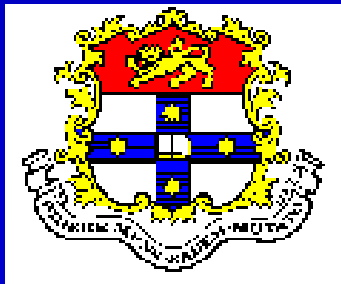


welcome introduction to SLT

ivan goldberg
eye associates
sydney eye hospital
university of sydney



Ellex SLT Symposium

World Ophthalmology Congress, Hong Kong, 2008



Agenda

SLT in Angle Closure and Angle Closure Glaucoma

*Prin Rojanapongpun, M.D., Chief Glaucoma Services & International Affairs,
Department of Ophthalmology, Chulaongkorn University*

SLT in Pseudoexfoliative Glaucoma

*Shlomo Melamed, MD, Tel Aviv University Medical School,
Tel Aviv, Israel*

SLT in Normal Pressure Glaucoma

*Yasuaki Kuwayama, MD, PhD, Osaka Koseinenkin Hospital,
Osaka, Japan*

conventional glaucoma Rx paradigm

1. Medical therapy

- monotherapy
- fixed

“primum non nocere”
= *“first do no harm”*

2. Laser therapy

- argon laser trabeculoplasty; Selective laser trabeculoplasty

3. Incisional surgery

- penetrating; non-penetrating; “canaloplasties”

therapeutic index



benefit

harm

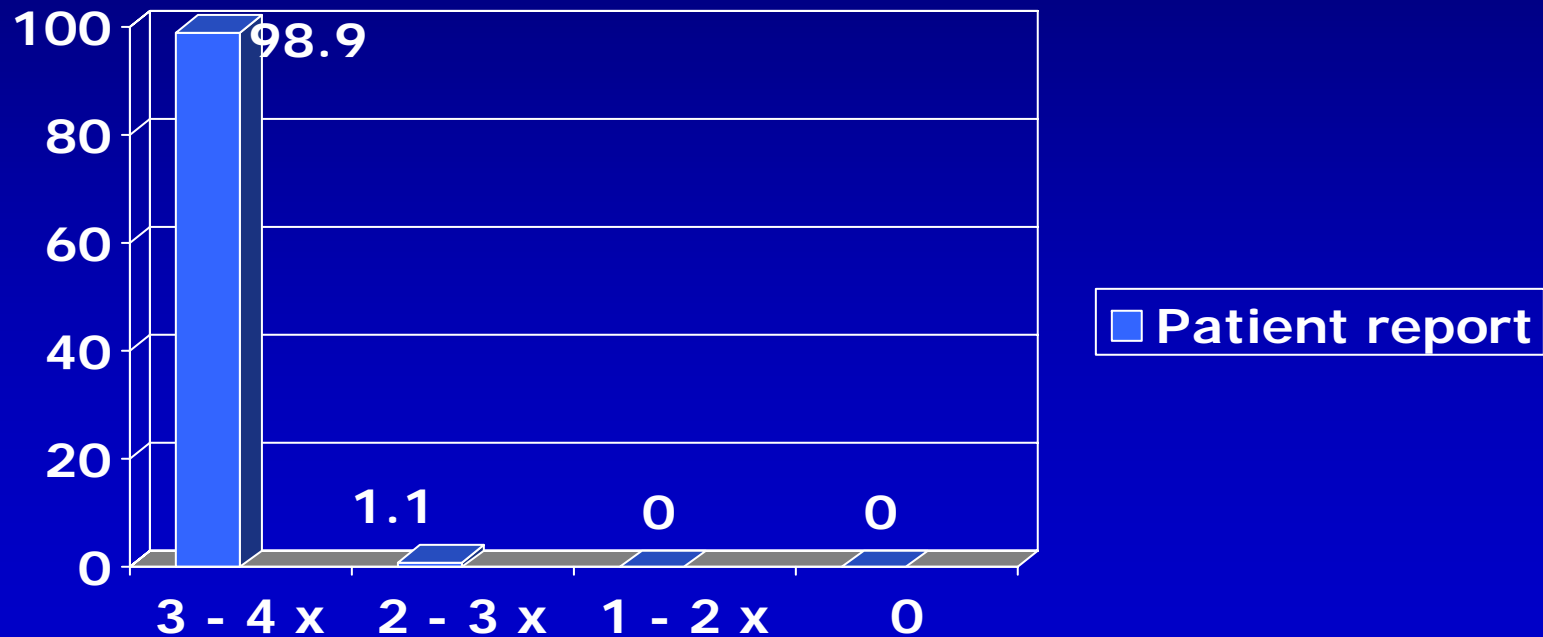


medical Rx – the problems

- quality of life – intrusion
- compliance / adherence
- persistence
- dyscompliance
- costs ongoing
- effectiveness
- side effects

