Combination therapy of intravitreal ranibizumab and laser photocoagulation for aggressive posterior retinopathy of prematurity

Dear Editor,

I read with interest the article by Parchand *et al*.[1] on combined intravitreal ranibizumab and zone 1 sparing laser ablation in infants with posterior zone 1 retinopathy of prematurity and the editorial by Vinekar A. Timing of laser following intravitreal anti-vascular endothelial growth factor (VEGF) injections for APROP.[2] This follows the principle of synergistic usage of anti-VEGF injections and laser in proliferative diabetic retinopathy leading to less intense laser and reduction in several intravitreal injections and follow-up visits.

We have a retrospective case series of 20 consecutive preterm babies of the gestational age range of 27–32 weeks with a weight of 940–1500 g, suffering from posterior zone 1 aggressive posterior retinopathy of prematurity with severe plus disease and flat neovascularization in all four quadrants with intraretinal shunts.

All eyes underwent bilateral sequential injections of ranibizumab (0.3 mg/0.02 ml). The choice of ranibizumab as an on-label drug was deliberate to minimize the possibility of systemic side effects. The molecular weight of ranibizumab is smaller (43kDa) with systemic elimination half life of 2 hours, compared to bevacizumab (149kDa) which is 20 days in systemic circulation.

This was followed by retinal photocoagulation performed in zone 2 and zone 3 peripheral retina after a period of 3–6 weeks. The timing depended on the status of regression of the plus disease, neovascularization, and the general condition of the infant to undergo laser, pupillary dilatation, and progressing retinal revascularization. An indirect diode laser (810 nm) was used with 1500–2500 nonconfluent spots delivered, and an ultrafast setting of 500 mW power, 20–50-ms duration, and 100-ms repeat interval. The avascular retina is lasered from beyond the temporal arcades outside zone 1 till the ora serrata (using scleral depression with a wire Vectis), avoiding very tight laser. The laser if delayed further was very difficult in these heavy babies under topical anesthesia with indentation.

In all children, we had a favorable outcome, except in four eyes (two lost due to stage 5 and two developed stage 4a retinal detachments). The reason for the unfavorable outcome was the delay in the initiation of intravitreal injections in the initial learning phase, leading to severe posterior zone 1 ROP with severe fibrovascular proliferation, causing macular tractional detachment and vitreous hemorrhage. In most eyes, there was regression of APROP and plus-disease features which started rapidly at 48 hours after injection, and the fibrovascular proliferation superior and inferior to the indentation of the macula disappeared after laser treatment.

The long-term follow-up showed a creeping increase in the laser scar size but none encroached the fovea and there were no neurodevelopmental developmental issues.

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Conflicts of interest

There are no conflicts of interest.

Ajay I Dudani, Anadya A Dudani[1], Krish Dudani[1], Anupam A Dudani[2]

Mumbai Retina Centre, 101 Kirti Manor, Santacruz West Mumbai, Maharashtra, [1]K J Somaiya Medical College and Hospital, Everad Nagar, Sion, Mumbai, Maharashtra, [2]Hinduja Hospital and Research Centre, Khar, Mumbai, Maharashtra, India

Correspondence to: Dr. Ajay I Dudani,
Mumbai Retina Centre, 101 Kirti Manor, Santacruz West Mumbai, Maharashtra, India.
E-mail: drajay_dudani@yahoo.co.in

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