Effect of a Topical Antibiotic and Povidone-Iodine Versus Povidone Iodine Alone on Conjunctival Flora: A Systematic Review and Meta-Analysis

Amelia Rees[1], Mohammad Saleki[2]
1. The University of Manchester, 2. Bolton NHS Foundation Trust
Authors AR and MS contributed equally as co-frst authors

RCOphth
Annual Congress 2025

1. INTRODUCTION

- This systematic review and meta-analysis aimed to determine whether adding preoperative topical antibiotics to povidone-iodine (PVI) offers any additional benefit over PVI alone in reducing conjunctival bacterial flora, thereby potentially lowering the risk of postoperative endophthalmitis.
- The participants included patients undergoing elective intraocular surgeries (e.g., cataract, keratoplasty, trabeculectomy) or receiving intravitreal injections.
- The interventions studied were PVI combined with third-generation quinolones (levofloxacin, moxifloxacin, or gatifloxacin) compared with PVI alone.
- The outcome measure was post-intervention rate of positive conjunctival bacterial cultures prior to ophthalmic procedure.

2. METHODS

- Studies were included based on the comparison of preoperative PVI with or without antibiotics in patients undergoing intraocular surgery.
- Searches were conducted in PubMed, Cochrane, and Embase databases, covering literature up to October 2024.
- Risk of bias was assessed using the Cochrane risk of bias tool.

4. CONCLUSION

- This review found no conclusive benefit of using preoperative topical antibiotics alongside PVI in routine ophthalmic procedures.
- However, in patients at high-risk of endophthalmitis, levofloxacin may offer additional protection.

3. RESULTS

- Seven studies were included, comprising 1423 eyes.
- A meta-analysis revealed no significant difference in the reduction of conjunctival bacterial flora between PVI + antibiotics and PVI alone (OR: 0.77, 95% CI 0.42–1.42, p=0.41).
  - Levofloxacin combined with PVI significantly reduced positive culture rates (OR: 0.48, 95% CI 0.29–0.81, p=0.006),
  - Moxifloxacin and gatifloxacin did not show similar benefits.
- Moderate heterogeneity was observed across studies (I^2=58%, p=0.04).

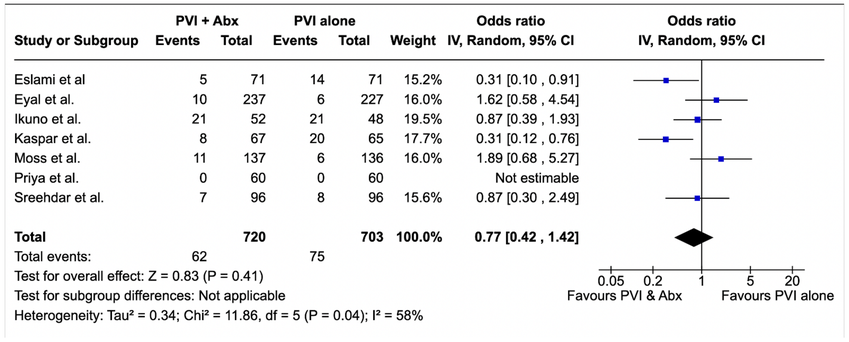


Figure 1. Forest plot of perioperative PVI plus topical quinolones versus PVI alone for rate of positive conjunctival flora bacterial culture prior to ocular procedures

KEY FINDINGS

Overall, no significant benefit was found from adding quinolone antibiotics to PVI

Subgroup analysis showed levofloxacin significantly reduced bacterial cultures; others did not

5. CLINICAL RELEVANCE

- Findings support using PVI alone for most patients undergoing intraocular surgery.
- Levofloxacin may be considered in select cases where enhanced bacterial reduction is desired.

6. REFERENCES