

An Asian Perspective and Long-Term Efficacy of SLT

Five-year follow-up of Selective Laser Trabeculoplasty (SLT) in Chinese eyes

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No financial or proprietary interest

Objective

To study the effectiveness and safety of SLT on:

- **Primary Open-Angle Glaucoma (POAG)**
- **Ocular Hypertension (OHT) in Chinese eyes**

Methods

- **POAG /OHT**
- **IOP \geq 21mmHg (Goldmann applanation tonometry) without medication**
- **Snellen VA, slit-lamp, gonioscopic, fundal examination, automated perimetry (Humphrey full-threshold central 30-2)**

Methods

- One eye of each patient randomized to receive **SLT**, fellow eye received **medical treatment**

Methods

Exclusion criteria :

- Previous laser trabeculoplasty
- Previous intraocular surgery
- Active ocular inflammation
- Poor visualization of trabecular meshwork
- Single eye

Methods

- **Selecta 7000 frequency-doubled Q-switched Nd:YAG laser (Coherent, Palo Alto, CA, USA)**
- **Coherent LDS-10 slit lamp**
- **3-mirror Goldman gonioscope**

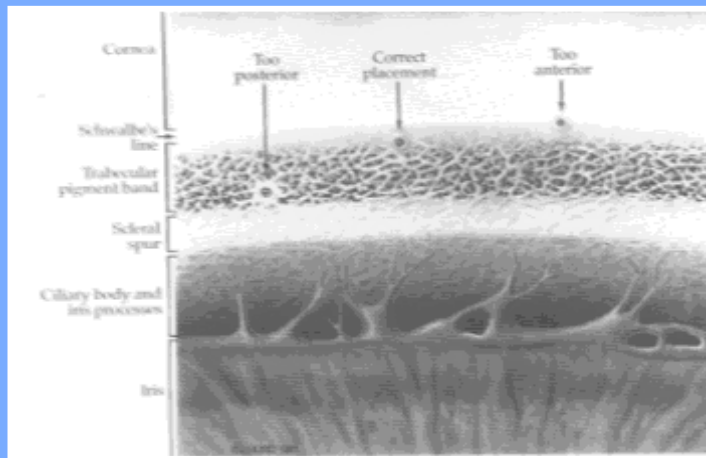
Methods

SLT Group:

Pre-laser - 1% apraclonidine 1 hour prior to treatment

Methods

- All laser treatment performed by JSML
- Initial energy 0.8mJ (↑/↓ by 0.1mJ till end point)
- Started from 12 o'clock
- End point - bubble formation
- 360° quadrant treated (approx. 100 non-overlapping spots)



Methods

- **Post-laser - 1% apraclonidine**
- **Topical steroid (1% prednisolone acetate) 4X/day for 1 week**
- **IOP measurement (Goldmann applanation tonometry) hourly for 2 hours (continued if rise > 5 mmHg)**
- **Slit-lamp examination**

Methods

Medical Treatment Group (fellow eye):

- Topical anti-glaucoma medications commenced 2 hours after SLT
 - β -blocker, pilocarpine, CAI, prostaglandin analogue (monotherapy/combined therapy)

Methods

Follow-up:

- 1 day, 1 week, 2 weeks, 1 month, 3 months, 6 months and then yearly
- Goldmann appplanation tonometry, Snellen VA, slit-lamp, gonioscopic, fundal examination

Results

Prince of Wales Hospital (March to June 1998)

58 eyes of 29 patients (13 male, 16 female)

All studied subjects were Chinese with dark brown iris and pigmented trabecular meshwork

Results

Mean age 51.9 +/- 14.7 years

17 POAG, 12 OHT

Results

	<u>SLT</u>	<u>Medical</u>	<u>P</u> (Student's t-test)
Mean baseline IOP (mmHg)	26.8 +/- 5.6	26.2 +/- 4.2	0.62
Snellen VA	0.1-1.0	0.2-1.0	
Mean cup-disc ratio	0.4 +/- 0.2	0.5 +/- 0.2	0.95

Results

- Outcome measure:
- Magnitude of IOP reduction and mean number of medications
- Failure = IOP > 21mmHg with medication

