

Improving IOP Control in a Patient on Maximal Medical Therapy

BY DAVID M. DICKMAN, MD

CASE PRESENTATION

A 78-year-old white woman was referred by a retina colleague for glaucoma management for both of her eyes and a cataract in her right eye. The patient has wet age-related macular degeneration (AMD) in her left eye and dry AMD in her right eye. She previously underwent cataract surgery as well as macular pucker surgery and several intravitreal injections of aflibercept (Eylea; Regeneron Pharmaceuticals) in her left eye.

At the time of my first examination of the patient in February 2012, her medications included dorzolamide (Trusopt; Merck & Co., Inc.) t.i.d. OS, timolol (Istalol; Ista Pharmaceuticals) OU every morning, latanoprost (Xalatan; Pfizer Inc.) OU at bedtime, and ketorolac (Acular; Allergan, Inc.) OU for the macular issues. Her visual acuity was 20/40- OD and 20/400 eccentrically OS due to AMD-related neovascularization. Gonioscopy showed that both angles were open with a moderate amount of pigment. Pachymetry measured 583 μ m OD and 589 μ m OS. I felt that her IOP (22 mm Hg OD and 21 mm Hg OS) was too high for someone on three medications and suspected problems with compliance. I suggested the patient switch to a dorzolamide-timolol fixed-combination eye drop (Cosopt; Merck & Co., Inc.) OU b.i.d. to reduce the number of medications and their dosing frequency. She was scheduled to return in 1 week for additional testing.

At the second visit, visual field testing showed superior nerve fiber bundle-type defects in each eye. Confocal laser tomography (HRT3; Heidelberg Engineering GmbH) was of borderline reliability, showing low rim volume and area and thinning in several areas of the neuroretinal rim in the right eye. Cup shape measure was borderline for the right eye and high for the left eye. The patient's IOP was 12 mm Hg in both eyes. She

had not yet switched to the fixed-combination drug; rather, she had become confused and used all of her medications t.i.d.

HOW WOULD YOU PROCEED?

1. Would you maintain the patient's current IOP-lowering regimen in light of the recent reduction to 12 mm Hg?
2. Would you recommend the patient switch to a fixed-combination drop and continue observation?
3. Would you recommend laser therapy?
4. Would you implant a shunt or consider another surgical intervention?

SURGICAL COURSE

Despite the patient's lower IOPs on the second visit, I was not convinced that the IOP control was steady enough to prevent further visual field damage. I decided to proceed with laser therapy with the goals of stabilizing her pressure (14-16 mm Hg or below) and reducing the number of eye drops she was taking.

I performed micropulse diode laser trabeculoplasty (MLT) with the Iridex IQ 532 laser (Iridex Corporation) on her left eye on March 13, 2012. Prior to laser therapy that day, the patient's IOP was 16 mm Hg OU. She was pretreated with brimonidine (Alphagan P; Allergan, Inc.) to prevent a pressure spike after the laser procedure.

Using the laser's continuous wave setting, I placed four spots as test burns to titrate the laser's power based on the observed tissue response. I used a 50- μ m spot and 100-ms continuous wave exposure, starting at 500 mW and increasing until a slight blanching and bubble were





Figure 1. The aiming beam.



Figure 2. MLT with the Iridex IQ 532 laser.



Figure 3. No laser burns are noted after multiple applications of laser energy.

noted at 700 mW. Next, I applied subthreshold micro-pulse treatment according to the parameters listed in the table. I placed 120 narrowly spaced 300- μ m spots to cover 360° of the trabecular meshwork (Figures 1-3, Table). The patient tolerated the procedure and noted no discomfort. No medications were administered after the laser treatment. The patient was instructed to continue glaucoma medications but to discontinue ketorolac for 4 days. I treated the patient's right eye in the same fashion 1 month later.

OUTCOME

Two weeks after MLT on her left eye, the patient was using eye drops as prescribed, and her IOP was 13 mm Hg OU, although it subsequently rose to 18 mm Hg in her untreated right eye. Her visual acuity was unchanged.

Between March and June, the patient was examined several times and underwent cataract surgery on her

left eye. After the MLT procedures, her IOP dropped to 12 mm Hg in each eye and has remained between 11 and 12 mm Hg OU. I am now considering whether to eliminate one of the topical IOP-lowering medications.

DISCUSSION

I prefer to give patients newly diagnosed with glaucoma a choice between IOP-lowering drops and laser treatment as initial therapy. Studies have shown that medical and laser therapy lower IOP equally well.¹ In my experience, patients vary in their preference for a procedure (perceived risk) or daily medication (hassle and expense). They also differ in terms of insurance coverage and their ability to cover the costs of long-term therapy. Glaucoma patients who are already on more than one medication without reliable IOP control, as in this case, are also good candidates for laser therapy.

Both selective laser trabeculoplasty and MLT appear to offer advantages in terms of complications and repeatability²⁻⁴ and, in my opinion, are far superior to argon laser trabeculoplasty due to the absence of thermal tissue damage. ■

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TABLE. TREATMENT PARAMETERS	
Wavelength	532 nm
Spot size	300 μ m
Trabeculoplasty lens	Three-mirror gonioscopy lens
Power	700 mW
Exposure duration	300 ms
Duty cycle	15%
Treatment technique	120 subthreshold spots narrowly placed over 360° of trabecular meshwork

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