

Background

Submacular haemorrhage (SMH):

Serious complication in neovascular age-related macular degeneration (nAMD) and retinal artery microaneurysm (RAM)

Associated with poor visual outcomes if untreated due to irreversible retinal damage from blood-induced iron toxicity.

Challenges and considerations:

Surgical methods can be effective but are invasive with significant risks.

Anti-VEGF therapy has shown visual improvement, though evidence is often limited and based on small studies.

Key factors influencing outcomes:

Duration, size, and thickness of SMH
 Initial visual acuity and retinal structure.

Aim

To report clinical characteristics, management and outcomes of SMH

Patients and methods

Design: retrospective interventional series of 90 eyes (90 patients) between July 2014 - August 2023

Definitive intervention:

- IVT tPA + PD ± anti-VEGF n=62
- IVT tPA ± anti-VEGF n=10
- IVT tPA ± anti-VEGF followed by surgical drainage n=12
- IVT tPA + PD ± anti-VEGF followed by surgical drainage n=6

IVT tPA dose was 50-200mg and was repeated in 16 eyes.

PD: 67 eyes 0.5 mL C3F8 100%, 1 eye 0.5 mL SF6 100%

No posture

Results

Mean age 83 ±9 years

Female:Male = 1.4:1

Aetiology:

- Wet AMD (including IPCV): 75 eyes (83.3%)
 - 55% treatment naïve
 - 45% previously treated
- RAM: 14 eyes (15.5%)
- Sorsby's macular degeneration: 1 eye (1.1%)

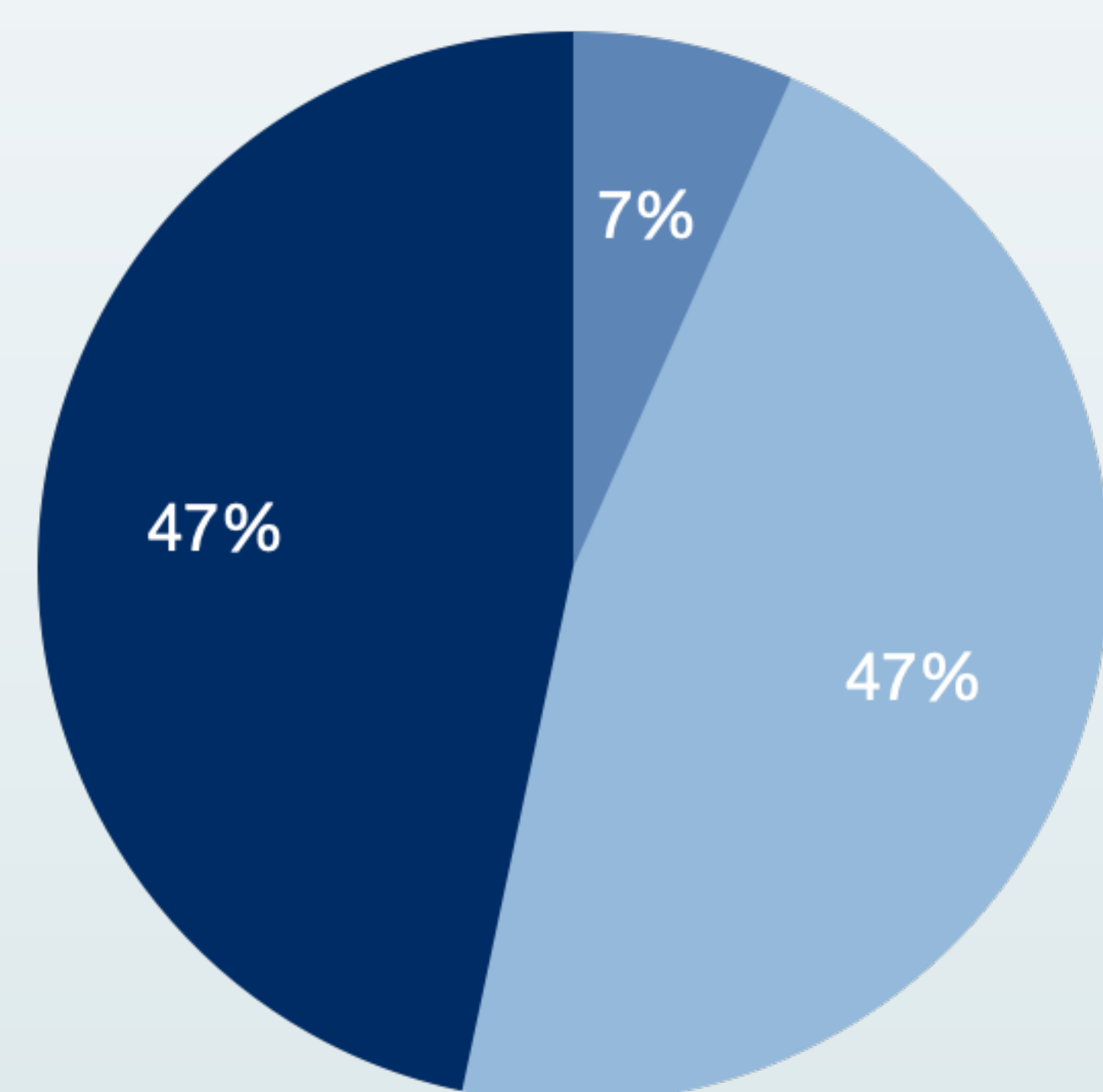
Median length of symptoms: 4 days (IQR 1-7)

