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COVER FEATURE

New technology in cataract surgery
MIGS and cataract surgery

by Michelle Dalton EyeWorld Contributing Writer

"It's always been a balance in glaucoma surgery of risk and benefit, and unfortunately the older techniques have more complications. That's what drove the desire for the MIGS-based procedures. "
–Richard Lewis, MD

Newer devices and more experience may lead to MIGS becoming a standalone procedure — in the right patient

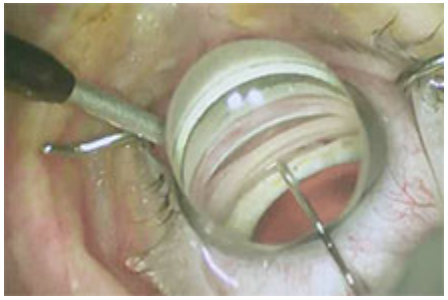
When glaucoma patients present with visually significant cataracts, more and more surgeons are considering combining the cataract surgery with microinvasive glaucoma surgery (MIGS); in the U.S., only the iStent (Glaukos, Laguna Hills, California) is an approved MIGS device. Its approval is in combination surgery, but it's only a matter of time before MIGS devices "are approved as standalone procedures," said Richard Lewis, MD, in private practice, Sacramento, California.

"It's always been a balance in glaucoma surgery of risk and benefit, and unfortunately the older techniques have more complications," he said. "That's what drove the desire for the MIGS-based procedures. The safety of these devices is what has driven the field."

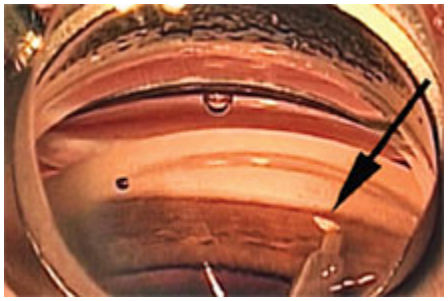
The "initial foray" into MIGS made sense to combine with cataract surgery "being that we're already in the eye, so we get an extra boost in IOP-lowering using MIGS," said Iqbal "Ike" Ahmed, MD, assistant professor of ophthalmology, University of Toronto, and clinical assistant professor, University of Utah, Salt Lake City.

These devices "definitely will be standalone procedures," said Steven Vold, MD, founder and chief executive officer, Vold Vision, Fayetteville, Arkansas. "Some of these may ultimately end up being performed in an office setting."

There are ongoing clinical studies evaluating the use of MIGS devices as standalone



iStent about to be engaged into the trabecular meshwork
Source: Doug Rhee, MD



Intraoperative goniophotograph with Trabectome in position for canal entry
Source: Ronald Fellman, MD

procedures in phakic eyes and studies investigating multiple simultaneous iStent implantations, Dr. Vold said. For patients who may have more moderate than mild glaucoma, multiple stents may be most beneficial, he said.

In some patients, phaco alone may be enough to lower IOP; "phaco plus MIGS often is even better than phaco alone. That's the sweet spot," Dr. Ahmed said. "I try to avoid phaco-trabs because they're harder to manage."

The devices that will gain rapid market acceptance are those with the highest safety and most robust IOP lowering; those that are less "cost involved" are likely to gain acceptance quicker than those that are not reimbursed, Dr. Ahmed said.

Implantation pearls

The key to successful MIGS is patient selection, the experts say. Implanting the devices is a relatively straightforward procedure, but keep in mind "the importance of setting yourself up for success with the right position and the right visualization," Dr. Ahmed said.

The best way to approach these various options to patients is to have unique informed consent forms for each of the potential MIGS therapies, Dr. Vold recommended. Consider the refractive status of the patient as well, Dr. Lewis said.

"Are they wearing contact lenses? That changes my thinking a lot. If they're high myopes, I don't want to do a trabeculectomy because they'll need contacts, and they get hypotony maculopathy," Dr. Lewis said.

A little induced hypotony (by gently depressing the wound) can bring blood into Schlemm's canal, making it easier to identify where the major collector channels are.

"By doing that, you can easily slide the iStent in," Dr. Vold said.

Surgeons should be "near a collector channel, but you're never 100% certain. You can identify
the collector channels carefully by looking at the vessel exiting from the limbus," Dr. Lewis said.

