

Letter to the Editor

Cost-Effectiveness of Single Dose Dispensing of Bevacizumab and Ranibizumab for Various Retinal Pathologies in Developing Countries

Dear Editor:

Bevacizumab is monoclonal antibody approved by the US FDA for metastatic colorectal cancer.¹ Off-label intravitreal bevacizumab is gaining popularity among ophthalmologists worldwide, due to its reported efficacy. We are using intravitreal injections of bevacizumab prepared in single dosage form (while maintaining sterility) for the treatment of choroidal neovascularization, proliferative diabetic retinopathy, and macular edema due to diabetic retinopathy or vascular occlusion. Ranibizumab (Lucentis, Genentech, Inc., South San Francisco, CA, USA) is a fully humanized anti-VEGF antibody fragment that binds to all VEGF isoforms. It has been approved for the treatment of neovascular AMD by the US FDA and the European Medicines Agency since 2006 and 2007, respectively.^{2,3} Also it has been approved for the treatment of diabetic macular edema in Turkey.

Intravitreal bevacizumab injections were prepared by experienced ophthalmology residents before the intravitreal injection. From the commercially available 4 ml vial containing 100 mg bevacizumab (Avastin, Genentech, Inc. South San Francisco, CA), 0.2 ml fractions were transferred under strict aseptic conditions into a 1 ml syringe fitted with a 26 G needle. Bevacizumab injected in the vitreus immediately. Ranibizumab (Lucentis) is 0.5 mg in 0.05 ml and it was prepared in box. The injections were given through the pars plana route 3.5-4.00 mm behind the limbus.

The available therapeutic modalities like ranibizumab, therapy for treatment of ocular pathologies are quite expensive and unaffordable for patients from the low-income strata. Bevacizumab has been found to be well tolerated and is devoid of any significant retinal toxicity in various preclinical and clinical studies.^{4,5} Therefore, cost-effective formulations of bevacizumab can be explored as an alternative and economical approach to treat a variety of retinal pathologies in developing and underdeveloped countries, where the per capita income is low. In developing countries like Turkey, where the per capita GDP is USD 14.000 (2009), the majority of patients cannot

afford to pay USD 381 for a single vial of bevacizumab.⁶ Therefore, efforts were made to make 10-20 fractions of 0.2 ml from a single vial, thus decreasing the cost to USD 38-19 per injection. Otherwise a single injection of ranibizumab is USD 1166 in Turkey. Usage of bevacizumab reduces the cost-per-injection and providing similar effect.

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Reference

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