Median follow-up: 108 weeks (IQR 55-185)

Anticoagulants/antiplatelets: 31/90 (34.4%) patients

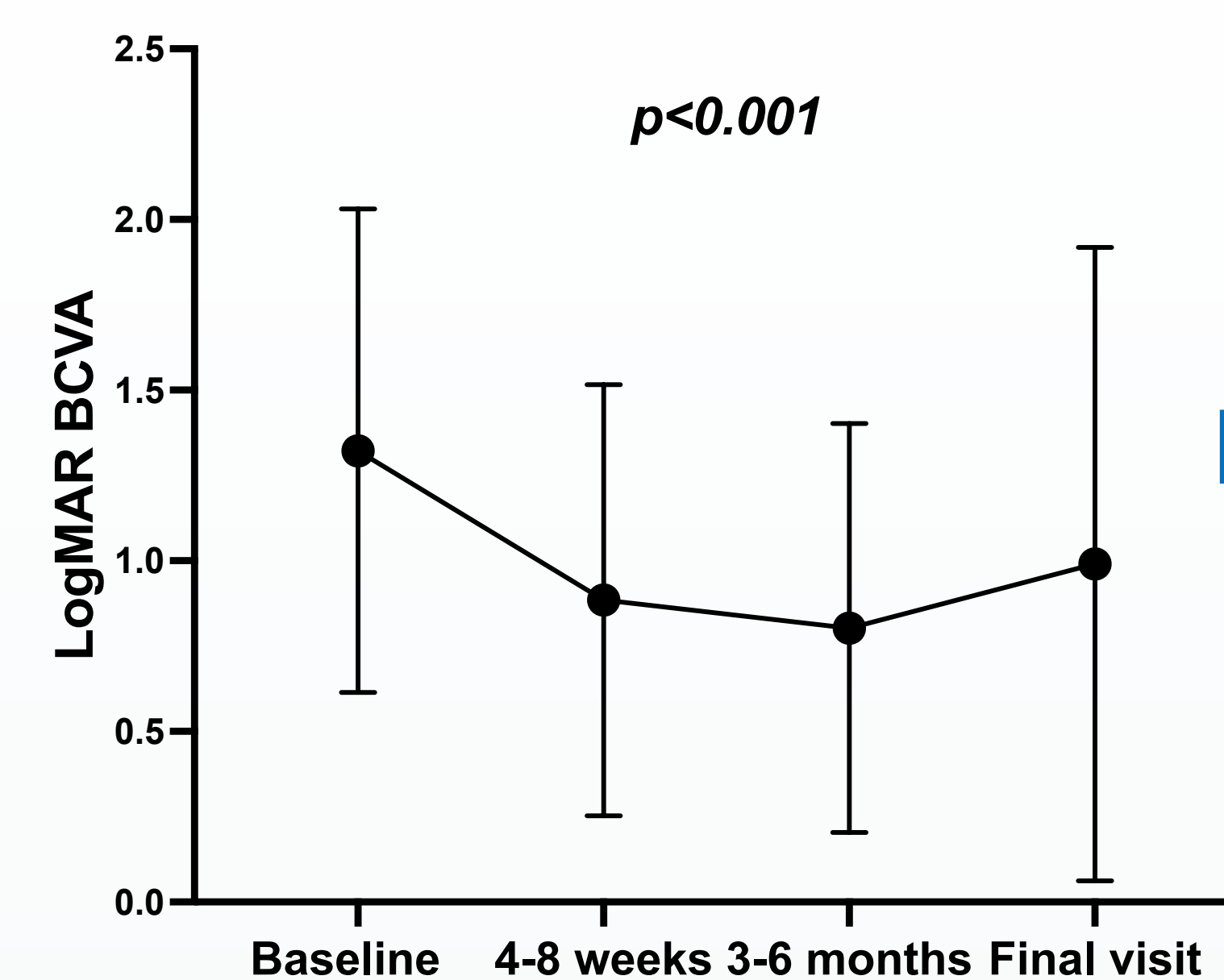
