



Effect of Prostaglandin Medication 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

- To examine the effect of previous treatment with prostaglandin medications (PG) on Selective Laser Trabeculoplasty (SLT) to decrease intraocular pressure (IOP) in patients with glaucoma.



Methods

- Retrospective chart review was performed on 1,614 of 3,034 eyes from a continuous case series of eyes treated with SLT over 8 years.
- Eyes were grouped according to glaucoma therapy method:
 - Treated initially with PG then with SLT (PG-SLT): 236 eyes.
 - Treated only with SLT (SLT): 1378 eyes.
- Post-SLT IOP drop was recorded and analyzed.
- Two-tailed paired t-test was used to compare maximum pre- and average post- procedure IOP.



Results

	N-value (eyes)	Mean Follow-Up (days)	Mean Pre-Op IOP (mmHg)	Mean Post-Op IOP (mmHg)	Mean IOP Decrease
PG-SLT	236	590	19.1	14.8	23%
SLT-only	1378	758	18.8	13.0	31%

- Mean follow-up was 590 days for PG-SLT eyes and 758 days for SLT-only eyes.
- Mean IOP decrease was 23% for PG-SLT eyes and 31% for SLT-only eyes.
- SLT-only eyes showed 35% greater mean IOP reduction than PG-SLT eyes.
- Results were significant with $p < 0.01$.



Discussion

➤ The Glaucoma Laser Trial

- Established efficacy of laser trabeculoplasty in lowering IOP in previously untreated glaucoma patients¹.

➤ The Ocular Hypertensive Treatment Study and

➤ The 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 and suggest that the IOP lowering effects of SLT treatment are more effective when used as initial therapy than when used as adjunctive therapy following treatment with prostaglandin meds.

➤ 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

- In this large, long-term clinical series, Selective Laser Trabeculoplasty is a more effective treatment to lower intraocular pressure when used as Primary treatment, than when used as Secondary treatment following therapy with prostaglandin medications, in patients with glaucoma.