



## The role of SLT in glaucoma therapy: A patient centric viewpoint

Robert Noecker, MD, MBA

Effective treatment of glaucoma requires consistent control of intraocular pressure (IOP) over long periods of time. Currently available therapies have been shown to reduce the rate of glaucoma progression in adequately treated individuals. However, many patients struggle with treatment regimens that at times can be difficult to execute or have detrimental effects on visual acuity.

Medical management of glaucoma continues to be the mainstay of initial therapy for glaucoma in North America. However, the current economic climate, demographic shifts and the introduction of generic medications in to the marketplace have given pause to the idea of continuing the status quo. More clinicians are considering using Selective Laser Trabeculoplasty (SLT) earlier and earlier in the treatment algorithm and in many cases as a first line therapy.

Medical therapy, while safer than most incisional glaucoma surgery, does have safety and tolerability issues for patients. Ocular side effects are the most commonly seen with most glaucoma medications. Allergies, toxic reactions, and ocular surface changes have been well documented with all topical glaucoma therapies. While some of these side effects can be attributed to the preservative systems in the eye drops, others are due to the active ingredients which also lower intraocular pressure (IOP).<sup>1,2,3,4,5,6</sup>

Estimates of adherence to medical regimens have ranged from 50-80%, depending on how this parameter is measured.<sup>7,8,9</sup> Reviews of pharmacy refill data of patients

*“Allergies, toxic reactions, and ocular surface changes have been well documented with all topical glaucoma therapies”*

using prostaglandin analogues show that a majority of patients using these drugs refill them at prescribed intervals. However, there is a significant minority of patients who fail to refill these once daily drugs in a timely fashion. Managed care formulary data suggests that the adherence rates may be even lower with only half of patients acquiring the medications regularly.

Even once patients obtain their medications, they certainly can have difficulty administering the eye drops. Recent studies have been presented at national meetings that demonstrate the difficulty that patients may experience with proper placement of medications into their eyes. These issues can lead to improper dosing with accentuated side effects with over dosing and decreased efficacy with underdosing. Variability in bottle characteristics can lead to wastage that in a managed formulary environment can lead to patients having periods of time in which they cannot acquire their current medications at an affordable rate.

The introduction of generic preparations in the past several years has led to an additional degree of variability in the equation for consistent IOP control.<sup>10</sup> Most importantly, the introduction of generic latanoprost, the most widely prescribed glaucoma medication, has led to variability in

both efficacy and tolerability in some patients who were previously controlled on the Xalatan branded preparation. Some patients have experienced an increase in hyperemia and ocular side effects after a switch to the generic was made. Others have had problems with the different bottle materials, sizes and shapes that the generic preparations are packaged in from each manufacturer. As a result, we have had patients running out of their latanoprost sooner than the allotted month allowed for each bottle and have had to acquire a new bottle at the non-covered retail price, resulting in higher costs than they experienced before. In our clinical experience, insurance companies have not been willing to pay for the brand preparation any longer, and patients with issues have increasingly become frustrated with medical therapy.

Incisional surgeries offer the possibility of lowering IOP significantly and helping reduce the need for medical therapy, but the risk profile and the burden of post-operative regimens can be quite large for patients. Even with newer, less invasive procedures, there is risk of infection, bleeding, and significant inflammation, all of which can be vision threatening. The gold standard incisional surgery, trabeculectomy, can lower IOP the most, but carries with it lifelong chance of endophthalmitis and hypotony which can appear even years after the initial surgery. As a result, the hurdle of going to surgery is still significant and these procedures are still reserved for patients who are medication or laser treatment failures.

*“SLT is being requested by patients and recommended by eye care professionals at an increasing rate”*

SLT is an alternative to other treatment modalities and is arguably the safest glaucoma treatment currently available. As a result, SLT is being requested by patients and recommended by eye care professionals at an increasing rate. The advantages are obvious in terms of relative efficacy, low side effect profile and no reliance on patients in acquiring and administering medication over long periods of time.

*“The decreased need for frequent or unplanned visits is something that patients appreciate”*

Available in the United States since 2001, SLT has been performed on many patients with excellent results. It has been used in glaucoma patients as primary therapy, adjunctive therapy, and as a means to reduce medication use. Hundreds of publications have demonstrated its use in patient populations across the world with many subtypes of glaucoma.