Results

SLT Group

- 13 eyes (27.6%) in required additional medical therapy to control IOP
- IOP lowered < 21mmHg in 8 of these eyes
- (*1 commenced at 4 weeks and 7 commenced at 1 year after SLT*)
- IOP remained > 21mmHg in 5 of these eyes despite maximal medications

(Failure rate = 17.2%)

Results

Medical Treatment Group

IOP remained > 21 mmHg in 8 eyes despite maximal medications

(Failure rate = 27.6%)

Results

	<u>SLT</u>	<u>Medical</u>	<u>P</u> (χ^2 test)
Failure rate	17.2%	27.6%	0.53

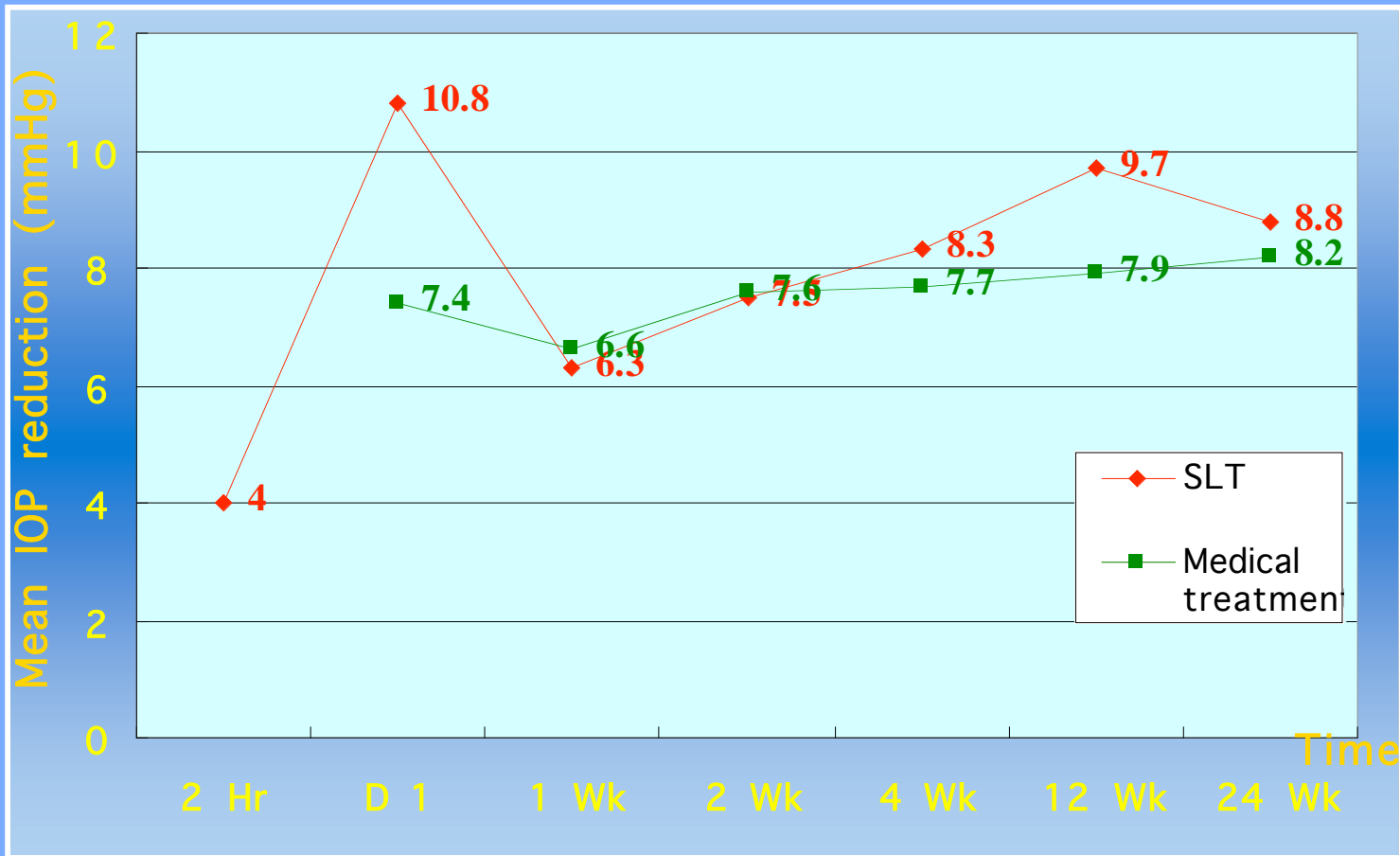
Results

- Mean total laser energy : 73.6 +/- 16.4mJ
- Mean laser energy per spot : 1.0 +/- 0.1mJ

