



Evidence-based practice versus economics in treatment of macular edema secondary to central retinal vein occlusion in India

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Retinal vein occlusion (RVO) is a common vascular retinopathy. The important causes of reduction of vision are macular oedema (MO) and macular ischemia in both branch RVO and central retinal vein occlusion (CRVO). Between the two, the CRVO is more vision debilitating. Elevated vascular endothelial growth factor (VEGF) and inflammation have been implicated in the pathogenesis of MO in RVOs [1]. Hence treatment of RVOs with intravitreal anti VEGFs and corticosteroid has been the centre of large-scale studies [2, 3].

In recent past, two randomized clinical trials conducted in two different continents have addressed the anti-VEGF treatment of MO secondary to CRVO. The “Lucentis, Eylea, Avastin in Vein Occlusion” trial was a randomized clinical study in the UK [4]. This study concluded that at 100 weeks, aflibercept treatment was noninferior to ranibizumab treatment and bevacizumab treatment was not noninferior to ranibizumab treatment [4]. The mean number of intravitreal injections was 10.0, 11.8, and 11.5 in aflibercept, ranibizumab, and bevacizumab group, respectively. The “Study of Comparative Treatments for Retina Vein Occlusion 2” (SCORE 2) was a randomized clinical trial in the USA. [5, 6]. This study concluded that bevacizumab was noninferior to aflibercept at 6 months after primary treatment and this did not change at 12 months on switching the poor responders of one to the other anti VEGF molecule [5]. A decade ago, the GENEVA trial in the USA had shown that intraocular dexamethasone (Dex) implant containing 700 µg timed-release Dex is efficacious in treatment of MO secondary to CRVO [7].

Cost of care matters. It is estimated that the approximate dollars per line of visual acuity saved are USD 1961 and USD 7611 for DEX implant and ranibizumab, respectively [8]. In the real world, the treatment of MO in CRVO in India or similar economy countries is challenging due to multiple factors. Some of these factors include (1) lack of insurance; (2) late presentation with advanced disease status; (3) lack of compliance to the treatment and follow-up visits. These factors play an important role in selecting the cost effective treatment in India [9]. Compared with intravitreal bevacizumab, the cost of intravitreal ranibizumab and Dex implant is at least two times and cost of intravitreal aflibercept is at least five times in India.

The natural history studies of RVOs have shown that the visual outcome is superior in nonischemic CRVO even with MO than the ischemic CRVO [10]. Unfortunately, this morphological distinction of CRVO is not considered in various randomized clinical trials to measure the efficacy of anti VEGF agents and steroids. This would further help the patients and the physicians in decision making. The newer imaging like ultra-wide field fluorescein angiography and optical coherence angiography could help in accurate characterization of retinal ischemia and vascular density in the deep capillary plexus; this would lend additional analytic factors in individualized treatment planning [11, 12].

In conclusion, the treating physicians have to consider the socioeconomic factors and compliance issues as much as the evidence generated from randomized clinical trials and relative cost-benefit of specific treatment. Engaging the patients in decision-making helps in eventual success of care.

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