compliance rates - measurements

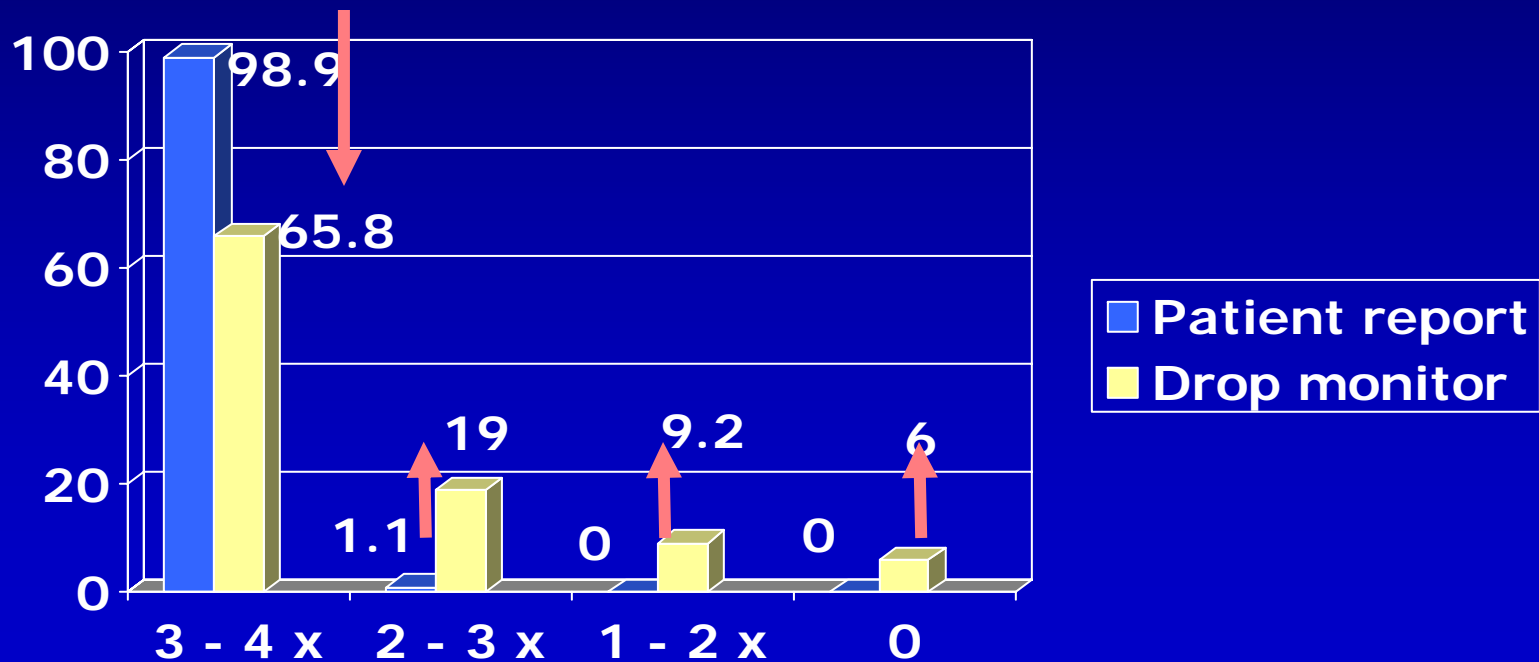
frequency of pilocarpine drop instillation (%)



Kass, Gordon, Morley, Meltzer, Goldberg. [Am J Ophthalmol](#) 1987;103:188-93.

compliance rates - measurements

frequency of pilocarpine drop instillation (%)



Kass, Gordon, Morley, Meltzer, Goldberg. [Am J Ophthalmol](#) 1987;103:188-93.

compliance - conclusions

- patients generally do *NOT* do what they are supposed to do
- patients will *NOT* tell you reliably that they are not doing what they are supposed to be doing (partly because they don't want to disappoint you, partly because "how can you expect me to remember what I have forgotten to do?")

