

Selective Laser Trabeculoplasty as Primary Treatment for Primary Open-Angle Glaucoma

In most primary open angle glaucoma (POAG) patients, selective laser trabeculoplasty (SLT) reduces intraocular pressure (IOP) significantly for a few years without any major or permanent side effects or complications. Consequently, the idea of potentially gaining some drug-free years for a newly diagnosed POAG patient by using SLT as the initial therapy is appealing. Ophthalmologists, however, were reluctant to use SLT in this situation due to the reputation of argon laser trabeculoplasty (ALT) as damaging to the anterior chamber angle structures, as well as for its unrepeatability.

Clinical Evidence

Some supportive data attesting to the validity of SLT as initial POAG therapy began to appear in ophthalmic literature. For example, in the original Melamed article¹, SLT was the initial therapy for 37 of the 45 eyes reported. Although only 180 degrees of the angle were treated, IOP was reduced by a mean of 30 percent for the duration of the follow up.

This data was corroborated by Lai et al.², who prospectively enrolled 29 Chinese patients newly diagnosed with POAG or ocular hypertension (OHT) and with no previous history of anti-glaucoma medication use, ALT or glaucoma surgery. One eye of each patient received 360 degrees SLT and the other eye topical medication. There was no significant difference between the two eyes during the five-year follow up, either with pressure reduction (over 30 percent IOP reduction) or in the failure rate. This study was criticized for possibly overestimating the reduction in the SLT-treated eye by the crossover effect of the medication from the other eye.

McIlraith et al.³ reported the results of a prospective multi-center non-randomized clinical trial on a hundred eyes. In this trial, SLT was as effective as latanoprost when used as an initial therapy in patients with newly diagnosed primary OAG or OHT during 12-months follow up.

A presentation confirming the use of SLT as initial treatment was presented in the 2006 AAO meeting by Katz et al.⁴ He reported the interim results of the multi-center (17 site), prospective, randomised and controlled SLT/Med study, a trial that was specifically designed to provide the best evidence-based medicine data to assess the merits of SLT as the initial glaucoma therapy.

This study, in which many of the best glaucoma practitioners in North America participated, tested 94 eyes of 47 patients. Patients were picked at random to receive either SLT in both eyes or medical therapy. After eight months' follow up, the mean IOP in the medical treatment group was reduced by 7.6 mmHg. The corresponding figure in the post-SLT group was 6.7 mmHg. In both groups, the target IOP range was achieved in the majority of eyes. In the end, the study's authors concluded that SLT "is an effective first line option in the treatment of open angle glaucoma."

Advantages of SLT

With these two therapeutic modalities equally efficacious, one is inevitably led to prefer SLT due to its inherently overwhelming advantages compared with drug therapy.

Advantages of SLT continued:

Compliance: Since glaucoma is treated in order to prevent glaucomatous neuropathy, the figures reported on topical drug compliance (as low as 37 percent after three years⁵) may explain some glaucoma blindness.

Side effects: There are numerous local and systemic side effects and complications due to chronic use of topical antihypotensive medications and their preservatives.

Quality of life: The need for the patient to have daily access to medication is obviated by SLT. This is particularly true in less-served communities, where drugs are unavailable or cannot be refrigerated.

Costs to community and patient: In spite of the initial high cost of the SLT laser, it is rapidly offset by the savings in drug costs.

References

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- 2 Lai JS, Chua JK, Tham CC, Lam DS. Five-year Follow up of Selective Laser Trabeculoplasty in Chinese eyes. *Clin. Experiment Ophthalmol.* 2004 ;32:368-72.
- 3 McIlraith I, Strasfeld M, Colev G, Hutnik CM. Selective Laser Trabeculoplasty as Initial and Adjunctive Treatment for Open-Angle Glaucoma. *J Glaucoma.* 2006; 15:124-130.
- 4 Katz LJ, Steinmann WC Marcellino GR and the SLT MED Study Group. Comparison of Selective Laser Trabeculoplasty vs. Medical Therapy for Initial Therapy for Glaucoma or Ocular Hypertension. American Academy of Ophthalmology Meeting, Las Vegas November 2006. Presentation# PO108.
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