Implantation of the Trabectome (NeoMedix, Tustin, California) is similar to the iStent, Dr. Vold said.

"With the Trabectome, I like to treat close to 180 degrees of angle with that procedure," he said. "I'll make the inner diameter of the wound a little wider than the outer, and that way I can just sweep across the angle. It's a little removal of the inner wall of Schlemm's canal and the trabecular meshwork (TM)."

Other MIGS devices

TRAB360 (Sight Sciences, Menlo Park, California) is a "trabeculotome" that can manually cut up to 360 degrees of TM, Dr. Vold said. Ab interno canaloplasty "uses the catheter developed for canaloplasty and adds the ability to viscodilate by including a viscosurgical device (OVD)," he said.

Dr. Ahmed said the route taken may also dictate where other devices will shine—implanting into the TM produces modest IOP lowering, but the safety is exemplary. Working with "viscocanalostomy and combining a suprachoroidal stent with viscoelastic to expand the suprachoroidal space" is resulting in higher efficacy than adjuncts alone.

"MIGS plus—going outside the eye—is what the Xen gel stent [Allergan, Dublin] implant does," he said. "For me the greatest efficacy in standalone MIGS procedure is the Xen."
Dr. Vold said the Kahook Dual Blade (New World Medical, Rancho Cucamonga, California) "allows us to have an ab interno trabeculotomy." For those unfamiliar with it, Dr. Ahmed said the Kahook is "basically a goniometry technique."
Dr. Vold said the concept of ab interno trabeculotomy has garnered such attention that there's an entire session devoted to it at ASCRS Glaucoma Day prior to the ASCRS•ASOA Symposium & Congress this year.

Topical meds in the post-MIGS patient

The physicians don't recommend a preop washout, but they do keep patients off glaucoma medications in the immediate postop period.
Dr. Lewis withholds glaucoma drops until "1–2 months postop, depending on what their pressures are. I want to give them a couple of months off drops to see what effect they were able to achieve with the MIGS device." Dr. Ahmed agreed, saying the 2-month mark "is the new baseline for their IOPs."
In cases of advanced glaucoma, Dr. Vold may initiate drops during the immediate postop period, but his goal is to eliminate drops altogether.
With the Trabectome, Dr. Vold is a little slower to eliminate all drops "because there's sometimes a little more blood around the clots so a lot of times, I will taper their medications off over time with that procedure," said Dr. Vold, who uses pilocarpine postoperatively as well.
"Postop pressures after MIGS are generally well controlled. If anything, MIGS help blunt the 24-hour IOP spikes after cataract surgery," Dr. Ahmed.

When not to use MIGS devices

As great as these devices may be, they are not appropriate for all glaucoma patients, the experts said.
For example, angle-closure glaucoma is an exclusionary factor for the iStent, Dr. Vold said. Those with neovascular glaucoma are poor candidates as well.
"The iStent is probably not ideal in inflammatory glaucomas, but angle-closure is an absolute contraindication," he said.
"The key to success with MIGS is patient selection. It's everything," Dr. Vold said.
Patients with peripheral anterior synechiae from uveitis are usually not good candidates, Dr. Ahmed added.
"Patients who have had multiple surgeries and trabs or a compromised outflow generally present with difficulty to lower IOP," Dr. Ahmed said.
But in general, "our indications are expanding and our contraindications are narrowing," he said, and that will continue to be the pattern as surgeons become more comfortable with the surgical techniques and devices.

***Editors' note**: Dr. Ahmed has financial interests with Allergan, Glaukos, InnFocus (Miami), Ivantis*

AT A GLANCE

(Irvine, California), and Transcend Medical (Menlo Park, California). Dr. Vold has financial interests with Allergan, Glaukos, Ellex (Adelaide, Australia), Ivantis, NeoMedix, SOLX (Waltham, Massachusetts), and Transcend Medical. Dr. Lewis has financial interests with Aerie Pharmaceuticals (Bedminster, New Jersey), Allergan, Alcon (Fort Worth, Texas), Glaukos, and Ivantis.

- MIGS are likely to become standalone surgical procedures in the near future.
- Patient selection remains the primary factor in determining MIGS surgical success.
- Preop washout is not necessary, but keep patients off meds for 1–2 months postop.

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