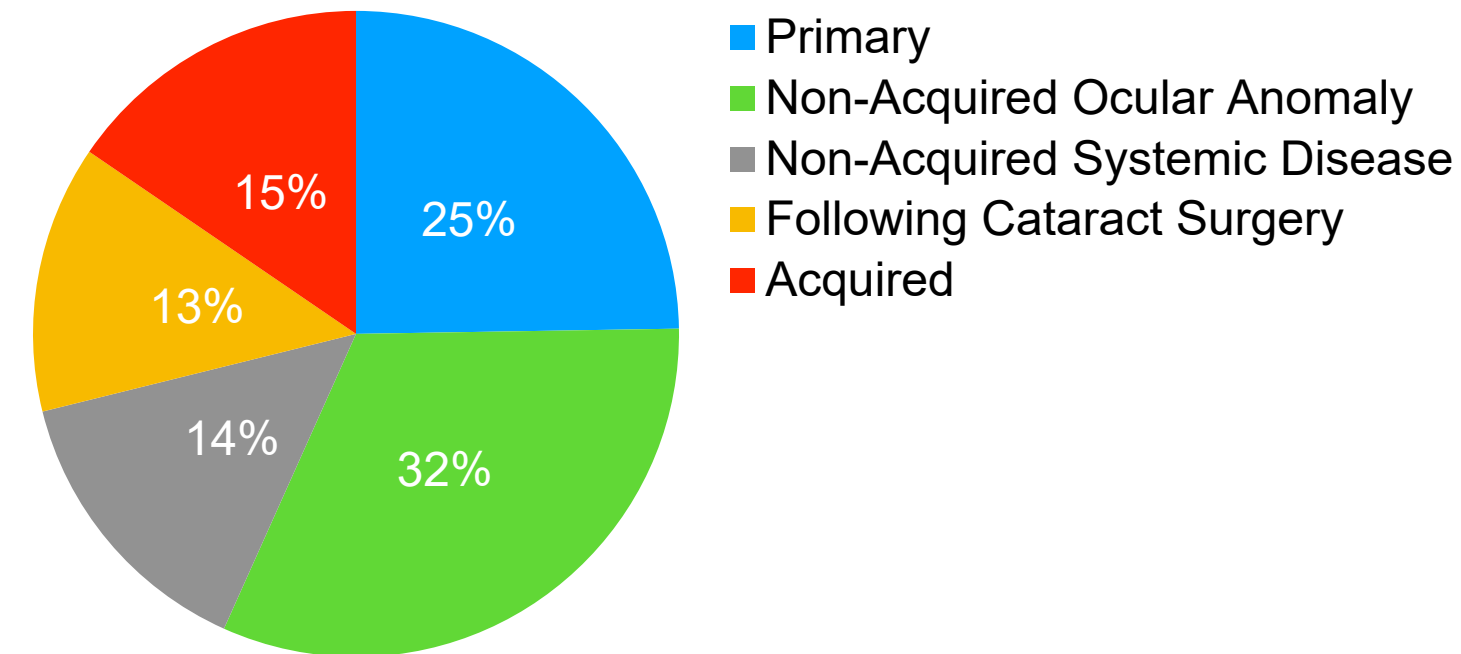
OBJECTIVE: Assess changes in strabismus and visual acuity in patients with refractory childhood glaucomas

