



Effect of Previous Argon Laser Trabeculoplasty on Selective Laser Trabeculoplasty

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Introduction

- **Selective Laser Trabeculoplasty (SLT) uses a Q-Switched frequency-doubled (532 nm), low energy Nd:YAG laser, which targets melanocytes in the trabecular meshwork^{1,2}.**
- **SLT treatment induces a biologic response in the trabecular meshwork, which involves the release of cytokines that trigger macrophage recruitment and other changes, leading to reduction in intraocular pressure (IOP).**
- **SLT treats the trabecular meshwork without causing thermal nor coagulative damage to surrounding structures.**

1. Latina MA, et al. Selective targeting of trabecular meshwork cells: in vitro studies of pulsed and CW laser interactions. *Exp Eye Res.* 1995;60:359-372.

2. Latina MA, et al. Q-switched 532-nm Nd:YAG laser trabeculoplasty (selective laser trabeculoplasty): a multicenter, pilot, clinical study. *Ophthalmology.* 1998;105:2082-2090.



Purpose and Methods

➤ Purpose

- To evaluate the effect of previous Argon Laser Trabeculoplasty (ALT) on Selective Laser Trabeculoplasty (SLT), as initial or adjunctive therapy, to decrease intraocular pressure (IOP) and number of medications used (meds) in patients with glaucoma.

➤ Methods

- Retrospective chart review was performed on 33 and 62 eyes, respectively, from a consecutive case series of 3,034 eyes treated with SLT over 8 years. Eyes were grouped according to therapy method (initial or adjunctive – after treatment with ALT).
- Two-sample and one-sample t-tests (at 95% confidence interval, respectively) were used to compare maximum pre- and average post-procedure IOP and meds.



Results: Primary

- There were 33 initial eyes
- Mean follow-up was 1,135 days
- Mean decrease in IOP was 28%, from 18.1 mmHg to 13.1 mmHg ($p < 0.04$)

Pre-SLT Mean IOP	18.1 mmHg
Post-SLT Mean IOP	13.1 mmHg
% Drop	28%

- Results were significant with $p < 0.05$.



Results: Secondary

- There were 62 adjunctive eyes
- Mean follow up was 821 days
- Mean decrease in IOP was 22%, from 19.1 mmHg to 14.9 mmHg ($p < 0.05$)

Pre-SLT Mean IOP	19.1 mmHg
Post-SLT Mean IOP	14.9 mmHg
% Drop	22%

- t-value of 1.49 was not significant with $p > 0.05$ comparing effectiveness of primary and secondary SLT therapy.



Results: Glaucoma Meds

- Mean decrease in meds for adjunctive eyes was 49% or 1.3 meds ($p < 0.05$)
- t-value of 7.06 was found significant with $p < 0.05$ in decreasing patients' med usage after SLT therapy

Pre-SLT Meds	2.7 meds
Post-SLT Meds	1.4 meds
% Drop	49%

- Results were significant with $p < 0.05$



Discussion

- **The Glaucoma Laser Trial**
 - Established efficacy of laser trabeculoplasty in lowering IOP in previously untreated glaucoma patients¹.

- **The Ocular Hypertensive Treatment Study and**
- **Early Manifest Glaucoma Trial**
 - Established efficacy of early and effective treatment to preserve long-term visual function in glaucoma patients^{2,3}.

- **Our findings build on these studies and suggest SLT significantly lowered mean IOP and mean meds used in patients with glaucoma (p<0.01).**

- **Further study with controlled clinical trials is indicated.**

1. The GLT Research Group. GLT. *Ophthalmology*. 1990;97:1403-1413.

2. Kass MA, et al. OHTS. *Arch Ophthalmol*. 2002;120:701-713.

3. Heijl A, et al. EMGT. *Arch Ophthalmol*. 2002;120:1268-1279.



Conclusion

- **Selective Laser Trabeculoplasty initial therapy significantly lowered intraocular pressure in patients with glaucoma.**
- **Selective Laser Trabeculoplasty as adjunctive therapy significantly lowered intraocular pressure and medications used in patients with glaucoma.**
- **In this large, long-term clinical study, treatment with Selective Laser Trabeculoplasty after Argon Laser Trabeculoplasty significantly lowered mean intraocular pressure and number of glaucoma medications used as both initial and adjunctive therapy**
- **There was no significant difference in mean IOP decrease between such initial and adjunctive Selective Laser Trabeculoplasty therapy .**