Size of SMH

● <2 DD ● 2-5 DD ● >5 DD

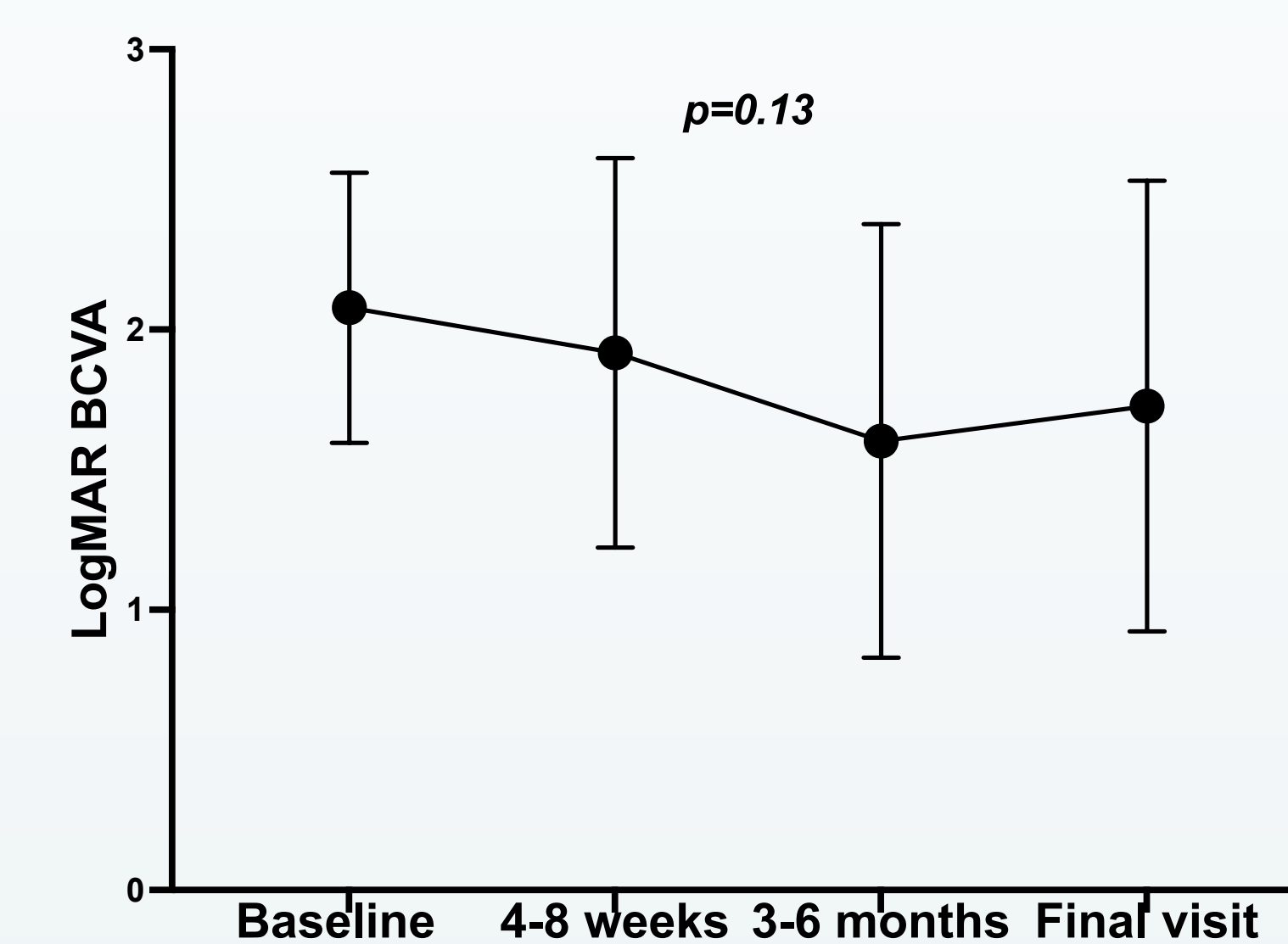


16/90 eyes had rebleed following the initial treatment.