METHODS

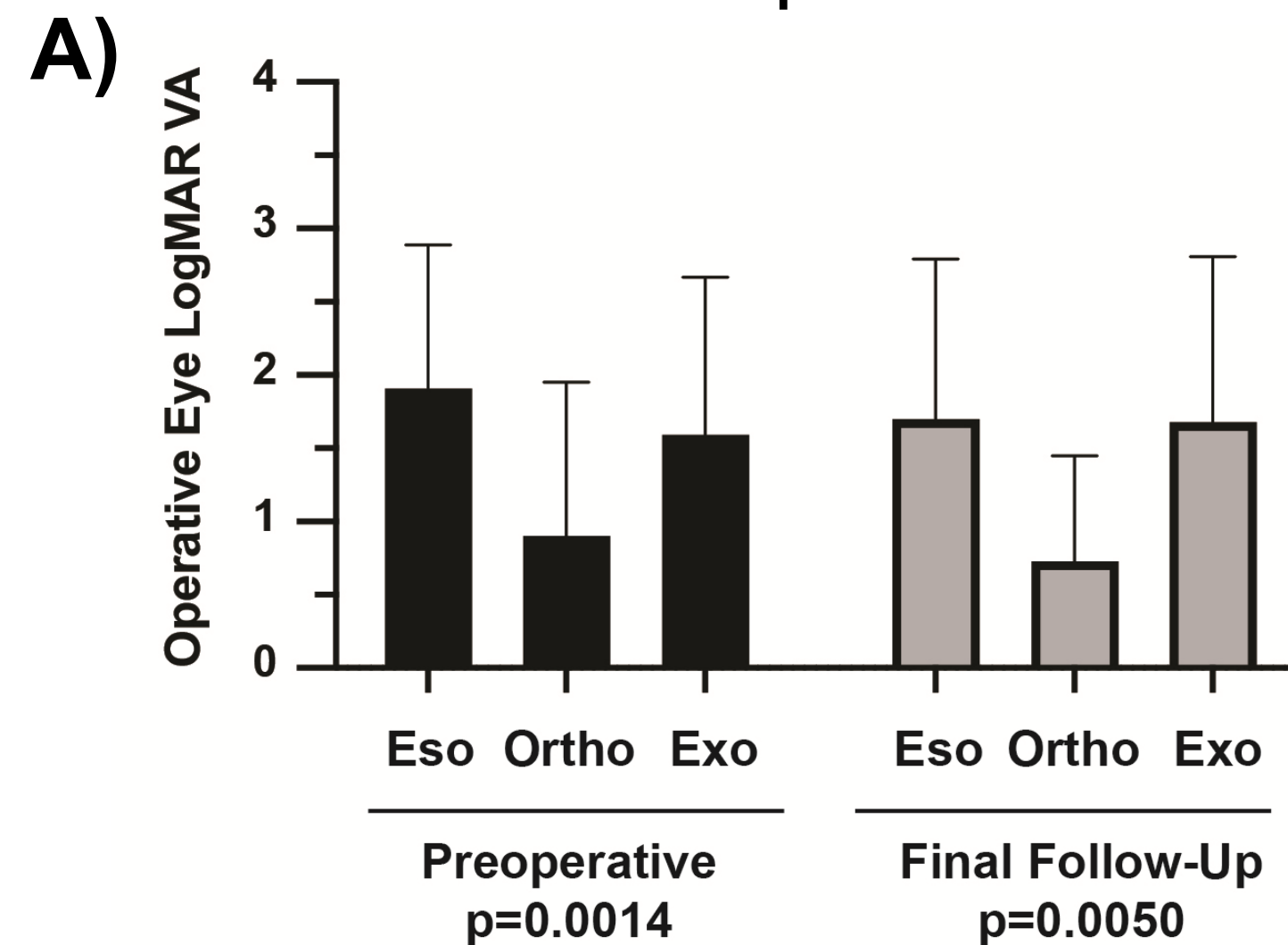
- Patients (0-21 years old) who underwent superotemporal BV350 placement by BLB between 2011-2023
- ≥6 months follow-up
- Pre- and post-operative strabismus exams

DEMOGRAPHICS

- 133 eyes of 97 patients
- 7.7 ± 5.6 yrs at time of surgery (median 6.7 yrs, 0.2-20.5)
- 4.5 ± 3.0 yrs final follow-up (median 4.2 yrs, 0.5-10.9 years)
- 7 patients had prior strabismus surgery
- 8 patients had simultaneous strabismus surgery with BV350 placement
 - BLR Rec (2)
 - LR Rec ± MR Resect (6)



72% Patients Had Preoperative Strabismus
74% Patients Had Strabismus at Final Follow-Up

