

Intravitreal Bevacizumab for the Treatment of Myopic Choroidal Neovascularisation in an Asian Population

Dear Editor,

Myopic choroidal neovascularisation (mCNV) is one of the most common causes of permanent central visual loss in patients with high myopia,¹ and its natural history results in the development of chorioretinal atrophy around the regressed mCNV, causing further progressive central visual loss.² Therefore there is a need to find treatment options which will not only regress the mCNV but also preserve the neurosensory elements within the macula. Studies using “off-label” intravitreal bevacizumab (Avastin) have shown promising short-term visual outcomes.^{3,4}

Our study aimed to determine the efficacy and safety of intravitreal bevacizumab for the treatment of mCNV in our Asian population.

This was a prospective, interventional case series which was approved by the Institution Review Board of the Singapore National Eye Centre, using intravitreal bevacizumab (1.25 mg/0.05 mL). Snellen best-corrected visual acuity (BCVA), central retinal thickness (CRT), and fundus fluorescein angiography (FA) pre- and post-treatment, and the number of treatments required were studied. Changes in the BCVA and CRT were analysed using the Wilcoxon signed rank test. Variables affecting visual outcomes including prior photodynamic therapy (PDT) and the number of bevacizumab injections were

analysed using Repeated-measures linear mixed model (first order autoregressive structure) adjusting for prior PDT and number of injection groups.

Eleven eyes of 10 patients were recruited, with mean age of 58.64 ± 18.56 years and mean refractive error -9.45 ± 5.50 DS. There were 5 males and 5 females. All patients were Chinese with FA-proven classic subfoveal mCNV (Fig. 1). Four eyes had received one prior session of PDT. The mean number of bevacizumab injections was 2.6 ± 1.8 . The mean follow-up was 9.91 ± 2.39 months. Pre-treatment Snellen BCVA of 6/95 improved to 6/52 at 1 month ($P = 0.123$), 6/38 at 3 months ($P = 0.097$), 6/30 at 6 months ($P = 0.126$) and 6/27 at 9 months ($P = 0.068$). The mean initial CRT of $392.33 \pm 76.22\mu\text{m}$, improved to $269.67 \pm 59.38\mu\text{m}$ at 1 month ($P = 0.063$), $265.50 \pm 55.50\mu\text{m}$ at 3 months ($P = 0.075$). Eyes without prior PDT showed better improvement in CRT at month 1, 3 and last follow-up ($P = 0.000$) compared to eyes with prior PDT. Moreover they demonstrated a trend of better BCVA at months 3, 6, 9 and last follow-up which nearly reached statistical significance ($P = 0.062$). The number of bevacizumab injections had no effect on BCVA or CRT. Post-treatment FA performed in 8 eyes showed resolution of mCNV, with only staining of the residual scar. No ocular or systemic complications were observed during the study period.

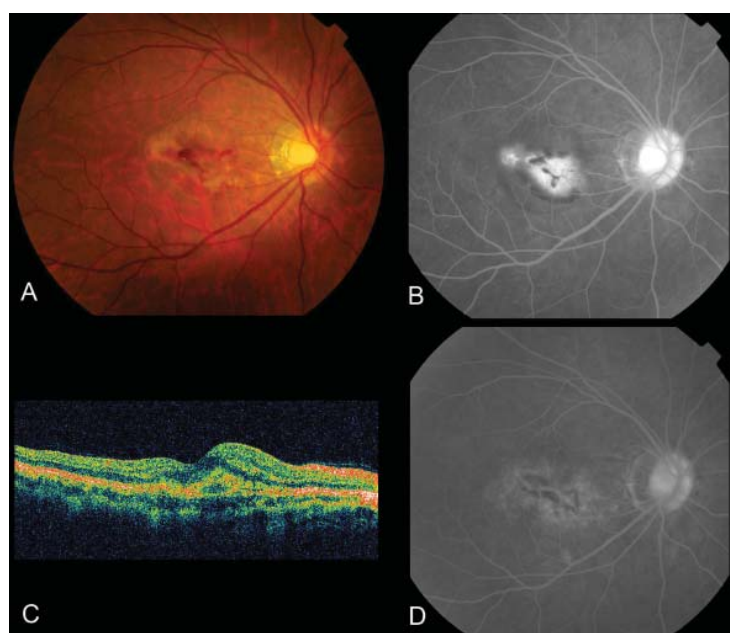


Fig. 1. A 29-year-old lady with high myopia of -7 dioptres presented with decreased visual acuity of right eye. Snellen best corrected visual acuity for the right eye was 6/120.

Fig. 1A. Fundus photo showing subfoveal choroidal neovascularisation in the right eye.

Fig. 1B. Fluorescein angiography showing subfoveal choroidal neovascularisation in right eye at presentation.

Fig. 1C. Optical coherence tomography of the right macula showing central retinal thickness of 326 μm at presentation.

Fig. 1D. Fluorescein angiography of right eye at 4 months showing resolution of choroidal neovascularisation as evidenced by no leakage in late phase with Snellen best corrected visual acuity of 6/6.

Our study showed that intravitreal bevacizumab treatment of mCNV resulted in improvement in BCVA at 6 months and maintained for up to 9 months post-treatment, with corresponding reductions in CRT but findings did not reach statistical significance likely due to the small study size. Other limitations are inadequate long-term follow-up and a lack of control group.

In our experience, the visual outcome with intravitreal bevacizumab for mCNV was better than that reported in the VIP Study. At 1 year, the VIP study showed that 5 eyes (6%) had improvement of BCVA of at least 3 lines.⁵ This was less than that experienced in our study, as we had 5 of 9 eyes (55.5%) which improved at least 3 lines at 9 months. Moreover our study showed that eyes without prior PDT had better BCVA and CRT. This may be due to preservation of the integrity of the retinal pigment epithelium with intravitreal bevacizumab as PDT has been shown to cause long-term disturbances in the retinal pigment epithelium.⁶ Limiting the amount of damage to the surrounding intact retina is important as the natural history of mCNV is that of continued chorioretinal atrophy around the regressed CNV.²

Our study showed that intravitreal bevacizumab treatment of mCNV resulted in improvement in BCVA at 6 months and maintained for up to 9 months post-treatment, with corresponding reductions in CRT. More studies should be conducted to study the long-term efficacy and optimal regimen for bevacizumab treatment of mCNV.

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