

Propensity Score to Compare Pars Plana Vitrectomy and Scleral Buckling in Retrospective Studies [Letter]

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Dear editor

We found the article by Rajsirisongsri et al, “Primary Rhegmatogenous Retinal Detachment Repair by Pars Plana Vitrectomy With and Without Scleral Buckling: A Propensity Score Analysis”, particularly noteworthy for two main reasons.¹ First, it examines the role of combining scleral buckling (SB) with pars plana vitrectomy (PPV) for rhegmatogenous retinal detachment (RRD) in terms of final anatomical success and visual acuity outcomes, based on a substantial sample of 683 patients. Second, it employs propensity score analysis to mitigate the bias stemming from the surgeon’s preoperative choice of surgical technique, inherent in a retrospective study design.

In a recent systematic review by Bonnar et al, which included 15 studies, none of the 9 retrospective studies applied a propensity score approach.² Surprisingly, there are relatively few studies in the literature that have utilized propensity score methods when comparing PPV and SB.^{3,4} However, it is clear that when assessing the type of retinal detachment preoperatively, surgeons may be more inclined to combine SB with PPV in more complicated cases. Conclusions drawn from retrospective cohorts without propensity score analysis, therefore, risk being significantly biased. This aligns with our own experience when comparing the incidence of cystoid macular edema (CME) between SB alone and PPV. By applying propensity score matching, we demonstrated that, beyond any bias, PPV cases had a higher incidence of CME.⁵

Two key points in Rajsirisongsri et al’s study warrant further clarification. First, we would like to know why the authors opted for the inverse probability of treatment weighting (IPTW) approach instead of propensity score matching (using methods such as caliper or kernel matching). Second, we wonder which preoperative factors truly drive the surgical decision among SB, PPV alone, and PPV combined with SB. Variables such as patient age, duration of symptoms, multiple retinal breaks, and lens status often appear in propensity score models and plausibly influence the choice of technique. However, it is less evident how factors like sex or intraocular pressure might sway the surgeon toward one procedure over another, while preoperative BCVA—arguably more relevant to surgical planning—was not included. Clarifying why these variables were selected (or excluded) is important to help standardize future propensity score studies, ensuring that only covariates genuinely reflecting surgical decision-making are incorporated, and that unrelated factors do not unnecessarily skew the model.

Beyond the purely statistical results, we also acknowledge that what works best for one surgeon may not necessarily generalize to others, as individual expertise can significantly influence clinical outcomes. A surgeon who has traditionally achieved excellent results combining SB to PPV may continue to favor that approach, but it does not follow that the same success would hold for every surgeon.

We believe these considerations can further refine the utility of propensity score approaches and improve our understanding of when and why SB is added to vitrectomy in managing RRD. We look forward to hearing the authors’ perspective on these points.

Disclosure

The authors report no conflicts of interest in this work.

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