INTRAVITREAL BEVACIZUMAB IS EFFECTIVE AND SAFE IN CHOROIDAL NEOVASCULAR MEMBRANE

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INTRODUCTION

Age related macular degeneration is the leading cause of legal blindness in patients over age 60 in developed nations and is emerging as a leading cause of legal blindness in developing nations[1-2]. ARMD is broadly classified into non-exudative (dry) and exudative (wet) types, exudative being less common. The Beaver Dam Eye Study[2] reported that in the population aged 43-86 years, non-exudative forms accounts for 15% of blindness while the exudative form is responsible for 85% of blindness. Although several therapies including thermal laser photocoagulation[3-4], photodynamic therapy (PDT)[5-6], macular translocation and surgical removal of CNVM have been attempted to treat this disease, the beneficial effects are questionable because of the severe complications, poor long-term results, or both.

Vascular endothelial growth factor (VEGF) has been identified as a major angiogenic stimulus in age-related macular degeneration(ARMD) and diabetic retinopathy[8-9]. Recently promising case reports and case series of using off-label intravitreal bevacizumab (Avastin, Genentech, San Francisco, CA, USA) in neovascular ARMD[10-11], proliferative diabetic retinopathy[12], iris neovascularization[13-14], macular oedema from central retinal venous occlusion[15-16] or refractory pseudophakic cystoid macular oedema[17] have been published. The purpose of the present study was to evaluate the safety and efficacy of off-level use of intravitreal bevacizumab in the in the management of choroidal neovascular membrane secondary to ARMD.

PATIENTS AND METHODS

This was a prospective interventional case series study. This study included 56 eyes of 56 patients who presented with neovascular age related macular degeneration, who received 3 injections of intravitreal bevacizumab, and for whom follow-up time was longer than 6 months. Exclusion criteria were uncontrolled hypertension, recent history of thomboembolic events, current anticoagulation therapy, protienuria and planned elective surgery within 3 months. All patients underwent a routine ophthalmological examination including ETDRS visual acuity, anterior segment examination, slit-lamp biomicroscopy using 78D or 90D lens, applanation tonometry, ophthalmoscopy, color fundus photography, fluorescein angiography and optical coherence tomography. All patients were fully informed about the off-level use of the therapy. All patients signed an informed consent. The study was performed at B. B. Eye Foundation, Kolkata. The ethics committee of the institute had approved the study.

The intravitreal injection of bevacizumab was performed under sterile conditions in the operating theatre using an operating microscope. Preoperative thorough medical checkup was done and topical antibiotic for 4 days was given. After topical anaesthesia the eye and lids were disinfected with povidone iodine. 1.25 mg in 0.05 ml bevacizumab was injected 3.5 to 4 mm posterior to the limbus into the vitreous cavity using a 27 G needle. The injection site was compressed for a minute with a cotton swab to avoid reflux. A topical antibiotic was administered 4 times daily for 5 days. 3 successive injections were given at one month interval without regard to OCT and FA. Previous studies suggests that it causes the largest change in visual acuity and macular thickness in the first 3 months and most patients do not seem to require injections thereafter on a monthly basis. Follow-up examination was done at 1 day, than 1 week and then after 2 weeks for first 2 injections and 1 week, 1 month and then at 3 months interval after the 3rd injection.

The response of the therapy was assessed by ETDRS visual acuity, slit-lamp biomicroscopy using 78D or 90D lens, ophthalmoscopy, fluorescein angiography and optical coherence tomography,. Measurement of intraocular pressure was done and development or progression of cataract was also noted in each follow-up visit.

RESULT

Total 56 patients completed 3 injections and 6 months post injection follow-up. Mean preinjection visual acuity was 6/24 (range – 1/60 to 6/9). Mean post injection visual acuity improved to 6/15 after one month and 6/12 after 6 months. Improvement in visual acuity of 2 or more lines was seen in 44 (78%) patients. Visual acuity remained stable (+/-) in 12 (22%) patients. Not a single patient showed deterioration of visual acuity up to 6 months follow-up. Pre-injection visual acuity of <6/18 was noticed in 71% patients and >6/18 was noticed in 29% of patients. Whereas post injection visual acuity of >6/18 was noticed in 57% of patients.

Fundus fluorescein angiography showed no leakage in 12 (21.5%) cases, reduced leakage in 36 (64%) cases and no change in 8 (14.5%) cases.

The mean foveal thickness was 360um before treatment and 230um 6 months post injection. The retinal thickness decreased in 36 (64%) patients and remained same in 20 (36%) patients.

DISCUSSION

In this study 56 eyes of 56 patients received 3 injections of intravitreal bevacizumab at monthly interval. 44 patients showed improvement in visual acuity and 36 patients showed reduction of retinal thickness at 6 months follow up. No significant ocular side effects were observed during the follow-up period in this current study. Previous studies suggests that it causes the largest change in visual acuity and macular thickness in the first 3 months and most patients do not seem to require injections thereafter on a monthly basis. We have also experienced this with our preliminary few cases. Hence we have treated all our cases with 3 injections at monthly interval as intensive therapy. We repeated OCT and angiography during this period. And in minimum 6 months follow-up there was no recurrence of CNVM. Though this preliminary study suggests that intravitreal bevacizumab seems to be useful for age related choroidal neovascular membrane a randomized controlled trial with larger number of patients is required to prove its effectiveness and duration of efficacy.

CONCLUSION

Bevacizumab as an antiVEGF is effective and safe for the treatment of choroidal neovascular membrane, however a randomized controlled trial with a larger number of patients is required to prove its effectiveness and duration of efficacy.

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