



Effect of Eye Color on Selective Laser Trabeculoplasty

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Marie Natale

Floral Park Ophthalmology

Michael Mishali

Adelphi University

Elaine M. Miglino

Floral Park Ophthalmology

Lawrence F. Jindra, MD

Columbia University
Winthrop University Hospital

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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 eye color 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 436 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 eye color (blue or brown).
- Post-SLT IOP decrease and reduction in meds were analyzed.
- Two-tailed paired t-test was used to compare maximum pre- and average post- procedure IOP and meds.



Results: Primary

Eye Color	N-value (eyes)	Mean Follow-Up (days)	Mean IOP Decrease (mmHg)	Mean IOP Decrease (%)
Blue	102	712	5.6	30%
Brown	127	585	6.1	30%

➤ No significant difference in results ($p > 0.05$) for mean decrease in IOP.



Results: Secondary

Eye Color	N-value (eyes)	Mean Follow-Up (days)	Mean IOP Decrease (mmHg)	Mean IOP Decrease (%)	Mean Reduction in Meds (meds)	Mean Reduction in Meds (%)
Blue	67 eyes	555	3.8	16%	1.6	70%
Brown	140 eyes	497	3.4	14%	1.4	62%

- No significant difference in results ($p>0.05$) for mean decrease in IOP.
- No significant difference in results ($p>0.05$) for mean reduction in meds.



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 as a result of eye color, after treatment with SLT there was no significant difference in IOP decrease nor 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, there seems to be no effect of eye color on Selective Laser Trabeculoplasty, as primary or secondary therapy, to decrease intraocular pressure or reduce the number of medications used in patients with glaucoma.