

Stent, MICS duo aids glaucoma

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In short...

One surgeon's experience performing implantation of a single trabecular micro-bypass stent (iStent, Glaukos) in patients with glaucoma undergoing microincisional cataract surgery shows no safety concerns with follow-up to 12 months and significant reductions in IOP and medication use.

Implantation of a single trabecular micro-bypass stent (iStent, Glaukos) during microincision cataract surgery (MICS) offers a safe and effective surgical treatment for patients being medically managed for open-angle and pseudoexfoliation glaucoma, explained Dr Tobias Neuhann, during the annual meeting of the American Society of Cataract and Refractive Surgery.

Dr Neuhann presented outcomes from follow-up to 12 months for a personal series of 29 eyes of 22 patients with the stent implanted.

The 1-mm device is placed *ab interno* into Schlemm's canal, creating a bypass of the trabecular meshwork to improve physiologic aqueous outflow.

There were no intraoperative complications.

Follow-up to 6 months was available for 26 eyes and to 12 months for 19 eyes. Despite perfect stent placement, one patient had no IOP response and went on to shunt surgery.

Reductions in IOP, medication use

Among the rest of the series, no other eye required further surgical intervention, there were no cases of loss of best-corrected visual acuity (BCVA), and all eyes benefited with reductions in IOP and need for medications. While IOP averaged 25.4 mmHg preoperatively with mean medication use of 1.4, at 1 year, most patients had IOP <16 mmHg and were medication-free.

"It is interesting to see where glaucoma surgery may be moving in the future, thanks to the development of safe and effective microsurgical techniques," said Dr Neuhann, medical director, Marienplatz Eye Clinic, Munich, Germany. "In this series, patients achieved better IOP control after surgery while needing fewer medications.

"And although surgeons can expect to encounter some complications with any new technique, so far we have seen none when implanting the trabecular micro-bypass stent during routine phacoemulsification," Dr Neuhann said. "Close follow-up is continuing."

The patients in the series had a mean age of 73 years, 21 had a diagnosis of open-angle glaucoma and eight had pseudoexfoliation glaucoma. Onethird of the eyes had a history of previous glaucoma surgery, including argon laser trabeculoplasty (three eyes), selective laser trabeculoplasty (three eyes), laser peripheral iridotomy (two eyes), and trabeculectomy (four eyes).

Preoperatively, all eyes but one were being managed medically with between one and three medications. For the overall cohort, mean IOP decreased to 14.8 mmHg at 1 week after surgery, was 14.5 mmHg at 3 months, and 15.2 mmHg at 6 months. Topical medications were discontinued after surgery, and at 6 months, the mean number of medications being used was only 0.3. At 6 months, mean IOP was 10.2 mmHg and 77% of eyes were medication-free.

Data were similar for the cohort of eyes with consistent follow-up through 12 months. In this group, mean IOP decreased from 27.1 mmHg preoperatively to 14.6 mmHg at 1 month, and was about 16.5 mmHg at 3 and 6

months. Mean medication use decreased from 1.5 preoperatively to 0.5 at 3 and 6 months.

At 1 year, mean IOP was 10.7 mmHg and patients were on an average of one medication.

"We know that glaucoma is a chronic disease and some progression can be expected," Dr Neuhann said. "Therefore, it is not surprising to see a slight increase in IOP over time. Importantly, however, IOP remained well-controlled with use of fewer medications than at baseline."

Preoperatively, BCVA was 20/40 or better in only 9 (31%) eyes, whereas at 6 months after surgery, 96% of eyes achieved 20/40 or better BCVA and 58% were 20/20 or better.

Surgical technique

Dr Neuhann performed all of the surgeries under topical anaesthesia. The stent comes preloaded in a single-use sterile applicator and is delivered following IOL implantation, after first filling the anterior chamber with viscoelastic.

The stent is placed through the trabecular meshwork into Schlemm's canal under gonioscopic control with access through the same temporal clear corneal microincision used for phacoemulsification.

"For best possible angle visualization, insertion is performed from the temporal side with the gonioscopic lens tilted toward the surgeon and the patient's head tilted away," Dr Neuhann said. "Massaging the vessels in the area outside of the chamber angle causes Schlemm's canal to become colourized with blood and makes its visualization very easy."

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