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Bevacizumab for retinopathy of prematurity: An update

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Abstract

ROP remains a major cause of childhood blindness worldwide. The smallest, sickest infants develop the most severe cases of ROP that may not be successfully treated by near confluent laser to the avascular retina (current standard of care). There is increased survival of very small preterm infants in hospitals with few neonatologists not optimally equipped to monitor oxygen or inadequate numbers of ophthalmologists to screen and treat ROP.

An understanding of ROP pathogenesis with emphasis on proper timing of administration, knowledge of systemic pharmacokinetics of available vascular endothelial growth factor inhibitors, evidence of lack of local ocular toxicity utilizing human histopathology following intravitreal bevacizumab injection, and awareness of possible systemic toxicity related to vascular thrombosis especially during development in vulnerable preterm infants are essential.

Efficacy was reported for a single dose of intravitreal bevacizumab (IVB) compared to conventional laser therapy (CLT) in zone I and posterior zone II in the N Engl. J Med 2011;364(7):603-27. Refractive outcomes at age 2 years are available comparing IVB and CLT in 82% of surviving infants who have not had recurrence or complications requiring intraocular surgery. Characteristics of recurrence, especially in zone I cases, are predictable, recognizable, and treatable by one additional dose of IVB. Local complications are largely preventable in the NICU by employing topical anesthesia, restraining the infant appropriately, attending carefully to sterile technique, fixating the eye securely, and utilizing a needle of appropriate length and gauge. Systemic complications have not been reported, but long term safety has not been established.

Biography

Helen A. Mintz-Hittner, a native Houstonian, received her B.A. at age 20 years from Rice University, her M.D. at age 24 years from Baylor College of Medicine, and did a pediatric internship and an ophthalmology residency at Baylor College of Medicine Affiliated Hospitals. She is a Clinical Professor in the Ruiz Department of Ophthalmology and Visual Science. She has published more than 100 peer reviewed articles and recently traveled four continents to discuss the preliminary and follow-up results of the prospective, stratified, randomized, masked, multi-center clinical trial: Bevacizumab Eliminates the Angiogenic Threat for Retinopathy of Prematurity (BEAT-ROP).

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