Topical bevacizumab eye drops decrease corneal neovascularisation

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TO PIC AL bevacizumab (Avastin, Genentech/Novartis) drops decrease corneal neovascularisation in eyes that show no response to corticosteroids, early clinical experience indicates.

T erry Kim MD reported his experience with Avastin drops in two patients in a presentation at the XXV Congress of the ESCRS. Dr Kim selected two patients with corneal neovascularisation of different origins for his investigation, to determine the effect of a 25-day treatment with topically applied Avastin, on human corneal neovascularisation. His goal was to reduce neovascularisation and thereby improve the prognosis for future corneal transplantation in these patients.

"We saw no adverse effects, ocular or systemic. We did see a dramatic response in one patient and a more moderate one in the other. Further clinical studies are warranted to try and determine the best delivery method and dosing for this and whether Avastin is really the best molecule to treat these patients with," said Terry Kim MD, associate professor of ophthalmology at Duke University Eye Centre, Albert Eye Research Institute, US.

The first patient was a 20-year-old man with a one-year history of ocular trauma from carbonised debris from a high-pressure line. The affected eye had count finger vision only, while the unaffected eye had 20/20 vision. The epithelium was intact but the eye had diffuse scarring and diffuse superficial and deep stromal vessels. The neovascularisation was unresponsive to eight months of corticosteroid treatment.

The second patient was a 41-year-old man with a history of ocular cicatricial pemphigoid (OCP) and neurotrophic corneal ulcer. The affected eye had count finger vision and the unaffected eye had 20/70 vision. The eye had punctate and band keratopathy, no ulcer recurrence, and corneal and punctal scarring. The corneal neovascularisation was unresponsive to corticosteroids, as in the first patient.

Dr Kim used Avastin 10 mg/ml (at 1.0 per cent concentration) in 0.01 per cent benzalkonium chloride (BAK) concentration, in a 5.0ml vial. It was applied topically, four times per day for 25 days.

The first patient showed a marked reduction in neovascularisation after 25 days of treatment. Dr Kim noted a significant reduction in both superficial and deep corneal neovascularisation clinically and photographically.

The second patient showed less of a response after the 25-day treatment. Nonetheless, Dr Kim observed a moderate response in the reduction of neovascularisation.

Some recurrence of neovascularisation occurred after discontinuation of therapy in both patients. The patients tolerated the drops very well with no discomfort, burning, or stinging. There were no adverse ocular signs in terms of epithelopathy, conjunctival hyperaemia, increased scarring, or periocular changes.

Dr Kim measured the patients’ systemic blood pressure on day zero, four, 11, and 24. Pressures stayed stable throughout the course of therapy at around 118/80 for the first patient and 121/85 for the second, with only mild fluctuations.

Dr Kim noted that the use of Avastin needed to be explained to and consented by patients with special forms, as was required of drugs employed for ‘off-label’ and ‘compassionate’ use.

There are a few supporting trials in the literature for Avastin used in cases of corneal neovascularisation. The supportive work was mostly done in animal models using stromal injections, subconjunctival injections, or topical applications of anti VEGF antibodies and Avastin. Previous studies do corroborate a marked reduction in neovascularisation.


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