Results

- 3 eyes (10.3%) had transient \uparrow IOP 5mmHg > baseline 2 hrs post-SLT
- Resolved in 4 hours

Mean IOP reduction (short-term)



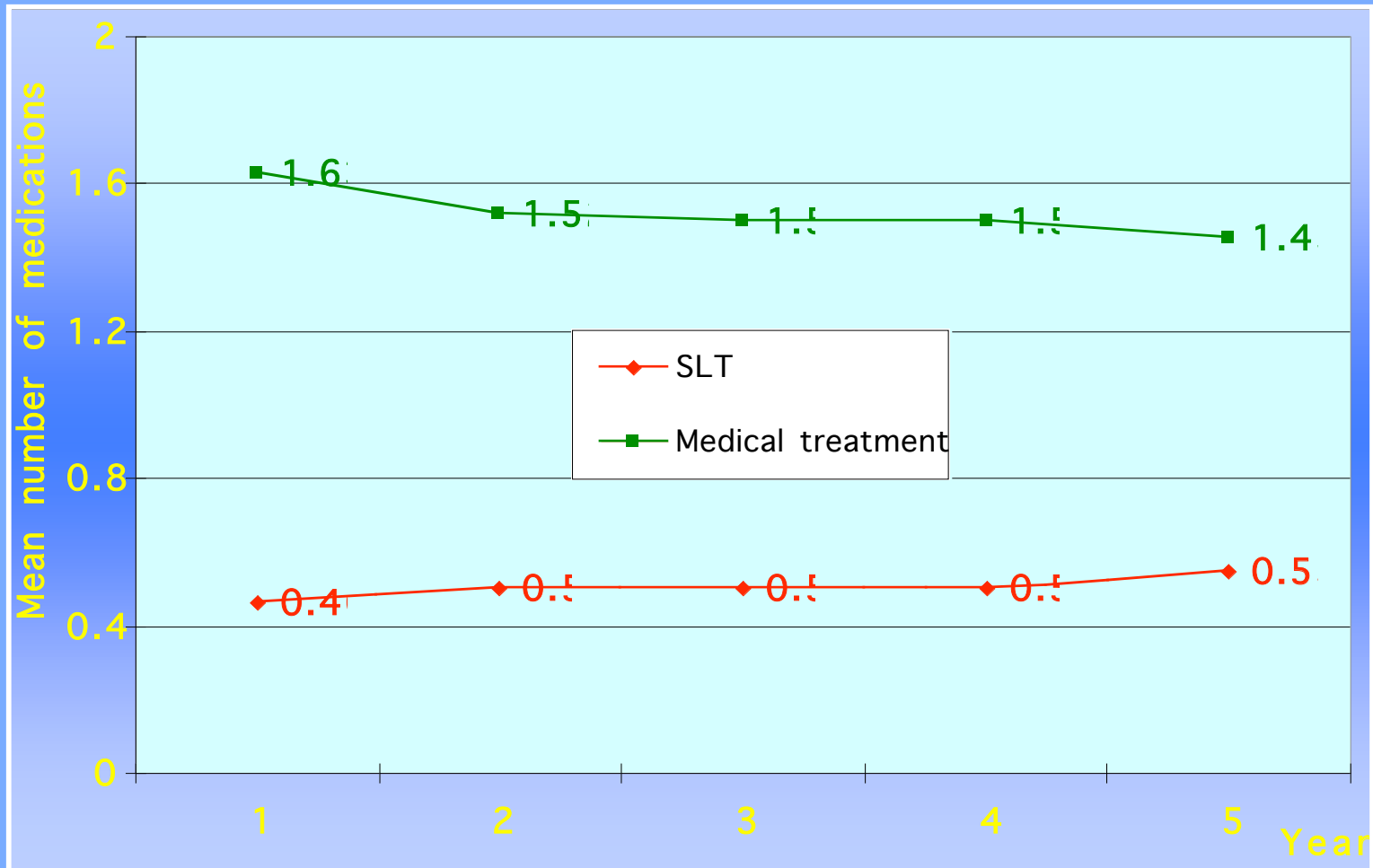
Mean IOP reduction (long-term)