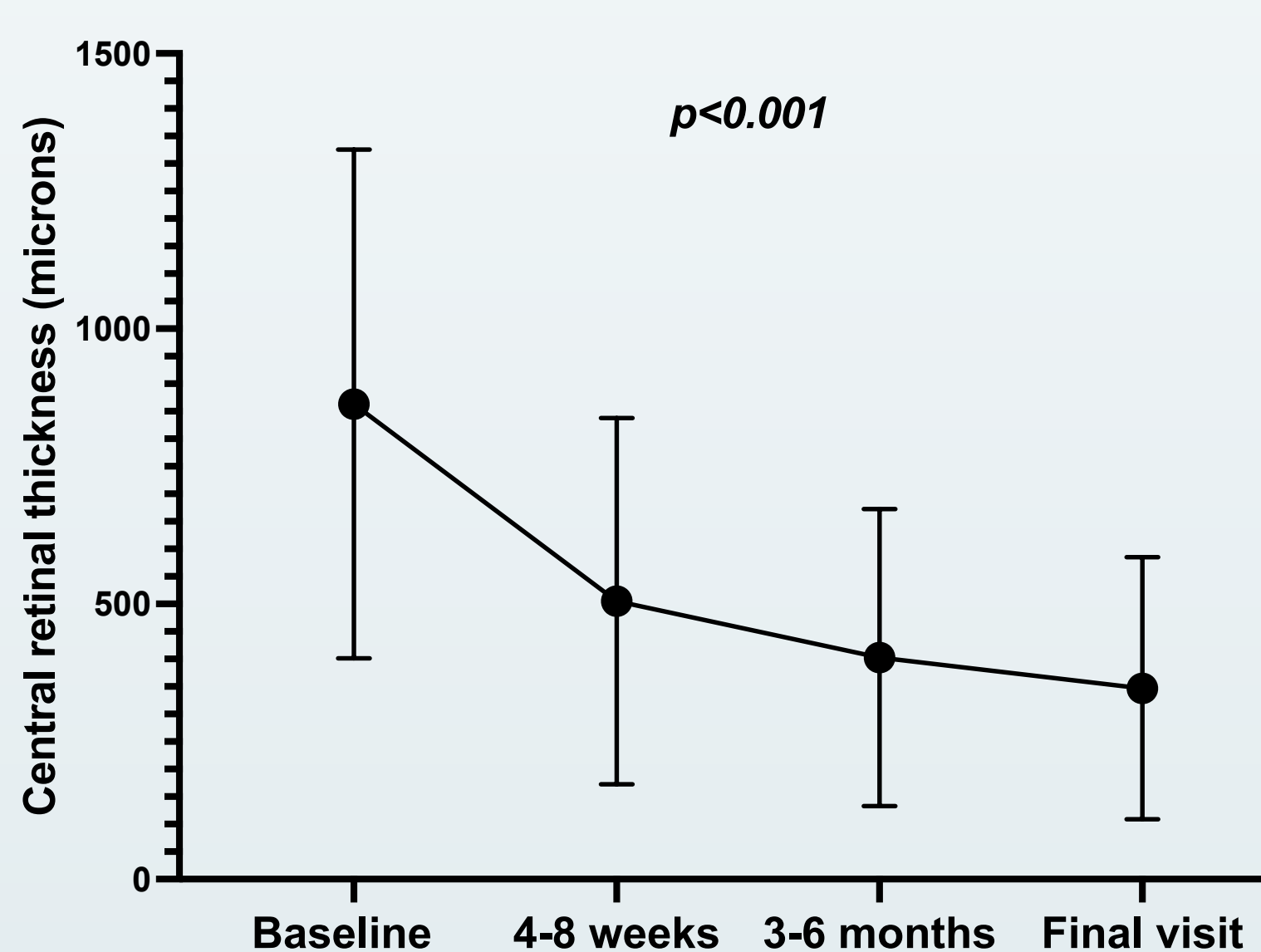
Results



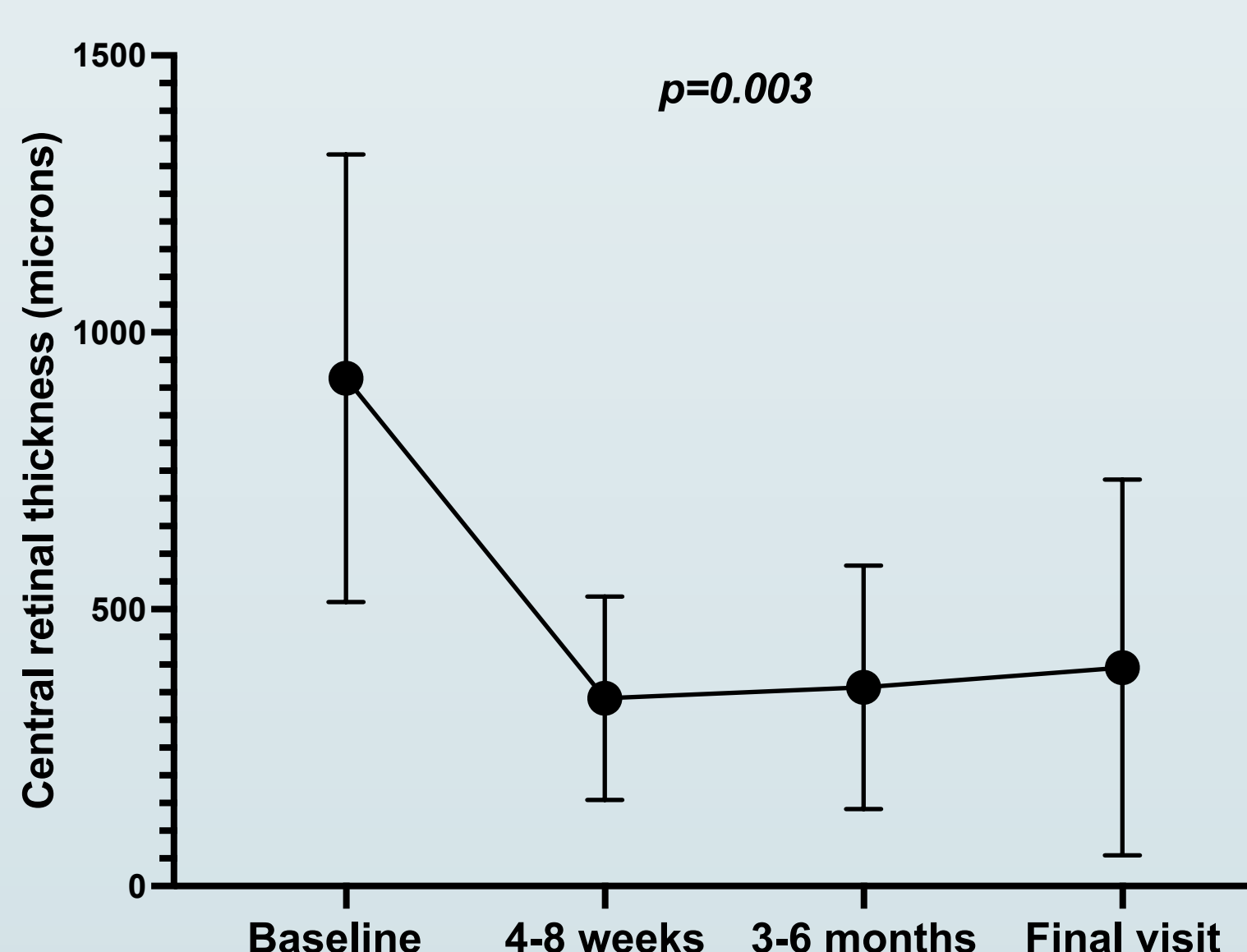
VA
No surgery
eyes



VA
surgery
eyes

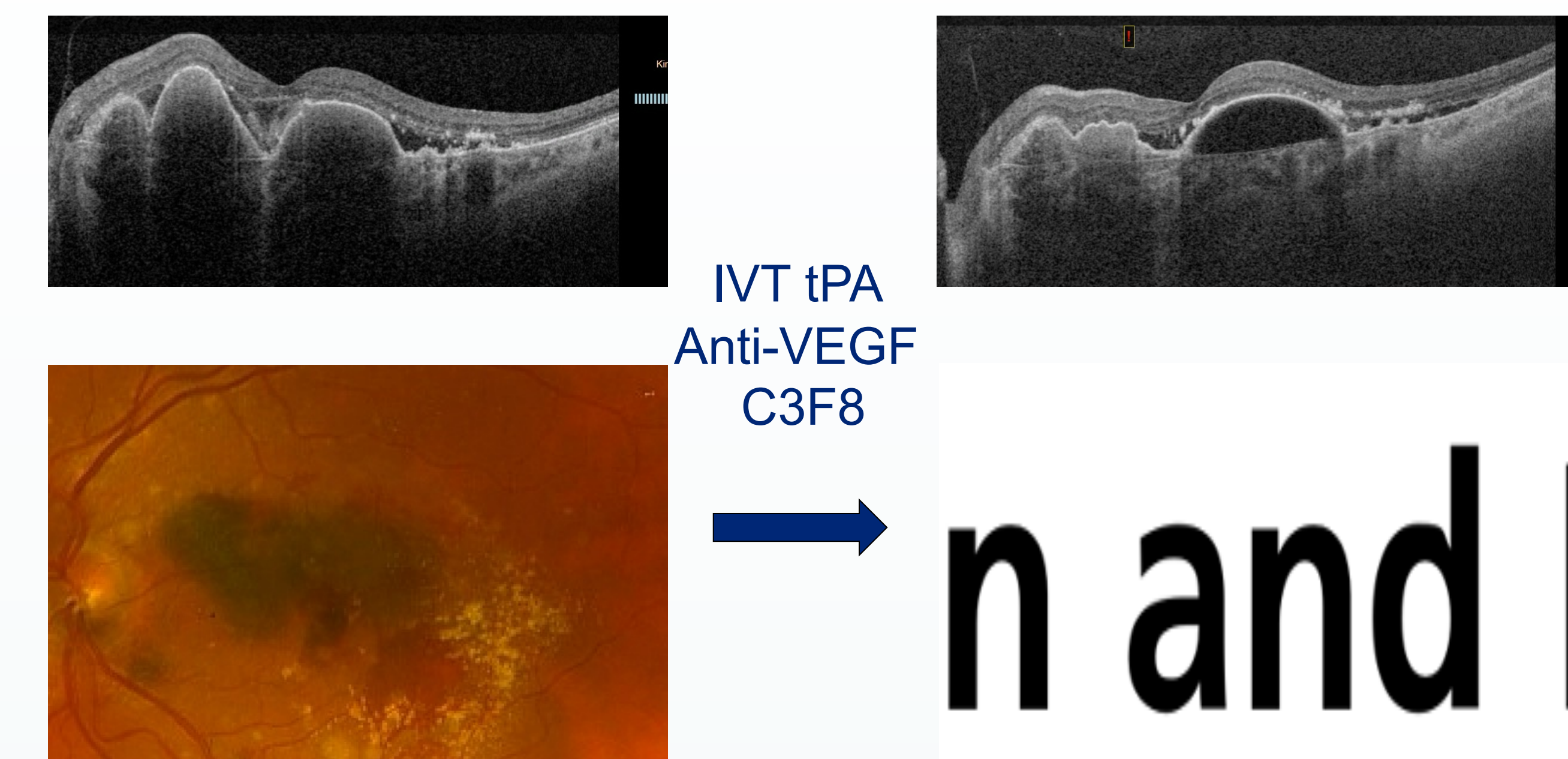


CRT
No surgery
eyes



