Change in macular thickness in a case of refractory diabetic macular edema with dexamethasone intravitreal implant in comparison to intravitreal bevacizumab: A case report

Ashish Sharma, Rangasamy J Madhusudhan, Vidhya Nadahalli, Shreekant A Damgude, Selva K Sundaramoorthy

We report on the significant improvement of central macular thickness in a case of clinically significant macular edema after dexamethasone 0.7 mg sustained-release intravitreal implant (Ozurdex®; Allergan Inc, Irvine, CA, USA). Patient presented to us with persistent clinically significant macular edema (CSME) in both eyes. Right eye received dexamethasone implant and left eye received two intravitreal bevacizumab injections 1.25 mg/0.05 mL (Avastin®; Genentech Inc., South San Francisco, CA, USA) with an interval of four weeks. In six weeks of follow-up, dexamethasone implant in the right eye showed normal macular thickness whereas persistent macular edema (ME) was found even after second intravitreal bevacizumab injection in the left eye.

Key words: Clinically significant macular edema, dexamethasone, implant, ozurdex

Focal/grid laser photocoagulation is still the gold standard treatment for diabetic macular edema (DME).[1] However, for patients with refractory DME, treatment/s beyond laser therapy is to be looked at. In a large case series, bevacizumab has been used in the treatment of DME successfully.[2,3] Glucocorticoid such as intravitreal triamcinolone (IVTA) has been shown to be useful for the treatment of refractory diabetic macular edema with dexamethasone intravitreal implant in comparison to intravitreal bevacizumab: A case report. Indian J Ophthalmol 2012;60:234-5.

Case Report

A 43-year-old male presented with refractory CSME in both eyes. Grid laser treatment was performed in both eyes seven months ago. In spite of seven months of follow-up after grid laser with good systemic control, persistent CSME was found in both the eyes with central macular thickness (CMT) of 311 μm and 452 μm in the right and left eye respectively [Figs. 1a and 1b]. Intravitreal bevacizumab was given in the left eye and the right eye was kept under observation. Four weeks after bevacizumab injection, CMT was reduced to 355 μm in the left eye with persistent CSME observed with maximum macular thickness (MMT) of 461 μm [Fig. 1d]. CMT increased in the right eye to 350 μm [Fig. 1c]. Intravitreal dexamethasone implant was injected in the right eye whereas second bevacizumab injection was given in the left eye. At six weeks of follow-up, CMT returned to 261 μm in the right eye [Fig. 1e] whereas CMT and MMT were 306 μm and 420 μm respectively in the left eye [Fig. 1f].

Department of Vitreoretina, Lotus Eye Care Hospital, Coimbatore, Tamil Nadu, India

Correspondence to: Dr. Ashish Sharma, Lotus Eye Care Hospital, Coimbatore, Tamil Nadu – 641 014, India. E-mail: drashish79@hotmail.com

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High intraocular pressure was recorded in the right eye (26 mmHg) and patient was kept on antiglaucoma medications. Patient also reported snake-like floater in the right eye. There was no other significant adverse effect noted during this short follow-up.

Discussion

In the present case, dexamethasone sustained-release implant was able to successfully bring down the CMT to the normal level in refractory CSME within six weeks whereas persistent CSME was observed even after using two bevacizumab injections in the other eye. As this is a single case with a very short follow-up, it is very difficult to comment on the efficacy of dexamethasone implant per se but comparison with fellow eye (bevacizumab) in similar systemic metabolic conditions makes it an interesting observation even at short term. It is important to evaluate the efficacy of dexamethasone sustained-release implant for the long term because that will give a clue towards its cost-effectiveness compared to the existing therapies. It should not be concluded with this report that dexamethasone sustained-release implant is a better therapeutic option than bevacizumab because there was difference in the nature of macular edema in both the eyes i.e. right eye had early edema in comparison to left eye and both the therapies caused reduction in the macular thickness.

Recent results of RESOLVE and READ 2 study have shown successful use of ranibizumab in cases of DME. As far as the frequency of ranibizumab is concerned, the READ 2 study has shown reduction in the frequency of ranibizumab injection to 2.9 when it is combined with laser, compared to 5.3 and 4.4 in ranibizumab and laser alone patients respectively during 18 months of follow-up.9,10

This case report provides an insight for future long-term studies. Future comparative clinical studies with a large sample size and long-term follow-up after FDA approval of dexamethasone sustained-release implant for DME will be able to provide better results and guidelines.

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