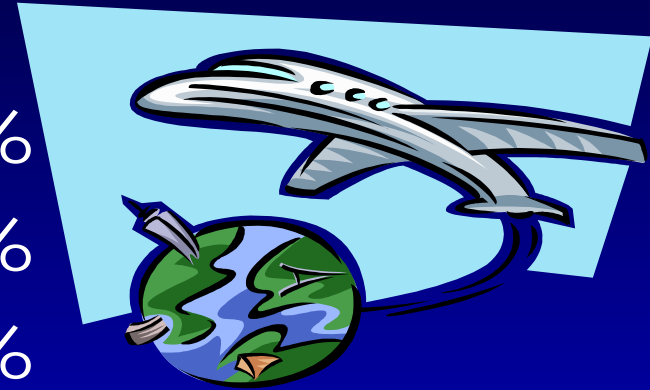
dyscompliance

- physical difficulties

- break seal
- open bottle
- tilt back head
- raise arm above shoulder height
- hold bottle steady
- express drop
- drop into sac
- avoid tip / eye contact
- avoid blinking
- NLD compression

instillation techniques

- tip – top 45%
- rammers 35%
- high-altitude bombers 15%
- head rollers 5%



Kass MA et al – 148 patients observed

- 25% did not succeed
- 13% did not know they had failed
- 15% could not express a drop *AT ALL*



background

- ALT for patients who did not respond adequately to medical therapy
- Glaucoma Laser Trial established potential usefulness of ALT as first line treatment for OAG

ALT limitations ...

- post-treatment increase in IOP
- potential for PAS => tissue damage
- limited efficacy on re-treatment
- coagulative damage to TM



SLT developed as an alternative to ALT

- Q-switched: 3 nanosecond pulse
- Frequency Doubled Nd:YAG
(532nm)

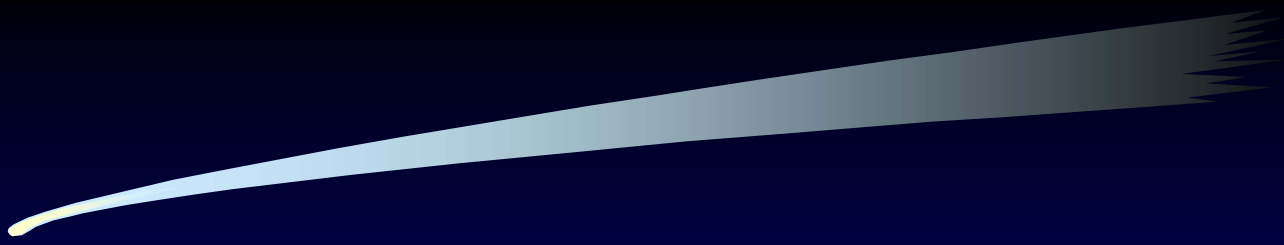
Tango



SLT *versus* ALT

	SLT	ALT	Ratio	
# of spots	50	50		
energy	0.4 - 1.4 mJ	300 – 600 mW	1:100	←
fluence (mJ/mm²)	6	40,000	1:6000	←
exposure Time	3 nsec	100,000,000 nsec		

- aim: to target only pigment-containing cells, laser requires -
 - short pulse duration
 - low laser energy

