

What Impact Will the Availability of a MIGS Implant Have on the Treatment of Glaucoma?

Surgeons discuss patient profiles and the learning curve with the iStent.

BY JASON BACHARACH, MD; CARLOS BUZNEGO, MD; AND L. JAY KATZ, MD



JASON BACHARACH, MD

Surgeons desire less invasive techniques with quicker rehabilitation times and greater efficiency in the OR as well as the ability to combine these glaucoma procedures with cataract surgery. Microinvasive glaucoma surgery with a device such as the iStent Trabecular Micro-Bypass (Glaukos Corporation) is characterized as a microincisional technique that involves no destruction of tissue, no corneal flaps, and no disruption of the conjunctiva.

As a clinical investigator for this device, I have seen promising results after the long-term follow-up of patients who received the iStent at the time of cataract surgery. In the multicenter study, 240 eyes with mild to moderate open-angle glaucoma (OAG) were randomized to undergo cataract surgery with iStent implantation (treatment group) or cataract surgery only (control). Seventy-two percent of treated eyes versus 50% of control eyes achieved an IOP of 21 mm Hg or less without medications at 12 months.¹ The overall incidence of postoperative complications was the same between the groups.

For these reasons, I will offer the stent to appropriate patients with OAG undergoing cataract surgery. In general, candidates will have mild to moderate disease. An exception might be attempting to blunt an early postoperative spike in IOP in a patient with a short life expectancy and more advanced disease. I will discuss the iStent with all patients on topical medical therapy for glaucoma prior to their undergoing cataract surgery. In particular, patients who find compliance challenging may derive

great benefit from the implant. Obstacles to adherence ranging from affordability to difficulties administering eye drops have created an interest in the implant from many of my patients facing cataract surgery. Another candidate for this device is a patient who had an unfortunately poor outcome with a more invasive glaucoma surgical procedure in the first eye and who still needs IOP management concomitantly with cataract extraction in the second eye.

I believe the iStent will become an important option for surgeons to incorporate within their arsenal of treatments for concomitant cataract and glaucoma.

Jason Bacharach, MD, is the director of research at North Bay Eye Associates, Inc., in Sonoma, California, vice-chair of the Glaucoma Department at California Pacific Medical Center in San Francisco, and chair of the Practicing Ophthalmologists Curriculum Glaucoma Panel. He is an investigator for and consultant to Glaukos Corporation. Dr. Bacharach may be reached at (707) 762-6622; jb@northbayeye.com.

1. Samuelson TW, Katz LJ, Wells JM, et al; US iStent Study Group. Randomized evaluation of the trabecular micro-bypass stent with phacoemulsification in patients with glaucoma and cataract. *Ophthalmology*. 2011;118(3):459-667.



CARLOS BUZNEGO, MD

The approval of the iStent will undoubtedly have a dramatic impact on the treatment of glaucoma. Traditional glaucoma surgery is infrequently combined with cataract surgery due to slow visual recovery, complex intraoperative manipulations, and frequent postoperative complications.

In fact, combined phacoemulsification and trabeculectomy and combined phacoemulsification and tube shunt surgeries are usually reserved for cases of advanced glaucoma. In contrast, I believe that implantation of the iStent should be offered to patients with mild or moderate OAG due to the procedure's safety profile and high success rate.¹ This procedure can be readily combined with modern cataract surgery, as visual recovery is not delayed. In the FDA clinical trial, complication rates of the treatment group were similar to those of the control group, whose members underwent cataract surgery alone. Only 3% of patients in the treatment group required repositioning of the stent, and two-thirds of patients achieved IOP control without medications.¹

The iStent procedure has a short learning curve and can be efficiently performed by a skilled cataract surgeon after brief training and a handful of cases. To prepare for the procedure, cataract surgeons should begin to familiarize themselves with intraoperative gonioscopy, which can take place during standard phacoemulsification with implantation of an IOL. First, I re deepen the anterior chamber after the IOL has been implanted. Next, I tilt the patient's head approximately 30° away from myself and angle the head of the microscope about 30° toward myself. I apply a dollop of viscoelastic to the cornea and place the surgical gonioprism on the cornea with my nondominant hand (Figure). This affords a view of the anterior chamber angle. Fortunately, blood reflux into Schlemm canal makes the implantation site ("landing strip") readily visible. I recommend surgeons use a Sinsky hook in their dominant hand to approach the angle and mimic the subtle wrist pronation needed for implantation.

Postoperative care is identical to that for standard cataract surgery. In my experience, patients' eyes are quiet postoperatively. During the clinical trial, I was only able to



Figure. After applying viscoelastic to the cornea, the surgeon places the surgical gonioprism on the cornea with his or her nondominant hand.

distinguish between eyes in the treatment group versus the control group by looking at the patient's chart or the angle.

Carlos Buznego, MD, is an anterior segment surgeon and founding partner of the Center for Excellence in Eye Care in Miami. He is also a voluntary assistant professor at the Bascom Palmer Eye Institute in Miami. Dr. Buznego is an investigator for and consultant to Glaukos Corporation. Dr. Buznego may be reached at (305) 598-2020; cbuz@comcast.net.

1. iStent [package insert]. Glaukos Corporation, Laguna Hills, California; 2012.



L. JAY KATZ, MD

The introduction of the iStent will open a new avenue in the treatment paradigm of glaucoma. Between the limitations of glaucoma medications (compliance, cost, side effects) and laser trabeculectomy (limited potency and gradual loss of effectiveness) and the concerns about complications (hypotony, suprachoroidal hemorrhage, endophthalmitis) with traditional glaucoma operations, the ab interno placement of an implant offers us surgeons an "intermediate step." In the immediate future, the iStent will be an attractive option for a patient needing cataract surgery for whom I have a concern about the adequacy or continuation of glaucoma medical therapy and for whom subconjunctival filtration procedures are too risky or excessive. Because the device bypasses the trabecular meshwork and empties into Schlemm canal, the lowest IOP will be episcleral venous pressure (about 10 mm Hg), which avoids profound hypotony and its downsides such as choroidal effusion, a flat anterior chamber, and hypotony maculopathy. Furthermore, with no filtration bleb, there is no fear of bleb leaks, bleb-related infection, and dysesthesia. Conjunctival manipulation is not required for implanting the stent. Eyes with the device can later undergo a trabeculectomy or tube shunt surgery if needed.

If surgeons achieve the success with the iStent combined with phacoemulsification that I expect, then I anticipate the next step will be to determine the ideal type, number, and location of ab interno implants for glaucoma and the indications for their use as a stand-alone procedure to lower IOP. ■

L. Jay Katz, MD, is director of the Glaucoma Service at Wills Eye Institute and professor of ophthalmology at Thomas Jefferson University in Philadelphia. He is a member of the Glaukos Scientific Board and was the medical monitor for the US clinical trials of the iStent. Dr. Katz may be reached at (215) 928-3197; ljaykatz@gmail.com.