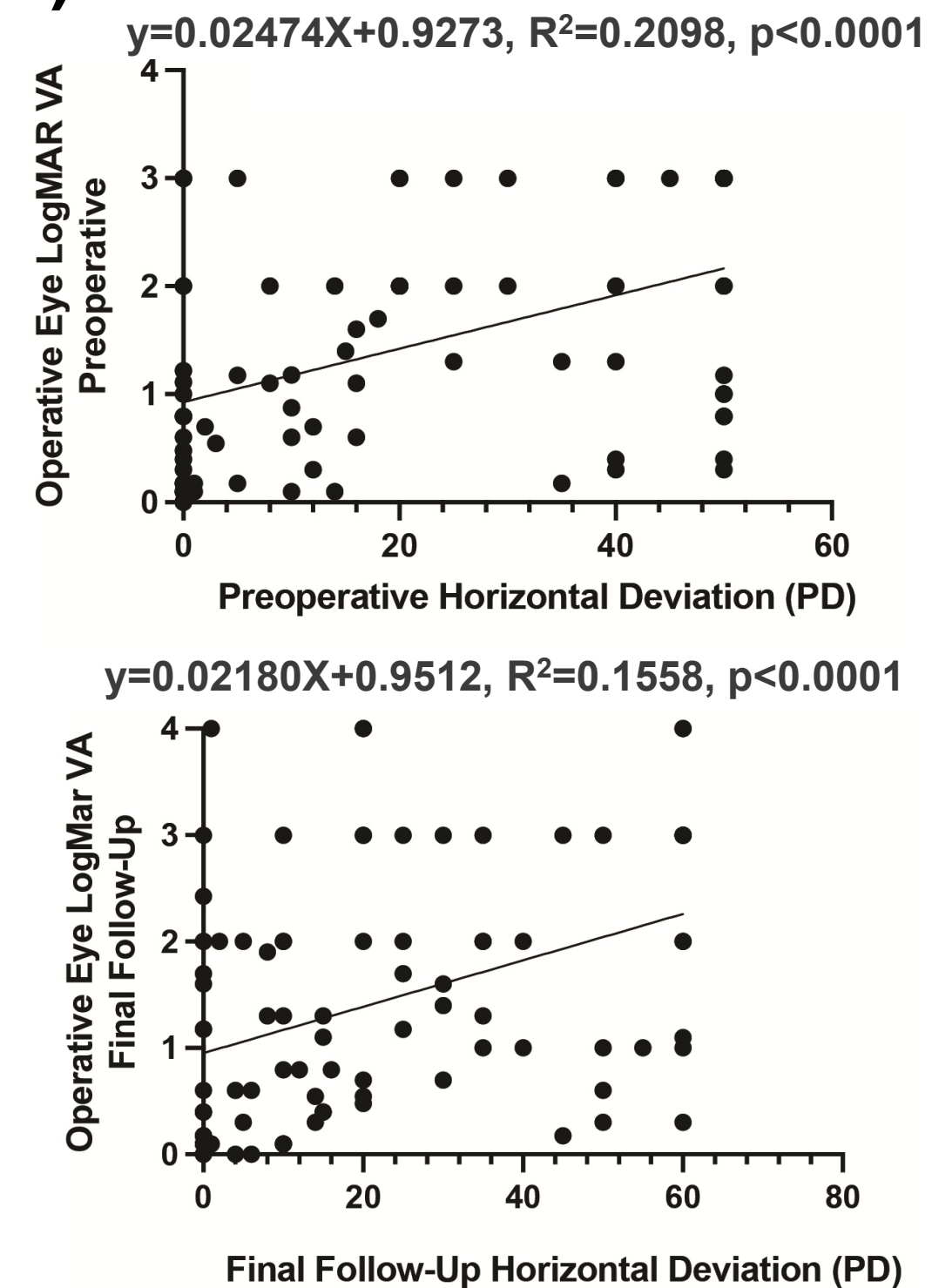


A) Patients with orthophoria preoperatively and at final follow-up had better LogMAR VA compared to those with eso- or exo-deviations. **B)** Orthophoria preoperatively and at final follow-up were associated with better VA. **C)** Greater horizontal deviations were associated with worse LogMAR VA preoperatively and at final follow-up.

