PATIENTS’ TREATMENT PREFERENCES

For most patients, starting an eye drop is the simplest first step.

BY ATALIE C. THOMPSON, MD, MPH, AND KELLY W. MUIR, MD, MHS

When patients receive a new diagnosis of glaucoma, they suddenly face the numerous, complex trade-offs in risks and benefits posed by the three main options for therapy—medications, laser surgery, and incisional surgery. For a majority of patients, starting a topical glaucoma medication is the most intuitive first step of treatment. The practice of instilling eye drops may be familiar if they wear contact lenses or have administered topical ophthalmic solutions for dry eye disease or allergic conjunctivitis. Moreover, for many of them, daily medication use is already a part of their routine.

TARGETS AND TOLERABILITY

Ophthalmologists often set an initial goal of at least a 30% reduction in IOP to prevent glaucomatous progression.1 For many patients, this target can be achieved with topical drops.2 A simple, convenient dosing schedule can optimize patients’ adherence to therapy and, thus, treatment’s practical efficacy, especially when these individuals face the challenges of managing polypharmacy.

The ideal approach is to prescribe a product that can sufficiently lower IOP via a well-tolerated single daily dose. For this reason, prostaglandin analogues (PGAs) are the most commonly prescribed therapy for glaucoma in the United States and the United Kingdom. PGAs also have minimal systemic side effects. Instilling the PGA at bedtime can help minimize the impact of associated conjunctival hyperemia on the patient’s quality of life. Timolol is another first-line therapy that is generally well tolerated by individuals without reactive airway disease or hypotension.

If patients develop allergies to benzalkonium chloride, preservative-free alternatives now exist for most

AT A GLANCE

- When patients receive a new diagnosis of glaucoma, they suddenly face the numerous, complex trade-offs in risks and benefits posed by the three main options for therapy—medications, laser surgery, or incisional surgery.
- For a majority of patients, starting a topical glaucoma medication is the most intuitive first step for treatment.
- Laser trabeculoplasty may be offered as an effective alternative or adjuvant therapy for patients with open-angle glaucoma, especially if poor adherence to medical treatment becomes a concern.
APPROACHING GLAUCOMA AS A SURGICAL DISEASE

By Steven D. Vold, MD

For years, glaucoma has been viewed primarily as a disease to be treated medically rather than surgically. Topical prostaglandin analogues, carbonic anhydrase inhibitors, and α-agonists became available in the 1990s and revolutionized the management of glaucoma. At that time, ophthalmologists were starting to use 5-fluorouracil and mitomycin C during glaucoma filtration surgery. Flat chambers, cataracts, poor visual outcomes, bleb dysesthesia, blebitis, and endophthalmitis were frequent postoperative complications, and long recovery periods were the norm. Consequently, glaucoma filtration and tube shunt surgeries were widely reserved for patients who had uncontrolled or advanced glaucoma and for those in whom medical therapy had failed. The status quo is changing.

LASER THERAPY

Although laser trabeculoplasty has been a viable first-line surgical option for years, ophthalmologists have found it inadequate as a single procedure for providing long-term IOP control in many glaucoma patients. Options are expanding. Technologies that may allow patients to avoid medical therapy include micropulse laser trabeculoplasty, argon laser iridoplasty, micropulse transscleral cyclophotocoagulation, and endoscopic cyclophotocoagulation. Moreover, research suggests that selective laser trabeculoplasty is most effective when performed before patients begin medical therapy.¹

MICROINVASIVE GLAUCOMA SURGERY

Publication of the Collaborative Initial Treatment Glaucoma Study (CIGTS) in the late 1990s and early 2000s added credibility to a surgery-first mentality.² In counterbalance, however, trabeculectomy and tube shunt surgery have been associated with a loss of BCVA in approximately 25% of patients. Thankfully, the evolution of microinvasive glaucoma surgery has made early surgical intervention for glaucoma management a more viable alternative to medical therapy. These techniques and technologies offer improved visual outcomes and a much shorter postoperative recovery period.

Ab interno trabeculotomy using the Trabectome (NeoMedix), Kahook Dual Blade (New World Medical), and Trab360 (Sight Sciences) lowers the IOP without the need for sutures. Viscodilation of Schlemm canal (ab interno canaloplasty using the iTrack 250A [Ellex]) can effectively decrease pressure while maintaining an excellent safety profile.

