

Use of Intravitreal Steroid during Epiretinal Membrane Peeling Surgery: A Systematic Review

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Introduction

Background

Idiopathic epiretinal membrane (ERM) is a thin sheet of fibrous tissue that develops on the surface of an internal limiting membrane (ILM), which can affect central visual acuity, with or without metamorphopsia. Pars plana vitrectomy with ERM peeling is the standard treatment and has been reported to be safe and effective for improving visual acuity.

Several authors have already described intraoperative use of the intravitreal steroids in patients undergoing vitrectomy for ERM aiming to suppress inflammatory processes postoperatively, thereby reducing postoperative macular oedema. However there is no consensus on whether this is effective nor which steroids is the best agent to use for best functional and anatomical outcomes.

Aims

To evaluate the effects of intravitreal steroid use in epiretinal membrane (ERM) surgery by conducting a systematic review of published studies.

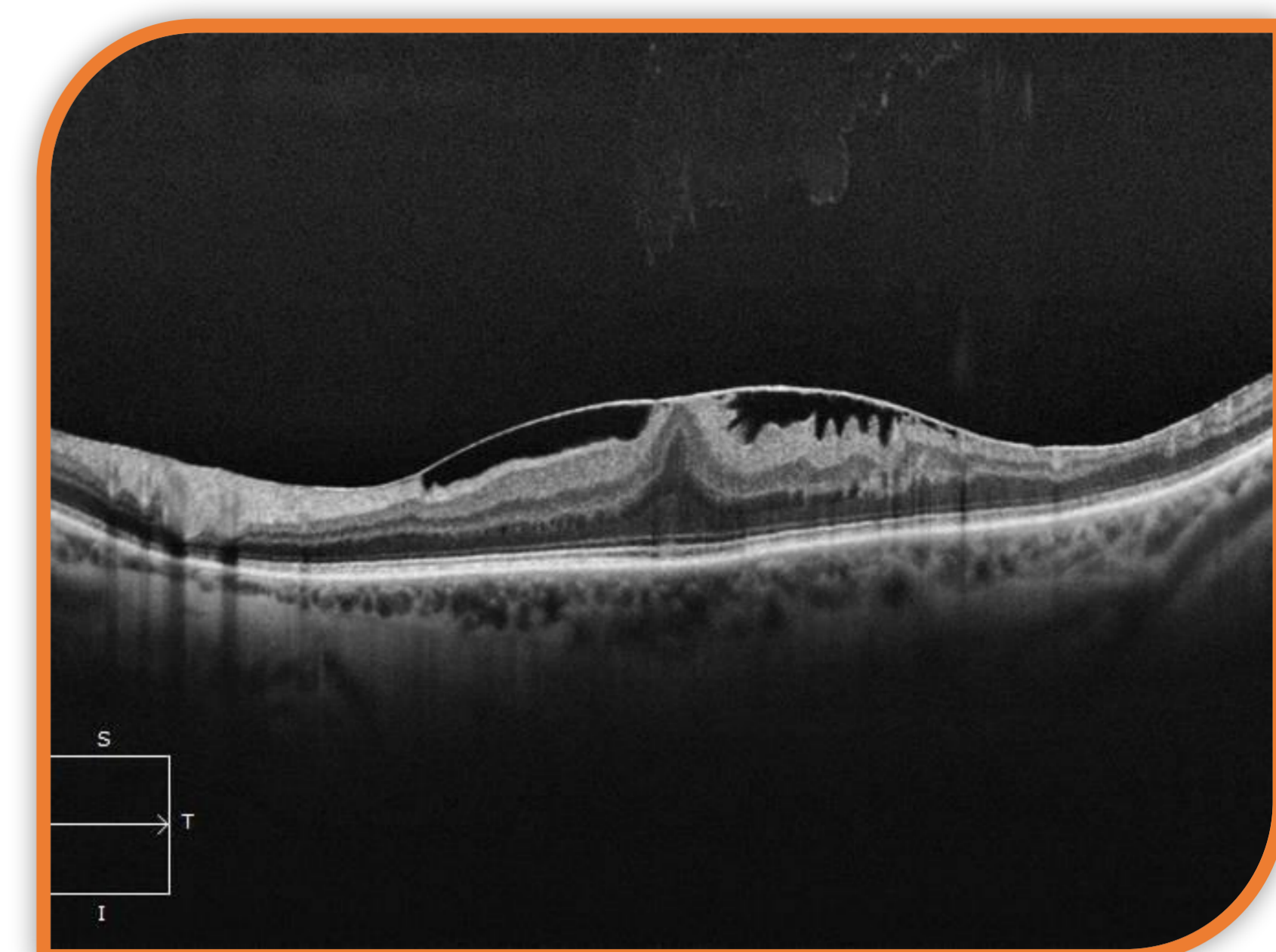


Fig 1. OCT scan demonstrating Epiretinal membrane

Methods

- Studies reporting clinical outcomes of intravitreal steroids (dexamethasone, triamcinolone acetonide, fluocinolone acetonide) use intraoperatively in ERM surgery (pars plana vitrectomy +/- membrane peel) were searched on the following 3 databases: PubMed, Embase and Cochrane.
- Studies where intravitreal steroid was injected after the ERM surgery were excluded.
- The primary outcome was best-corrected visual acuity (BCVA) change between baseline and post-steroid treatment at ERM peel surgery, reported as weighted mean (WM) change with 95% confidence interval (CI).
- WM of central macular thickness (CMT) change was assessed as a secondary outcome.