B)

	Preop Ortho Alignment	Final Ortho Alignment
Preop VA	OR 2.2 [1.4, 3.7]	OR 1.8 [1.2, 2.9]
Final VA	OR 3.1 [1.8, 6.2]	OR 1.5 [1.1, 2.3]

C)



CONCLUSIONS

- A high percentage of children had strabismus prior to (72%) and following (74%) BV350 placement
- Orthophoria was associated with better preoperative and postoperative VA
- No patients complained of post-operative diplopia
- Few patients required post-BV350 strabismus surgery
- The majority of pediatric patients did not show worsening of strabismus after BV350 surgery

LIMITATIONS

- Retrospective and different follow-up lengths
- Heterogeneity of glaucoma type
- Concurrent surgeries with BV350
- Strabismus measurements only in primary

STRENGTHS

- Number of patients (n=97)
- Uniform glaucoma drainage device
- Same surgeon/surgical approach

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Visual and Surgical Outcomes of Childhood Glaucoma Following Cataract Surgery (GFCS)



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BACKGROUND

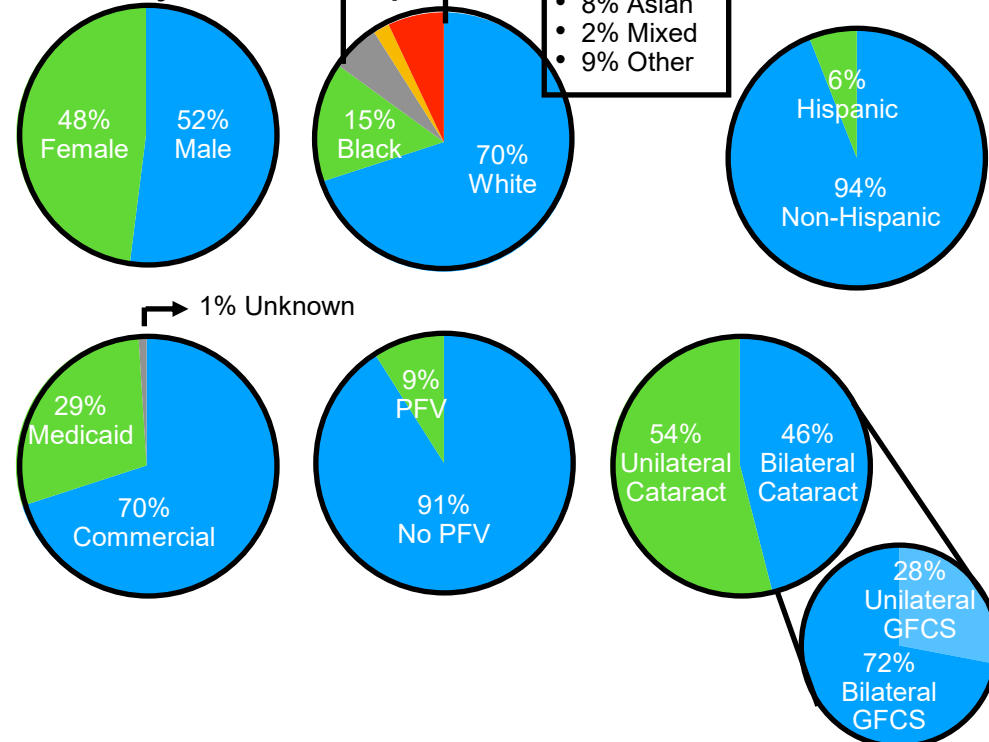
- GFCS affects up to 60% of eyes s/p lensectomy for congenital cataract and its main known risk factor is younger age at time of lensectomy
- Multi-modal pathogenesis: Inherent angle abnormalities, Post-lensectomy changes
- Few studies have evaluated overall course and outcomes in GFCS

METHODS

- Patients diagnosed with GFCS between 2011 and 2023
- Lensectomy <1 year of age and ≥1 year of follow-up
- Eyes with anterior segment dysgenesis excluded
- Eyes with microphthalmia or persistent fetal vasculature included