CRT
surgery
eyes

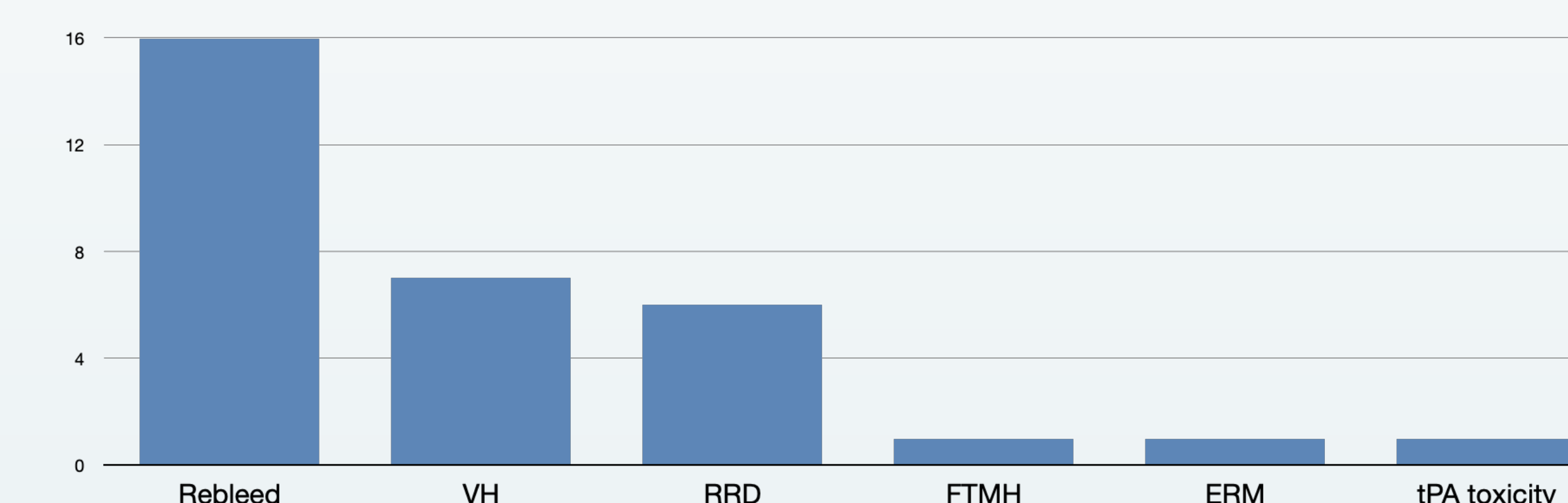
Results



Baseline

5 weeks post-op

Complications



Conclusion

- This analysis underscores the efficacy of intravitreal tPA-based treatments with adjunct anti-VEGF and gas in improving visual outcomes in SMH patients, especially in medium to large hemorrhages.
- Surgical drainage should be reserved for cases unresponsive to less invasive treatments due to its associated complications.
- Tailoring SMH treatment based on haemorrhage size, thickness, and initial VA may optimise patient outcomes in clinical practice.