

## Commentary: Vitrectomy for proliferative diabetic retinopathy in patients with type 1 diabetes mellitus

We read with great interest the article by Kumar *et al.* that reported clinical features and surgical outcomes of vitrectomy for proliferative diabetic retinopathy (PDR) in young adults with type 1 diabetes (TDM).<sup>[1]</sup> They reported a modest improvement in visual acuity following vitrectomy in their series. This is especially concerning for India as we have the largest number of TDM patients globally, with an incidence of 15,900 new cases per annum and 95,600 patients living with TDM, all of who will potentially develop PDR during their lifetime.<sup>[2]</sup> The incidence of diabetic retinopathy among TDM patients ranges from 40% to 50% after 10 years. Poor glycemic control is the strongest risk factor for progression of retinopathy, with intensive treatment of diabetes resulting in a significant reduction in the need for vitrectomy and superior outcomes in those that do require vitrectomy.<sup>[3]</sup>

There are salient differences in risk factors, severity, and outcomes of vitrectomy for PDR between TDM and those with type 2 diabetes. We wish to highlight some of them here:

1. The prevalence of chronic kidney disease and the need for renal dialysis are higher in TDM patients, with the current study also eluding to this fact. Renal compromise in TDM patients requiring vitrectomy leads to a higher risk of intraoperative and postoperative bleeding, delayed wound healing, and an increase in mortality. While the 5-year survival of patients undergoing vitrectomy for PDR is approximately 70%, mortality is significantly higher in patients undergoing renal dialysis and having raised serum creatinine, underscoring the importance of screening and appropriately managing renal disease in young TDM patients with coexistent PDR.<sup>[4,5]</sup>
2. The eyes of patients with TDM suffer a greater ischemic insult compared to type 2 diabetics, leading to rapid progression of PDR that requires vitrectomy. Absence of posterior vitreous detachment, broad-based attachments of fibrovascular proliferation, and presence of clear crystalline lenses in these younger patients make vitreous surgery more challenging than in older diabetics. Recurrent vitreous hemorrhage, retinal detachment, cataract, and neovascular glaucoma are more commonly seen following vitrectomy for PDR in TDM patients compared to those with type 2 diabetes. Prompt vitrectomy is thus recommended for vitreous hemorrhage in TDM patients as it leads to better visual outcomes.<sup>[4,6]</sup>
3. The use of endotamponade in all cases of PDR following vitrectomy is questionable. Tao *et al.*<sup>[7]</sup> and Balakrishnan *et al.*<sup>[8]</sup> demonstrated that in the absence of preoperative or intraoperative retinal breaks, silicone oil or gas tamponade is not beneficial for diabetic vitreous hemorrhage and tractional retinal detachment. Incidence of recurrent vitreous hemorrhage and rhegmatogenous retinal detachment following vitrectomy were not lowered with the use of tamponade agents in the absence of retinal breaks.

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