DEMOGRAPHICS

- 169 eyes of 127 patients

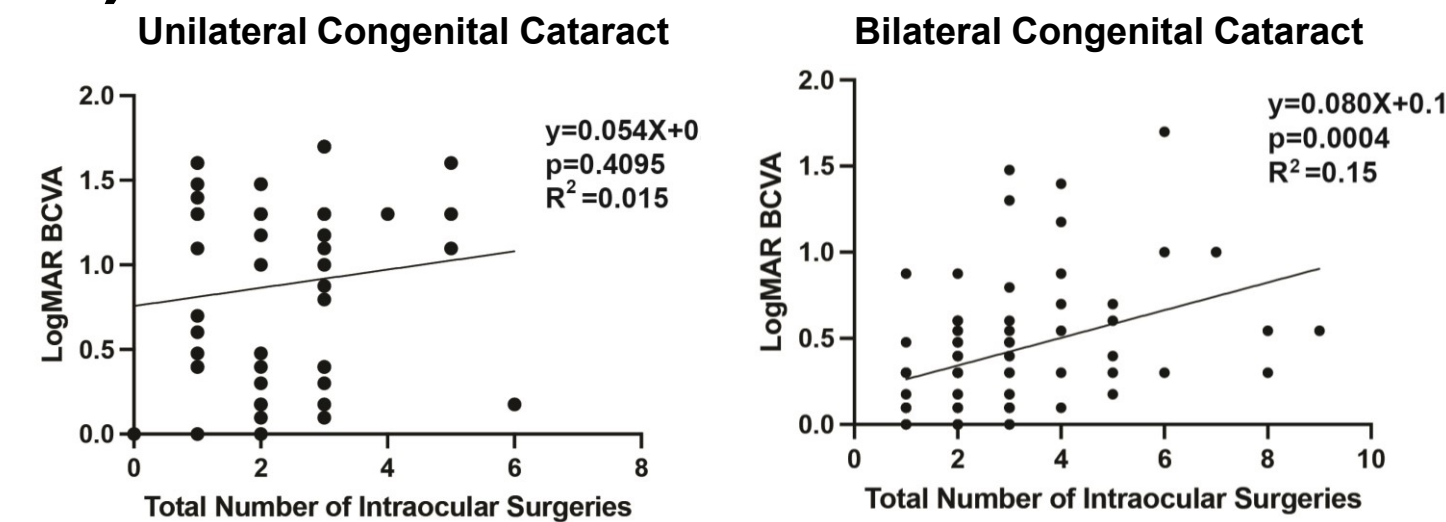


A)