(P=0.95 at 5-year)

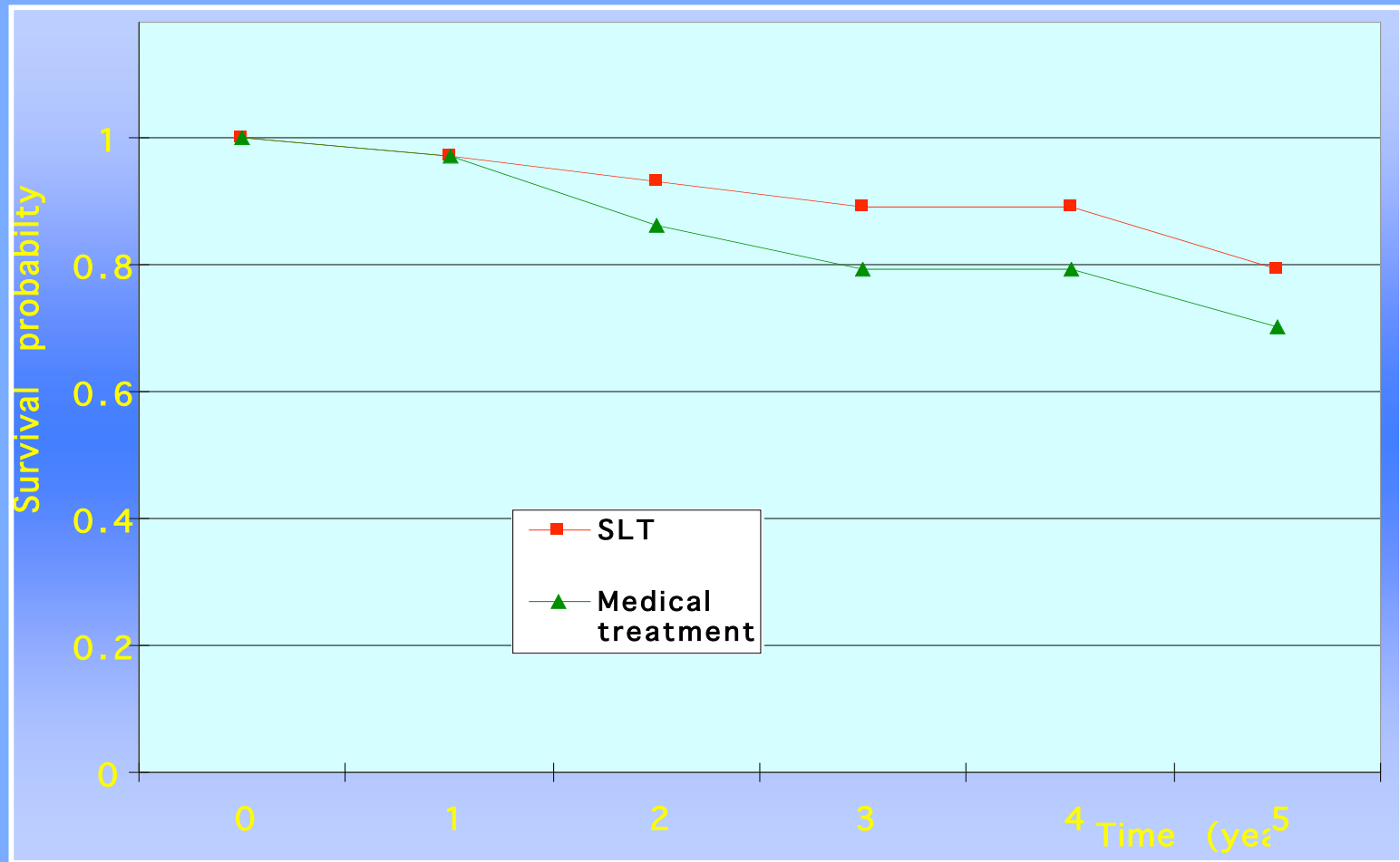


Mean number of medications

($P < 0.001$)



Survival curves



Results

Post SLT complications:

- Persistent AC reaction – none
- Peripheral anterior synechiae - none

Conclusion

With fewer medications, SLT gives similar IOP reduction to medical therapy alone in Chinese patients with POAG or OHT