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Seeing into the future: ophthalmologists and specialist nurses working together

Elissa M McDonald, Felix SF Ram

New Zealand faces both a limited number of ophthalmologists—particularly in regional centres—and an aging population, who typically have an increasing need for eye care. Therefore, we need to ask: Who will take care of the nation's eyes in the future?

One solution that has proven to be successful is ophthalmologists working with ophthalmology clinical nurse specialists (OpCNS). These nurses have the clinical expertise to assist ophthalmologists, and in some centres perform procedures such as chalazion incision, corneal suture removal, and conduct nurse-led glaucoma, corneal, diabetic retinopathy and uveitis clinics, in collaboration with ophthalmologists. Not only do these partnerships extend and utilise nurses expertise, but are of benefit to ophthalmologists in managing burgeoning patient loads.

This issue of the *New Zealand Medical Journal* includes a paper by Samalia et al, which highlights the benefit, collaboration, and safety of appropriately-trained OpCNS's working with ophthalmologists to deliver intravitreal injections of vascular endothelial growth factor (VEGF) inhibitors (bevacizumab, ranibizumab, and aflibercept).

VEGF inhibitors are used in conditions such as neovascular age-related macular degeneration, diabetic macular oedema, and retinal vein occlusion, where unchecked VEGF can cause inappropriate vascularisation of retinal and anterior chamber structures leading to visual loss, increased intraocular pressure and, at worst, phthisical eye (a condition where significant damage to the eye occurs

leading to blindness and shrinkage of the globe). VEGF inhibitors have been proven to be superior to laser photocoagulation (where heat from a laser is used to seal or destroy abnormal vascular growth in the retinal tissues), in limiting the production of VEGF and therefore reducing the risk of sight-limiting sequelae.^{1,2} Another benefit of intravitreal injections over laser photocoagulation is the efficiencies in time, 10–15 minutes per patient with intravitreal injections compared with up to 60 minutes with laser. This allows a greater number of patients to be treated more effectively, which is good news for an aging population. However, in order to prevent visual loss and maintain existing sight, VEGF inhibitors need to be injected on a regular (initially 4–6 weekly) basis. Indeed, a study investigating long-term outcomes in patients treated with intravitreal ranibizumab identified that one-third of participants with exudative age-related macular degeneration were still at risk of decreased visual acuity and required continuing intravitreal injections 7 years following initial treatment.³ The sheer number of patients requiring regular VEGF inhibitors has meant that in some centres ophthalmologists are spending the greatest proportion of their working day delivering intravitreal injections, which is concerning as New Zealand is reported to have a ratio of one ophthalmologist to every 38,000 people.⁴

Studies have identified that maintaining visual acuity is the most important consideration to patients. Patients identified drug label status (intravitreal bevacizumab has been used off-label) and cost, along with the designation of the provider, as least important factors.⁵ In fact, in order to

prevent decreased visual acuity, patients were prepared to endure increased treatment burden, regular intravitreal injections at short intervals including longer periods of waiting and travelling to receive treatment.⁶ Although, patients preferred to attend a one-stop service, and ideally with less frequent follow-up.^{5,6}

The Royal College of Ophthalmologists have changed their policy to allow administration of VEGF inhibitors by non-medical health-care practitioners subject to appropriate training and supervision,⁷ while a recent systematic review investigating non-physician delivered intravitreal injections in 31,303 eyes concluded that the practice was feasible and safe.⁸ Likewise, the study by Samalia et al investigates a safe, economical solution to the growing need for VEGF inhibitor treatment that can potentially benefit specially-trained ophthalmology nurses, ophthalmologists, and patients alike. By conducting a safety audit of three appropriately trained OpCNS's who delivered almost 3,000 intravitreal injections over an 18-month period, Samalia et al were able to identify any potential concerns and benefits of extending the responsibility of intravitreal injections to appropriately-trained specialist nurses.

Risks to any patient receiving intravitreal injections, while small, can be serious, and include endophthalmitis (infection affecting the entire globe), vitreous haemorrhage (bleed into the vitreous), uveitis (inflammation of the iris and ciliary body) and increased intraocular pressure. It was pleasing to see in Samalia et al's study that these complications were minimal, and were comparable to those documented in the literature by ophthalmologists.^{8,9}

While both generalist and specialist ophthalmologists manage patients with neovascular pathologies, it is important to identify that in Samalia et al's study, responsibility for patient management remained with the ophthalmologist and OpCNSs worked in collaboration to provide effective and timely care. The results of the safety audit confirm that the comprehensive specialist nurse training programme was effective in preparing nurses to safely extend their scope of practice, and could potentially be used as a model to train ophthalmology specialist nurses in other New Zealand centres, especially remote regional centres, to help manage increasing demand for intravitreal VEGF inhibitors and provide the much needed care for our increasingly aging population.

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