



Nine-Years Experience with Selective Laser Trabeculoplasty as Repeat Therapy after Primary and Secondary Treatment

Ellex ESCRS SLT Symposium 2010

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- 1st author has **independently conducted and financed clinical research study** presented and has spoken for Ellex Corp. in the past year.
- 2nd and 3rd authors have no financial disclosure.



Introduction



- Selective Laser Trabeculoplasty (SLT) uses a Q-switched frequency-doubled (532 nm) 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 intraocular pressure (IOP) reduction²
- SLT treats the meshwork without causing any thermal or coagulative damage to surrounding structures^{1,2}

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 examine the incidence and cumulative probability of success of Selective Laser Trabeculoplasty (SLT) as repeat therapy, after primary and secondary SLT therapy in patients with glaucoma.

➤ Methods

- Retrospective chart review was performed on 2417 uniquely treated eyes, from a consecutive case series of 3034 eyes treated with SLT over 8.5 years. Kaplan-Meier survival analysis was used to find the cumulative probability of success of SLT as repeat therapy, after primary and secondary SLT therapy in patients with glaucoma.



Purpose and Methods



➤ Initial Treatment

- Energy 0.4 to 1.8 mJ
- Angle 240 degrees from 2 to 10 o'clock
- Spots 110 – 130 spots
- Endpoint *Champagne* bubbles

➤ Repeat Treatment

- Energy 0.6 to 2.0 mJ
- Angle 240 degrees from 2 to 10 o'clock (SAME)
- Spots 110 – 130 spots
- Endpoint *Champagne* bubbles



Results



Primary SLT

Interval	Cumulative Probability of Success	Incidence of 1 st Repeat SLT
1 year	97%	3%
2 years	95%	3%
3 years	93%	2%
4 years	85%	8%
5 years	82%	4%
6 years	72%	1%
7 years	52%	3%
8 years	NA	NA

Secondary SLT

Interval	Cumulative Probability of Success	Incidence of 1 st Repeat SLT
1 year	73%	27%
2 years	54%	25%
3 years	41%	25%
4 years	34%	17%
5 years	30%	12%
6 years	24%	19%
7 years	24%	0%
8 years	NA	NA



Results



Primary SLT 1st Repeat

Interval	Cumulative Probability of Success	Incidence of 2 nd Repeat SLT
1 year	98%	2%
2 years	96%	3%
3 years	70%	27%
4 years	47%	33%
5 years	0%	100%
6 years	NA	NA

Secondary SLT 1st Repeat

Interval	Cumulative Probability of Success	Incidence of 2 nd Repeat SLT
1 year	94%	6%
2 years	85%	9%
3 years	70%	18%
4 years	50%	28%
5 years	27%	46%
6 years	NA	NA



Results



Primary SLT 2nd Repeat

Interval	Cumulative Probability of Success	Incidence of 3 rd Repeat SLT
1 year	100%	0%
2 years	100%	0%
3 years	50%	50%
4 years	NA%	NA

Secondary SLT 2nd Repeat

Interval	Cumulative Probability of Success	Incidence of 3 rd Repeat SLT
1 year	95%	5%
2 years	92%	4%
3 years	92%	0%
4 years	92%	0%
5 years	92%	0%
6 years	NA	NA



Discussion



- **The Glaucoma Laser Trial**
 - **Established the efficacy of laser trabeculoplasty to lower IOP in previously untreated glaucoma patients¹**
- **The Ocular Hypertensive Treatment Study &**
- **The Early Manifest Glaucoma Trial**
 - **Established the efficacy of early and effective treatment to preserve long-term visual function in glaucoma patients^{2,3}**
- **Our data build on these findings and demonstrate that SLT significantly lowers and maintains a decreased IOP in eyes treated with SLT as repeat therapy.**

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 series, Selective Laser Trabeculoplasty was clinically effective, as primary and secondary treatment over almost nine years, with a high cumulative probability of success and low incidence of repeat therapy.
- Initial repeat Selective Laser Trabeculoplasty after primary and secondary treatment had a relatively high cumulative probability of success with a relatively low incidence of repeat therapy over four years.
- This series demonstrates the long-term efficacy for glaucoma therapy of repeat Selective Laser Trabeculoplasty after primary and secondary treatment.



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