Results

A total of 16 studies were included in this review: Randomised control study (n=5), nonrandomized controlled study (n=9), and uncontrolled studies (n=2). There were 9 studies on Dexamethasone use, 8 studies on Triamcinolone use and no studies reported on Fluocinolone use.

Our analysis showed that in the Dexamethasone group (197 eyes) the WM BCVA improvement was 0.34 ± 0.1 LogMar and WM CMT reduction was $141.5 \pm 40 \mu\text{m}$, with a mean follow up length of 4.3 ± 1.5 months. In the Triamcinolone group (230 eyes) the WM BCVA improvement was 0.24 ± 0.1 LogMar and WM CMT reduction was $140.6 \pm 42 \mu\text{m}$, with a mean follow up length of 6.7 ± 5.5 months.

BCVA improvement was significantly higher in the Dexamethasone group ($p=0.0001$). However, there was no statistically significant difference between the two groups for CMT reduction.

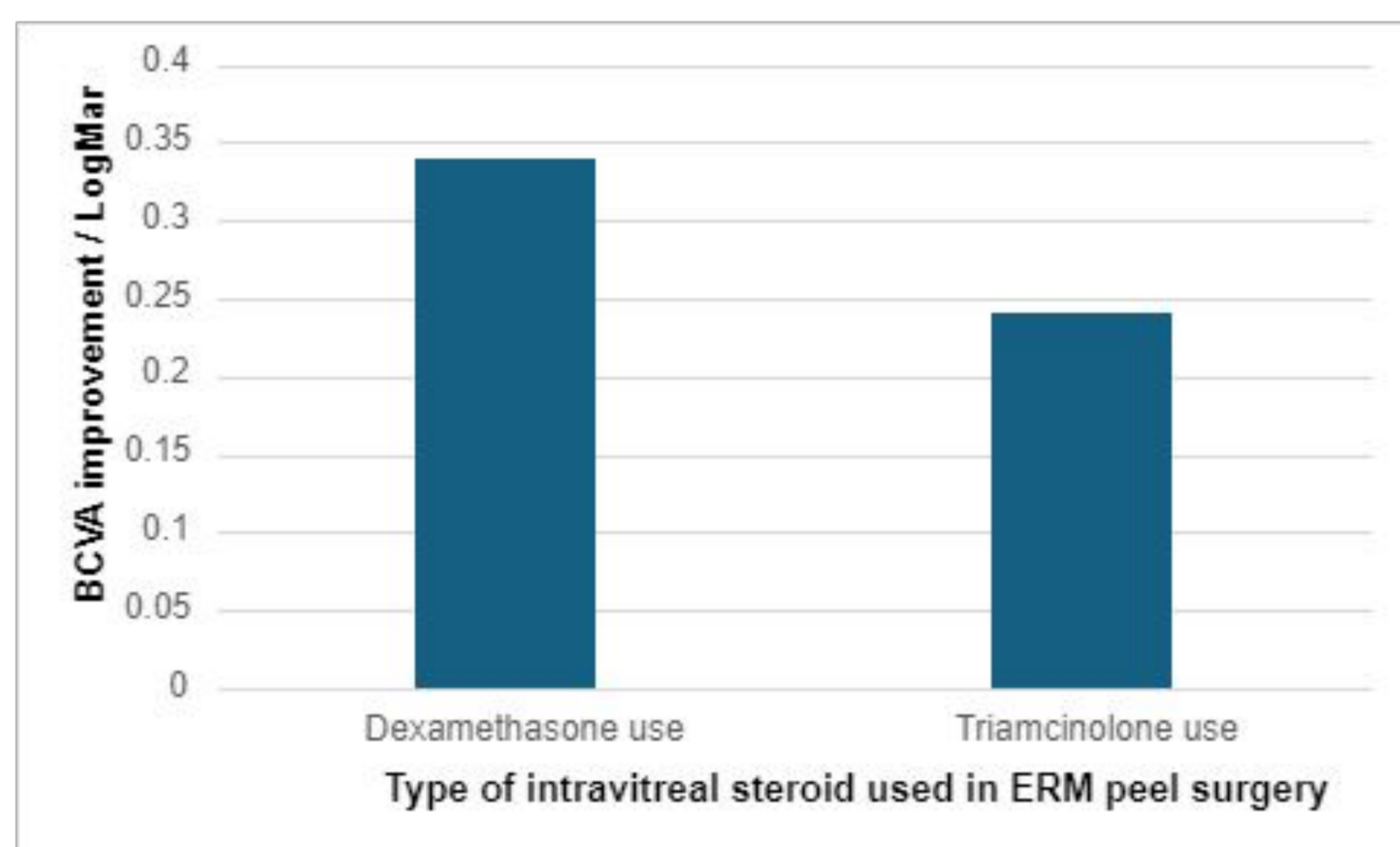


Fig 2. Bar Chart to show comparison of WM BCVA improvement between Dexamethasone and Triamcinolone Steroid use during ERM peel surgery

