



Effect of Type of Glaucoma 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 type of glaucoma on Selective Laser Trabeculoplasty (SLT), as primary or secondary therapy, to decrease intraocular pressure (IOP) and reduce the number of medications (meds) used in patients with glaucoma.



Methods

- Retrospective chart review was performed on 1,853 of 3,034 eyes from a continuous case series of eyes treated with SLT over 8 years.
- Eyes were grouped according to therapy method (primary or secondary) and type of glaucoma:
 - POAG: Primary Open Angle Glaucoma.
 - XFG: Exfoliative Glaucoma.
 - PIG: Pigmentary Glaucoma.
- Post-SLT IOP decrease and reduction in meds were analyzed.
- Analysis of variance (ANOVA) was used to compare maximum pre- and average post- procedure IOP and meds.



Results: Primary

Type of Glaucoma	N-value (eyes)	Mean Follow-Up (days)	Mean IOP Decrease (mmHg)	Mean IOP Decrease (%)
POAG	859	913	6.8	29%
XFG	27	1,116	5.7	32%
PIG	10	919	4.6	24%

➤ There was significant decrease in IOP ($p < 0.05$) for each type.



Results: Secondary

Type of Glaucoma	N-value (eyes)	Mean Follow-Up (days)	Mean IOP Decrease (mmHg)	Mean IOP Decrease (%)	Mean Reduction in Meds (meds)	Mean Reduction in Meds (%)
POAG	911 eyes	529	4.2	18%	1.3	63%
XFG	39 eyes	419	4.5	20%	1.3	52%
PIG	7 eyes	516	4.0	16%	0.7	50%

- There was significant decrease in IOP ($p < 0.05$) for each type.
- There was significant reduction in meds ($p < 0.05$) for each type.



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 and suggest that for three types of glaucoma, after treatment with SLT, there was significant decrease in IOP and in reduction of the number of meds used.

➤ 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, as primary or secondary therapy, decreased intraocular pressure and reduced the number of medications used in patients with three types of glaucoma.