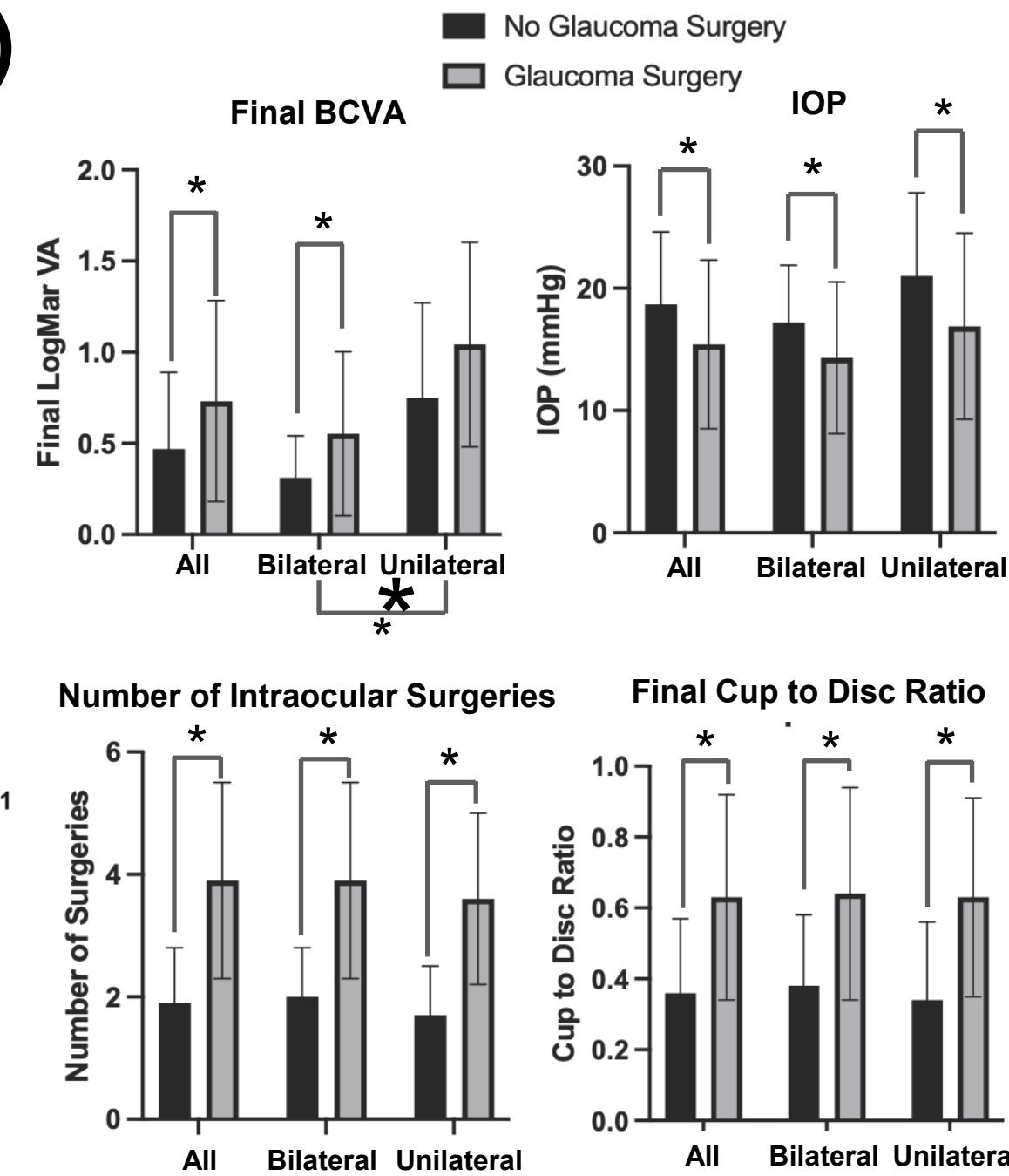
	No Glaucoma Surgery (n=81)	Glaucoma Surgery (n=88)	P value
Age at Cataract Surgery (days)	59 ± 50 Median 43 Range 13-267	66 ± 56 Median 48 Range 9-294	0.1638
Age at Final Follow-Up (years)	13.7 ± 6.1 Median 12.8 Range 2.7-35.2	13.5 ± 7.4 Median 13.1 Range 1.0-35.2	0.9919
Final Number of Glaucoma Medications	2.1 ± 1.1 Median 2 Range 0-5	1.8 ± 1.5 Median 2 Range 0-5	0.2798

Age at 1st Glaucoma Surgery: 6.3 ± 5.7 years
Number of Glaucoma Surgeries: 2.1 ± 1.5