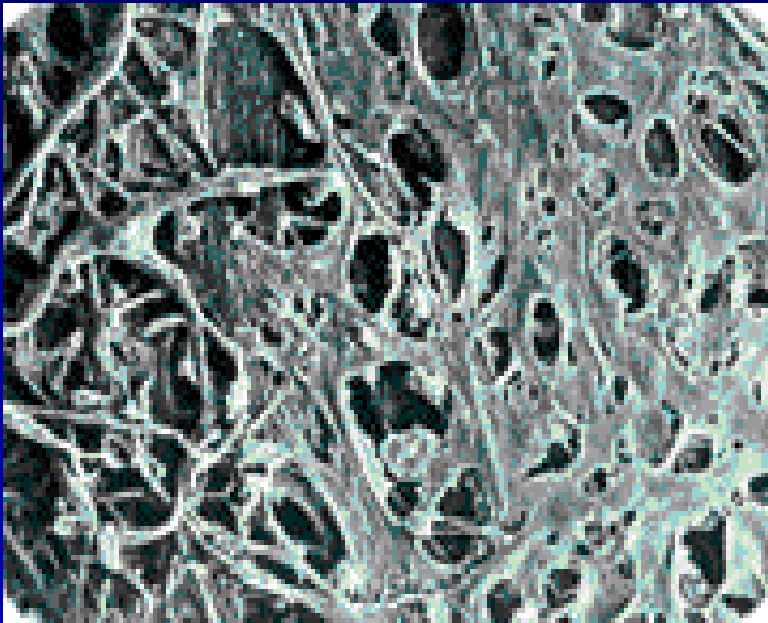




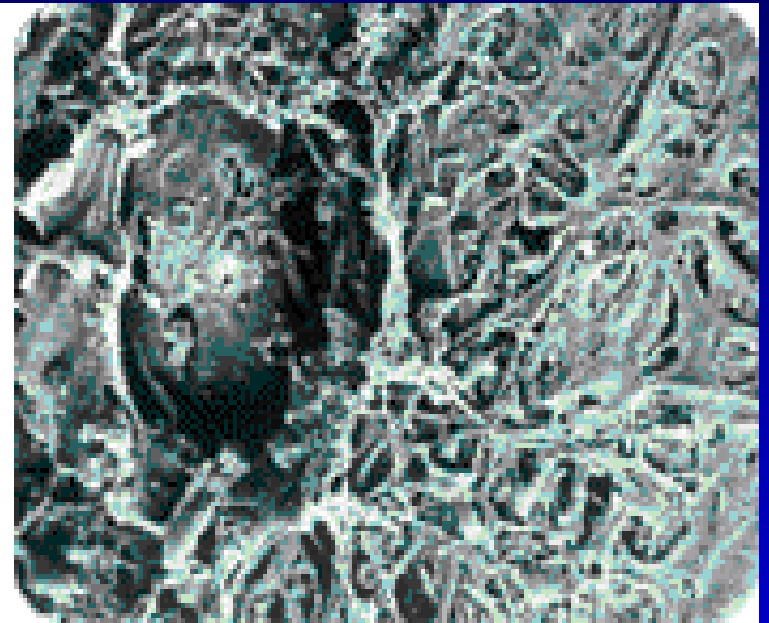
SLT

- **selective**
 - selectively targets the melanin-rich cells of the trabecular meshwork
- **non-thermal**
 - short pulse duration of SLT is below the thermal relaxation time of the TM tissue, thereby eliminating the incidence of thermal damage
- **repeatable**
 - can be repeated without causing harm or further complications

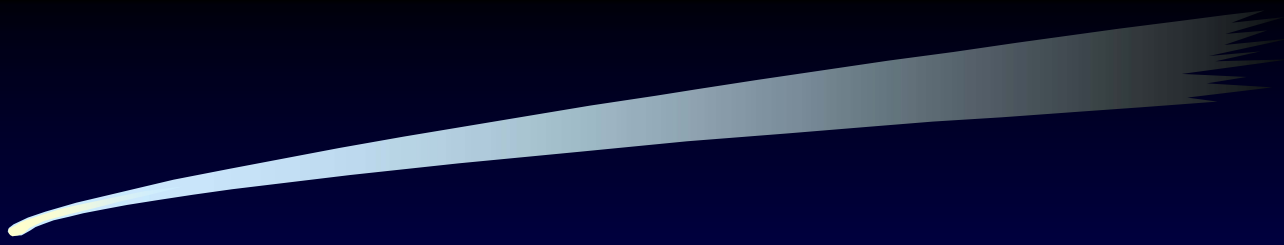
histology

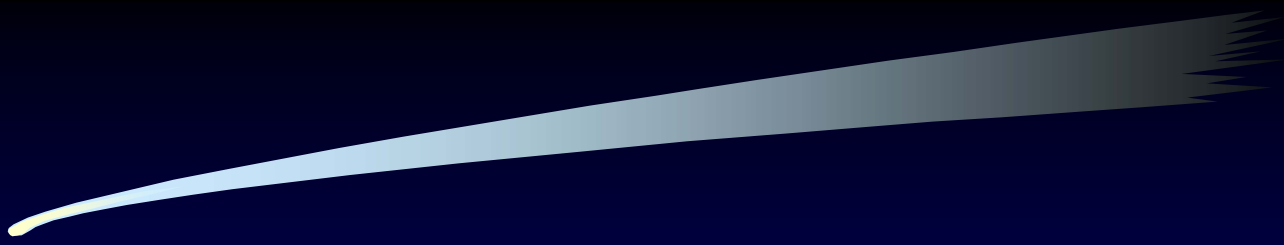


Trabecular meshwork tissue after SLT



Trabecular meshwork tissue after ALT







program

- SLT in angle closure
 - Dr Prin RojanaPongpun
- SLT in pseudoexfoliative glaucoma
 - Prof Shlomo Melamed
- SLT in “normal pressure glaucoma”
 - Dr Yasuaki Kuwayama