

# Safety and Efficacy of Ripasudil after Trabeculectomy: A Systematic Review and Single-Arm Meta-analysis

Erum Habib<sup>1</sup>, Omar Abdullah Gill<sup>2</sup>, Wasif Rahim<sup>2</sup>, Muhammad Usman Iqbal<sup>2</sup>, Hashem Abu Serhan<sup>3</sup>  
<sup>1</sup>Dow University of Health Sciences, Karachi, Pakistan, <sup>2</sup>King Edward Medical University, Lahore, Pakistan <sup>3</sup>Hammad Medical Corporation, Qatar

## Background

- Trabeculectomy often requires adjunctive therapy to maintain postoperative intraocular pressure control.
- Ripasudil, a Rho-kinase inhibitor, may improve aqueous outflow after trabeculectomy and support bleb function.
- This systematic review and meta-analysis evaluates the safety and efficacy of ripasudil after trabeculectomy.

## Methods

- Databases:** PubMed, Cochrane, Embase and Scopus
- Studies included:** 4 studies (n = 150)
- Outcomes:**  
*IOP at 3, 12 and 24 months, Hyphema, Transient IOP elevation*
- Analysis:** Random-effects model; (RR) with 95% CI; R Studio v4.4.3 with “meta” package.

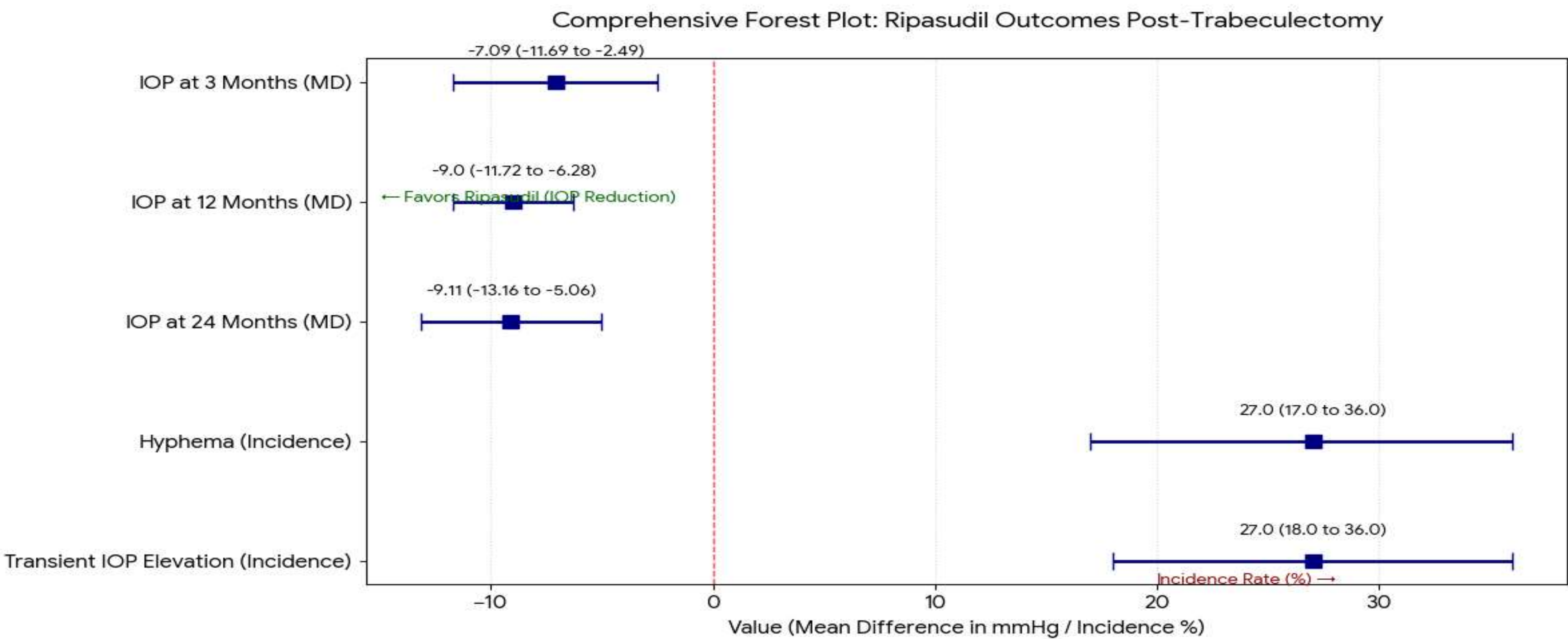
## Results

Table: Outcomes of Ripasudil

| Outcome    | MD/RR  | 95% CI       | P Value |
|------------|--------|--------------|---------|
| IOP at 3M  | ↓ 7.09 | 11.69 – 2.49 | 0.375   |
| IOP at 12M | ↑ 9.0  | 11.72 – 6.28 | 0.468   |
| IOP at 24M | ↑ 9.11 | 13.16 – 5.06 | 0.785   |
| Hyphema    | ↓ 27%  | 17%–36%      | 0.128   |
| T-IOP      | ↓ 27%  | 18%–36%      | 0.613   |

**IOP at 3M:** intraocular Pressure at 3 months; **IOP at 12M:** Intraocular Pressure at 12 months; **IOP at 24M:** Intraocular Pressure at 24 months; **T-IOP:** Transient IOP elevation; **MD:** Mean Difference; **RR:** Risk Ratio; **CI:** Confidence Interval

Forest Plot: Ripasudil



The ROYAL COLLEGE of  
OPHTHALMOLOGISTS

## Conclusion

- Ripasudil provides sustained intraocular pressure reduction after trabeculectomy with acceptable safety.
- Hyphema and transient intraocular pressure elevation are the most common adverse events.
- Ripasudil is a promising postoperative maintenance therapy, but larger studies are needed to confirm its long-term role.

## References