The original approval trial performed in the United States confirmed the utility of SLT for use in patients on maximally tolerated medical therapy or prior failed argon laser trabeculoplasty. (Latina et al.) Patients in that study tended to have relatively advanced disease and by definition had failed other treatments. About 75% of these difficult patients experiencing a significant response to SLT with mean reductions in IOP on the order of 20-25% from baseline IOP. This study also showed that SLT was much safer than other laser trabeculoplasty as the rate of IOP spikes was quite low even though patients did not receive any prophylaxis prior to the SLT treatment.

In the real world, we do routinely prophylax against IOP spikes, and as a result, the occurrence is exceedingly low. This translates into less time in the office for patients following treatment and few post-op visits for safety evaluations only. We routinely check the IOP 30 minutes after SLT and then see the patient again 10-14 days post - procedure for a preliminary IOP check but in stable patients we may wait for 6-8 weeks to determine the full efficacy of the laser treatment. The decreased need for frequent or unplanned visits is something that patients appreciate.

A study by Melamed was the first to demonstrate the safety and efficacy of SLT as a first line therapy in patients who had not been previously treated with IOP lowering modalities.<sup>11</sup> This study and several others that followed, showed IOP lowering of about 30% from baseline in this population. This degree of IOP lowering is on a par with that seen with

prostaglandin analogue therapy, the current most commonly used primary therapies for glaucoma. Other studies showed that this population tends to have higher initial IOPs and correspondingly better response rates than those patients who have undergone prior treatment. In our daily clinical practice, these patients are frequently some of the easiest to treat and evaluate, as there are not as many variables to assess in regards to their therapies. Furthermore, many of these patients are not experienced with using medications in general, and tend to not tolerate even mild side effects well.

A study by Francis evaluated the role of SLT as a medication substitute therapy in a group of patients who were well controlled on medical therapy. The goal of the study was to see if the number of medications that these patients were using could be reduced while maintaining good IOP control for their glaucoma. The study demonstrated that patients even with well-controlled glaucoma on medical therapy had reductions in IOP and number of drops following SLT treatment. In clinical practice, we find that many of our patients appreciate the opportunity to reduce the number of drops they are using without sacrificing good IOP control. These are some of the most appreciative patients in our practice as they are well aware of the side effects and cost of glaucoma medications. They recognize the simplification of the treatment regimen and the potential improved quality of life it presents.

The recently published SLT/Med study evaluated the relative efficacy, safety and quality of life impact of treating newly diagnosed glaucoma patients with medications versus SLT.<sup>12</sup> In this large, multicenter trial, patients were prospectively randomized to treatment with a preset medication algorithm versus a preset SLT algorithm. The medication arm patients began treatment with

*“SLT is a proven tool that has become a significant part of the armamentarium in the treatment of glaucoma”*

prostaglandin analogues, then had beta blockers, alpha2 agonists and topical carbonic anhydrase inhibitors added as necessary to reduce the IOPs to targets based on a formula used in the CIGTS study. The SLT patients underwent initial treatment of 360 degrees with retreatment of an additional 180 degrees if more IOP lowering was necessary.

While the degree and rate of successful IOP lowering was similar using medications or SLT, the number of steps through the treatment algorithm was less in the SLT arm. The implication in clinical practice is fewer visits for patients to become controlled. Patients newly diagnosed with glaucoma often have a considerable amount of anxiety regarding their disease status and this study suggests that SLT is a reasonable way to achieve good IOP control in the fewest number of visits.

For patients with glaucoma, there are more treatment options available currently than ever before. SLT helps clinicians to use the least amount of therapy to achieve the desired result of lowering IOP to levels that prevent progression. Patients appreciate the option to undergo SLT in an effort to control their glaucoma and reduce issues of cost, compliance and side effects in their treatment. Many patients are already educated about SLT and clinicians should be prepared to discuss this treatment as an option to medical or surgical therapy. While it is recognized that there is no one management that works for all individuals, SLT is a proven tool that has become a significant part of the armamentarium in the treatment of glaucoma.

REFERENCES:

1. Henry JC, et al. Clinical Ophthalmology 2008.
2. Fechtner RD, et al. Cornea in press.
3. Katz LJ. J Glaucoma 2002.
4. Baudouin C, de Lunardo C. J Ophthalmol 1998.
5. Baudouin C, et al. Invest Ophthalmol Vis Sci 2007.
6. Noecker RJ, et al. Cornea 2004.)
7. Kosoko et al. Ophthalmology. 1998
8. Olthoff et al. Ophthalmology. 2005
9. Reardon et al. Am J Ophthalmol. 2004
10. Narayanaswamy et al. Indian J Ophthalmol. 2007
11. Melamed, Arch Ophthal, 2001
12. Katz, J Glaucoma, 2011

PB-1106580\_A