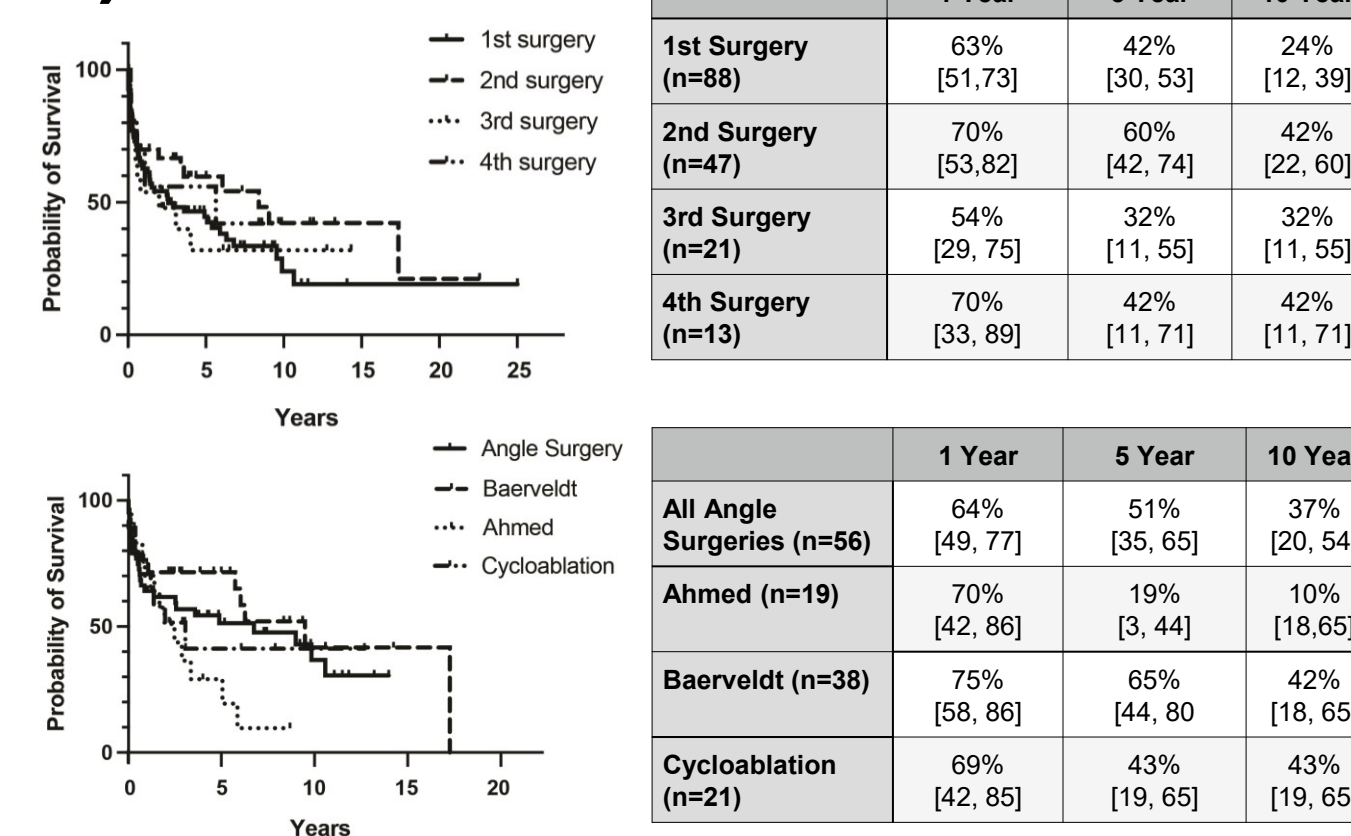
C)



B)



D)



A) 88 of 169 eyes with GFCS required glaucoma surgery at an average age of 6.3 ± 6.7 years. The average number of glaucoma surgeries was 2.1 ± 1.5 per eye. However, there was no difference in age at lensectomy, length of follow-up or final number of glaucoma medications in eyes with or without surgery. **B)** Eyes requiring glaucoma surgery had worse best corrected visual acuity (BCVA), greater cup-to-disc ratio, and higher number of overall intraocular surgeries at final follow-up, but had lower IOP at final exam. **C)** The total number of intraocular surgeries correlated with final BCVA. **D)** Survival curves of glaucoma surgeries based on the progression of surgery (1st-4th surgery) and the type of glaucoma surgery (angle surgery, Baerveldt, Ahmed, cycloablation).

CONCLUSIONS

- >50% of eyes with GFCS (88 of 169) required IOP-lowering surgery
- More than half of these eyes required at least 2 surgeries
- Angle surgery and Baerveldt implants yielded 65% or better 5-year survival rates
- Worse VA associated with:
 - Unilateral cataract surgery (amblyopia)
 - Glaucoma surgery (bilateral)
 - Number of intraocular surgeries

LIMITATIONS

- Retrospective
- Lack of control group
- Large range of follow-up lengths
- Different surgical interventions

STRENGTHS

- Number of eyes and patients

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