Comparative Long-Term Outcomes of Tube Flushing Versus Transscleral Cyclophotocoagulation in Refractory Glaucoma Patients

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Introduction

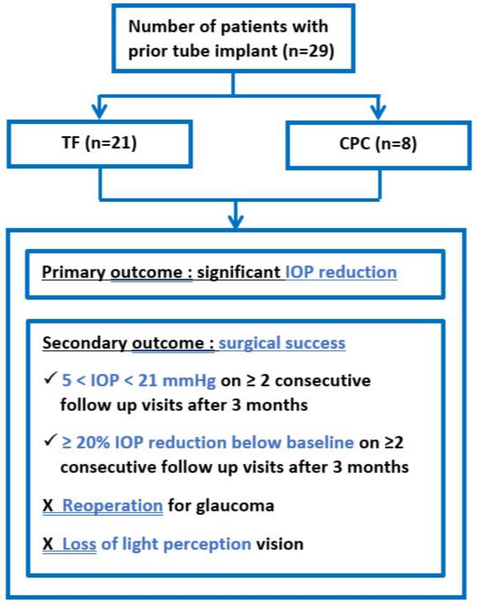
- Refractory glaucoma often requires **drainage implants.**[1,2]
- **33–53%** of implants **fail within 5 years.**[3]
- **Tube Flushing (TF)** and **cyclophotocoagulation (CPC)** are key interventions.[4]
- **Long-term** comparative **outcomes** are **unclear.**[5]

Objective

Compare and evaluate the **long-term (10-year) clinical outcomes** of TF with CPC on patients with **previously inserted drainage devices** by comparing **their respective reductions** in intraocular pressure (IOP).

Methods

- Single-centre **13-year retrospective** study, from 2008 to 2021
- Mean **follow-up time**: TF = 5.75 yrs ; CPC = 9.38 yrs



Results

- At **baseline**, **no** significant differences in **patient demographics** and **pre-op parameters** between TF and CPC cohorts.

Clinical parameters	TF (n=23)	CPD (n=8)	P-value
Mean Intraocular Pressure (mmHg)	17.35 (6.26)	17 (11.97)	0.8640
IOP % Reduction	12.85 (33.76)	45.88 (37.07)	0.1859
IOP ≤ 18, %(N)	56.52 (13)	62.5% (5)	1.00[c]
Visual Acuity (in logMAR)	1.02 (0.82)	0.82 (0.66)	0.5871[a]
Reduction in VA by ≥ 2 lines %(N)	39.13 (9)	25 (2)	1.00[c]
Number of Medications (SD)	2.30 (1.46)	2.5 (1.20)	0.6562[a]
% (N) on Oral Acetazolamide	8.70 (2)	12.5 (1)	1.00[c]
Cup-Disc Ratio	0.83 (0.14)	0.92 (0.025)	0.250[a]
Visual Field			
Mean Deviation (dB)	-17.65 (9.80)	-14.78 (9.09)	0.0996
Pattern Standard Deviation (dB)	6.50 (3.35)	8.55 (4.59)	0.6250[a]
VFI (%)	53.4(34.18)	60.67 (33.23)	0.9555
Retinal Nerve Fibre Layer (μm)	61.81 (17.26)	70 (10.71)	0.0593

Table 1: Comparison of final clinical outcomes

- IOP reduction: TF=12.85%; CPC= 45.88%
- Surgical success: TF 13%; CPC 50%.
- **No** significant difference in **final BCVA or NOM.**
- CPC had **greater IOP reduction** but **more complications**.
- TF had **fewer complications** but **shorter duration**.
- Patient selection should consider **risk vs. longevity.**

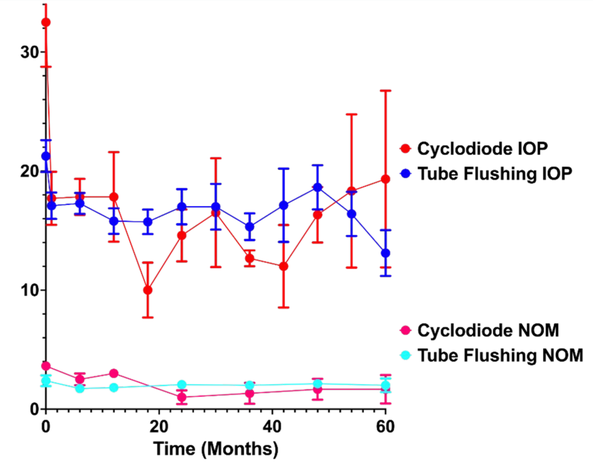


Figure 1: Variation of Mean Intra-Ocular Pressure (Standard Deviation) and Number of Medications (Standard Deviation) Over 60 Months

- **50%** (n=4 eyes) **of CPC** were **qualified success** on final follow-up compared to **13.04%** (n=3 eyes) **of TF.**
- **Mean time to failure** for **TF was 2.10 ± 1.84 years** and **2.49 ± 2.25 years for CPC**. Their **most common causes** for surgical failure were IOP **<20% reduction from baseline** on 2 consecutive follow-up visits (n=15 eyes) and **re-operation** (n=3 eyes) respectively.

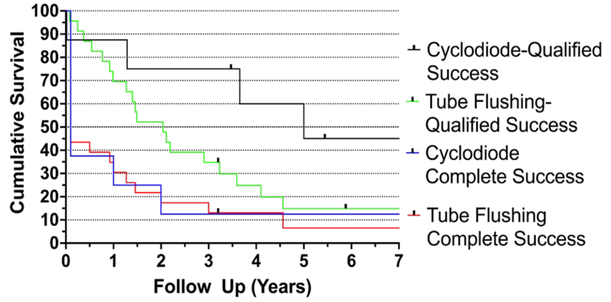


Figure 2: Kaplan Meir Survival Curve for Complete and Qualified Success for TF and CPC

- **Mean time to re-operation** was **2.58 ± 2.39 years.**
- **26.08%** (n=6 eyes) of **TF** underwent **additional glaucoma procedures**.
- **All failed CPC** patients required **further glaucoma re-operation**. 50% (n=4 eyes) underwent further re-intervention.

Conclusion

- **Both** TF and CPC effectively **reduce IOP**.
- **CPC** preferred for **sustained** control.
- **TF** may be suitable for **lower-risk** patients.
- Further studies with larger sample size are recommended.

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