Introduction

- Pars plana vitrectomy (PPV) with and without supplemental scleral buckle (PPV+SB) are commonly used to repair rhegmatogenous retinal detachments (RDR).
- It is unclear whether there are differences in the safety and efficacy of PPV vs PPV+SB for the treatment of RD.
- Previous studies comparing these procedures have found conflicting differences in final visual or anatomic outcomes and a wide variability in the reported rates of postoperative complications.
- The purpose of this meta-analysis is to compare the efficacy and safety of PPV and SB in RRD.

Methods

- A systematic literature search was performed on Ovid MEDLINE, EMBASE and Cochrane CENTRAL from January 2000 to June 2021. Comparative studies reporting on the efficacy and/or safety of PPV and PPV+SB for the primary surgical management of RRD were included.
- The primary outcome was final best-corrected visual acuity (BCVA). Secondary outcomes included reattachment rates and adverse events.

Results

- 38 studies (6 RCTs, 32 observational studies) reporting on 10,397 PPV and 5,264 PPV+SB eyes were included. Median follow-up was 6 months.
- PPV and PPV+SB had a similar final BCVA (P=0.55).
- PPV+SB had a significantly better primary reattachment rate compared to PPV (88.2% vs. 88.3%; risk ratio [RR]:0.97[0.95,1.00], P=0.03; NNT: 50). (Figure 1). There was no significant difference for final retinal detachments.

![Figure 1 – Primary Reattachment Rate for PPV vs PPV+SB](https://www.ophthalmologyretina.org/article/S2468-6530(22)00071-9/fulltext)

### Conclusion

- For eyes with RRD undergoing PPV or PPV+SB, there was no significant difference in final BCVA.
- PPV+SB was associated with a greater primary reattachment rate, although the magnitude of the effect is small with a high number needed to treat.
- PPV required more operations to achieve final reattachment of the retina.
- Final reattachment rate and the rate of most adverse events were similar between procedures.

Discussions

- There was no statistically significant difference between PPV and PPV+SB for final BCVA. There was a slight preference for PPV alone, but this was driven by the inclusion of one study in the overall meta-analysis.
- PPV+SB was associated with a greater primary reattachment rate relative to PPV alone, although the magnitude of the effect is number needed to treat (NNT = 50).
- Future studies should be conducted to better understand individual patient and surgeon factors that lead vitreoretinal surgeons to choose PPV alone or PPV+SB with a supplemental SB.

Disclosures

- MMP: Financial support (to institution) – PSI Foundation, PKJ: Advisory board – Novartis, Alcon, Bayer, Roche, NovoNordisk; Financial support (to institution) – Bayer, Roche, Novartis; Financial support – Novartis, Bayer; Equity owner – ActoDx, RHM: Advisory board- Bayer, Novartis, Allergan, Roche; Financial support (to institution): Bayer, Novartis. CCW: Grant Support: Neurotech, Ophthama, Consultant/Advisor: Allmera Sciences, Allegro, Allergan, Bayer, DORC, Eyepoint, ONL Therapeutics, Polyphotonix, Consultant/Advisor, Grant Support: Advenum, Apelli, Pharmaceuticals, Clearside Biomedical, Genentech, Koda, Novartis, Alexanders, RegenBio, Roche, Consultant/Advisor, Grant Support, Lecture Fees: Regeneron Pharmaceuticals.

MMP: Financial support (to institution) – PSI Foundation, PKJ: Advisory board – Novartis, Alcon, Bayer, Roche, Novelty Nobility; Financial support (to institution) – Bayer, Roche, Novartis; Financial support – Novartis, Bayer; Equity owner – ActoDx, RHM: Advisory board- Bayer, Novartis, Allergan, Roche; Financial support (to institution): Bayer, Novartis. CCW: Grant Support: Neurotech, Ophthama, Consultant/Advisor: Allmera Sciences, Allegro, Allergan, Bayer, DORC, Eyepoint, ONL Therapeutics, Polyphotonix, Consultant/Advisor, Grant Support: Advenum, Apelli, Pharmaceuticals, Clearside Biomedical, Genentech, Koda, Novartis, Alexanders, RegenBio, Roche, Consultant/Advisor, Grant Support, Lecture Fees: Regeneron Pharmaceuticals.

Full-length manuscript published in Ophthalmology Retina:
https://www.ophthalmologyretina.org/article/S2468-6530(22)00071-9/fulltext