Glaucoma

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in Toronto

TRABECULECTOMY for the treatment of glaucoma is much better than it used to be. Techniques have become simpler, IOP control is safer and excellent results are possible.

These were the key messages from Peng Khaw MD, who gave a keynote talk at the third International Congress on Glaucoma Surgery. Dr Khaw is professor of glaucoma and ocular healing at the UCL Institute of Ophthalmology and Moorfields Eye Hospital, London.

“Patient happiness is what really matters. Ultimately we want low pressures, no medications, no progression with maintenance of sight,” he said.

One of the motivations for simpler techniques is the fact that people in a large part of the world have limited resources. Surgery needs to be relatively simple and not use a lot of resources, he commented.

When working with patients, it is important to educate them about their glaucoma, and to get their views about surgery. Dr Khaw said he often draws a graph for patients showing the normal rate of vision loss over time, and how their degree of glaucoma potentially affects their lives.

“When you carry out glaucoma surgery, your first chance is often your best chance, and often only chance, so safety and efficacy is important,” he said.

Indeed, a Moorfields-Medical Research Council study on glaucoma surgery and intraoperative 5-fluorouracil (5-FU) showed clearly that with consistently lower pressures (<14 mmHg) no patients progressed. The goal of surgery is the control of aqueous flow and direction.

“Trabeculectomy is still the most common filtering operation performed around the world, for glaucoma. And it is still one of the most effective methods to lower IOP to levels in the low teens that are associated with the best preservation of vision,” he said.

The appearance of other filtration surgery methods is due to side effects associated with trabeculectomy, especially hypotony and cystic blebs with the use of antimetabolites. But these days, hypotony can be minimised by use of simple techniques – such as with adjustable sutures, developed at Moorfields, which can be used to control gradual reduction in IOP.

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Other improvements in techniques are all part of the Moorfields Safer Surgery System (MSSS), a system designed with the intent of reducing complications from trabeculectomy. The use of adjustable sutures is only one small part of the system. Details of the system are posted in the form of a 15-page document and videos on Prof Khaw’s website at the Institute of Ophthalmology (www.ucl.ac.uk/oio/research/khaw.htm).

“These simple surgical techniques are available to everyone,” he said.

Dr Khaw presented highlights of the technique that are specifically aimed at reducing complications.

For instance, corneal traction sutures prevent rectus suture haemorrhage. A corneal traction suture that is firmly fixed exerts a more consistent vector force. Some published evidence supports its use, such as the UK National study of trabeculectomy, which showed that such a suture was associated with a better outcome than a superior rectus traction suture. Dr Khaw uses a 6-0 black silk suture 2.0mm anterior to the limbus through mid-thickness cornea.

When it comes to blebs, assessment of the eyelid position is a critical part of surgical site assessment. The bleb is ideally in a position where it is totally under the upper lid, which provides additional protection from infection and exposure, according to a summary of the MSSS that was handed out at the conference.

How antimetabolites are applied to the conjunctiva can dramatically reduce bleb complications.

“I use fornix-based flaps which provide a better surgical view and diffuse antifibrotic application is easier to perform. They are less time consuming and the bleb is more diffuse. Whatever the flap technique, it is critical to use a larger surface area of treatment. In our high-risk patients this reduced bleb related problems from 20 per cent to less than 0.5 per cent. A change to this simple technique could save many thousands of patients around the world unnecessary problems in the future,” he said.

Various closure techniques exist to virtually eliminate postoperative conjunctival wound leak – including corneal-conjunctival closure, he said. This is also much more comfortable for the patient and the sutures are permanently buried and do not need removal.

Moorfields also has a simple well-ratified bleb scoring system. Partly, it boils down to “if you have a very red eye, the longer this persists the greater the chance of failing surgery,” Dr Khaw said. These patients need active anti-scarring management.

Better IOP control

Changes in scleral flap and sclerostomy design have proven to produce diffuse aqueous flow and lead to better IOP control. A key point is that the flap needs to be cut and shaped to direct aqueous away from the limbus.

Another key point is to maintain IOP both during and after surgery. Fluctuations in pressure can increase the risk of suprachoroidal haemorrhage, and very large fluctuations can add to any optic nerve damage, especially in patients with severe glaucoma.

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“We use an anterior chamber infusion (Lewicky, Visitec) with a three-way tap to maintain a near constant pressure during surgery, and apply a known pressure when assessing the flap tension and resistance to aqueous flow,” the MSSS summary said.

The MSS system suggests using a small scleral punch, which improves control of fluid flow and IO P. A PA punch means a smaller hole can be made.

With these different methods, and more, it is hoped IO P can be lowered to the most beneficial levels safely with minimal complications, he said.

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