The iStent Trabecular Micro-Bypass Stent (Glaukos) in combination with cataract surgery has been shown to enhance IOP control while improving patients’ visual outcomes. Other promising technologies in development that use the trabecular bypass approach include the Hydrus Microstent (Ivantis) and iStent Inject (Glaukos).

In 2016, the FDA approved the CyPass Micro-Stent (Alcon) for the treatment of patients with mild to moderate open-angle glaucoma undergoing cataract surgery. Other supraciliary devices in development include the iStent Supra (Glaukos) and Miniject (iStar).

Combining incisional and microstent technologies with cataract surgery offers a postoperative recovery that is very similar to after the cataract procedure alone. Not surprisingly, these glaucoma procedures have become popular with both surgeons and patients.

For individuals with more advanced disease, the Xen Glaucoma Treatment System (Allergan) represents an appealing ab interno approach to lowering IOP and decreasing the medication burden. The InnFocus MicroShunt (Santen) is another technology under development for use in the subconjunctival space.

AN EYE TO THE FUTURE

The boom in technology is ushering in an era of surgery first for glaucoma management. The next frontier will likely combine surgical devices with advanced drug delivery systems. Implants, injectable devices, a bimataprost ring, and punctal plug platforms are under evaluation. These technologies have the potential to alleviate patients’ need for topical instilled glaucoma medication, address the issue of poor adherence to prescribed medical therapy, and increase the cost-effectiveness of glaucoma care.


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glaucoma medications. The array of options increases the likelihood that a tolerable medication can be found for most patients.

LASER TRABECULOPLASTY VERSUS DROPS

Well-founded concerns about patients’ adherence to prescribed medical therapy have led some eye care providers to consider laser trabeculoplasty (LTP) to be a preferable first treatment for patients with open-angle glaucoma. A recent survey of ophthalmologists in the United Kingdom, however, found that PGAs were the number-one preferred treatment in patients with primary open-angle glaucoma at any stage, followed by nonselective and selective β-blockers. Although the American Academy of Ophthalmology guidelines support the initial use of LTP, none of the UK respondents selected LTP as a preferred first-line treatment in cases of primary open-angle glaucoma. The reasons are likely multifactorial and related to several perceived advantages of PGAs over LTP on both the physician’s and patient’s part.

First, with the introduction of bioequivalent generic formulations, PGAs have been shown to be at least as cost-effective as LTP for the treatment of newly diagnosed open-angle glaucoma. Moreover, when patients adhere to their daily dosing schedule, PGAs may offer more value than LTP, because the impact of the latter is known to be variable and temporary. Although LTP offers similar reductions in IOP as a PGA, approximately 20% of treated patients may not experience a benefit. Even when LTP works, the effect usually diminishes over a 3- to 5-year period. Thus, patients may require repeat LTP and/or additional medical therapy in the future.

SURGICAL INTERVENTION VERSUS DROPS

Many patients newly diagnosed with glaucoma are wary of pursuing laser surgery, because they perceive laser treatment as more invasive and risky than medical therapy. For the same reason, patients are unlikely to opt for incisional glaucoma surgery when first diagnosed. The risks of traditional incisional glaucoma surgery are substantial, including vision loss, bleeding, infection, hypotony, scarring, and cataract formation. Such risks outweigh the benefits for many patients with mild to moderate glaucoma.

Microinvasive glaucoma surgery options and the promise of sustained-released drug delivery are changing the landscape, but many patients still favor topical medical therapy. A recent survey of 126 patients with glaucoma found that they preferred to continue their daily eye drops rather than pursue theoretical alternatives such as intraocular injections or surgical implants. Those who favored the addition of a punctal implant were more likely to be using multiple eye drops.

CONCLUSION

For most patients, starting an eye drop is the simplest first step in treating glaucoma. This form of therapy gives providers and patients time to establish a relationship over the course of several visits before they consider more invasive laser or surgical treatment. Should patients struggle with adherence to prescribed medical therapy, physicians can offer LTP in the future as a way to minimize patients’ dependence on eye drops and achieve IOP goals in those with open-angle glaucoma. Moreover, because adherence tends to diminish after the prescription of a second eye drop, LTP may be a preferable adjuvant therapy whenever IOP is inadequately controlled by a single or fixed-combination drug product.


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