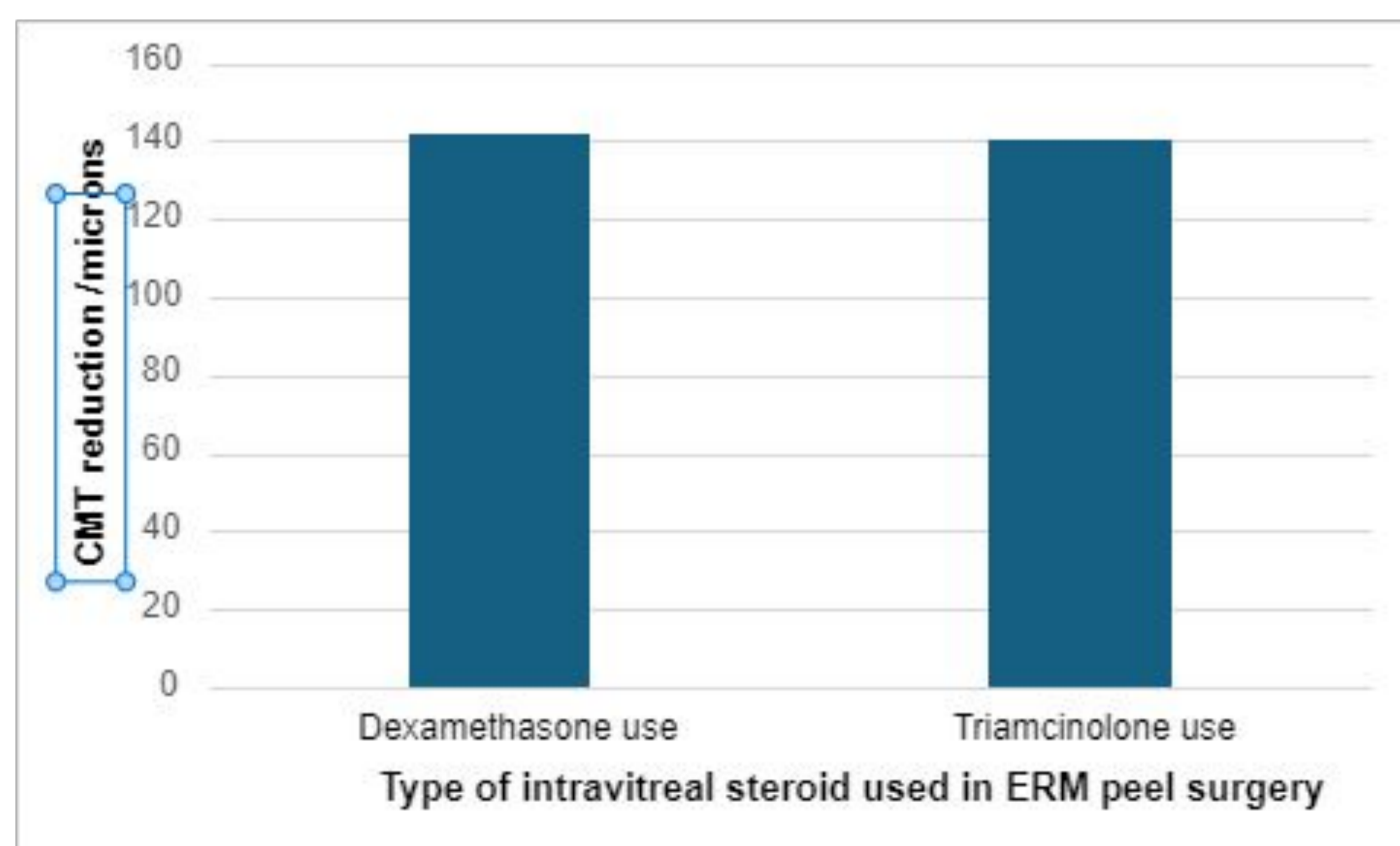


Fig 3. Bar Chart to show comparison of WM CMT reduction post Dexamethasone and Triamcinolone Steroid use during ERM peel surgery

Conclusion

- Overall intravitreal steroid use intraoperatively in ERM surgery was associated with 0.3 ± 0.1 LogMar significant difference in BCVA and $141.1 \pm 41 \mu\text{m}$ significant reduction in CMT from baseline (427 eyes).
- Dexamethasone implant use was statistically significantly superior to Triamcinolone use in terms of functional outcome but no difference was observed for anatomical outcome.
- There have been no reports of Fluocinolone use.

References:

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