SLT for PACG

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Outline

- Angle closure glaucoma
  - Prevalence
  - Aspects on angle structure & TM
- SLT-PACG multi-center study
  - Designs & outcomes
- SLT in PACG vs. POAG

World glaucoma statistics (in 2010)

Table 3 Number of people with ACG, 2010

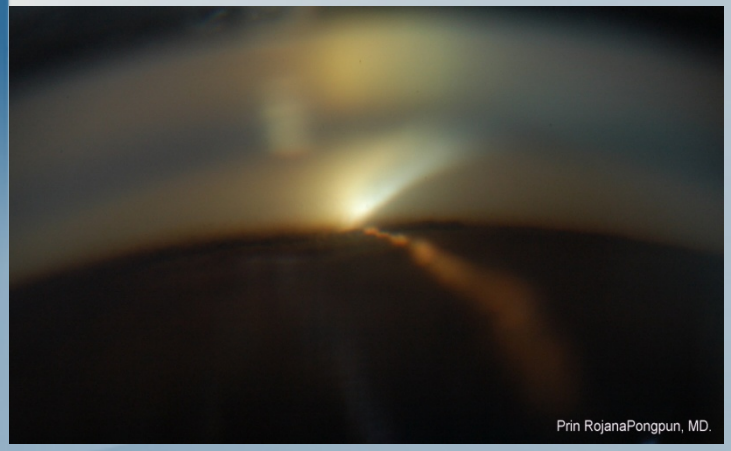
	Total ACG	Lower CL	Upper CL	% World ACG
China	7,473,195	4,419,269	13,216,902	47.5
India	3,733,620	2,630,886	5,510,142	23.7
SE Asia	2,141,584	1,246,325	3,852,149	13.6
Europe	1,371,405	1,310,861	1,434,702	8.7
Latin America	322,804	308,667	337,581	2.1
Japan	278,643	171,811	456,753	1.8
Africa	245,844	235,143	257,029	1.6
Middle East	177,869	170,124	185,964	1.1
World	15,744,965	10,493,085	25,251,221	

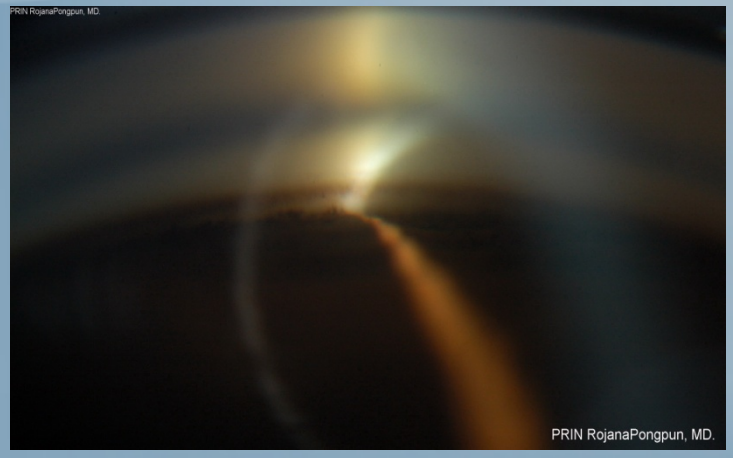
H A Quigley and A T Broman: The number of people with glaucoma worldwide in 2010 and 2020 Br J Ophthalmol 2006; 90: 262-267.

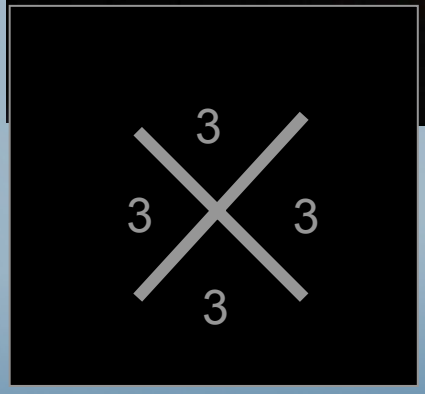
Angle closure glaucoma is NOT RARE

- The prevalence of PACG is not as low as is usually believed
  - > 1/4 of all glaucomas found in the Egna-Neumarkt population
  - The most frequent clinical presentation is chronic angle-closure glaucoma
    - Bonomi, L. et al. Epidemiology of angle-closure glaucoma: prevalence, clinical types, and association with peripheral anterior chamber depth in the Egna-Neumarket Glaucoma Study. Ophthalmology. 2000 May; 107(5):998-1003.

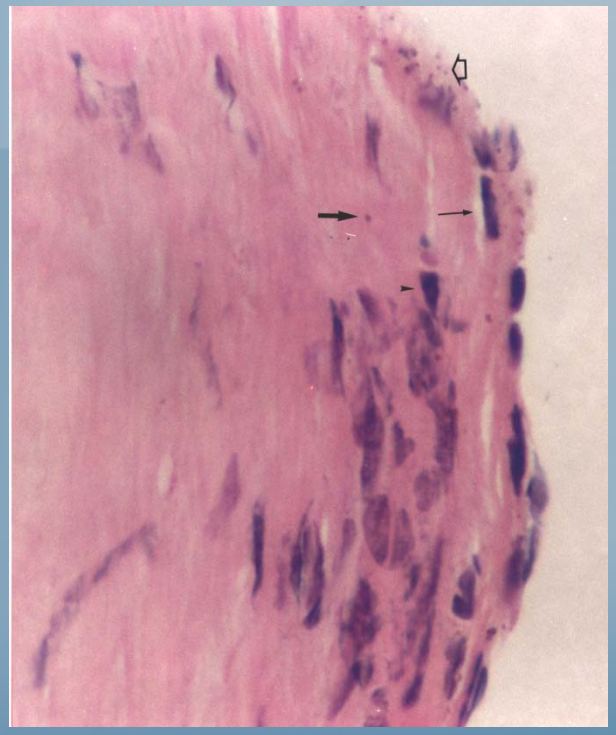
Angle closure is often/easily missed

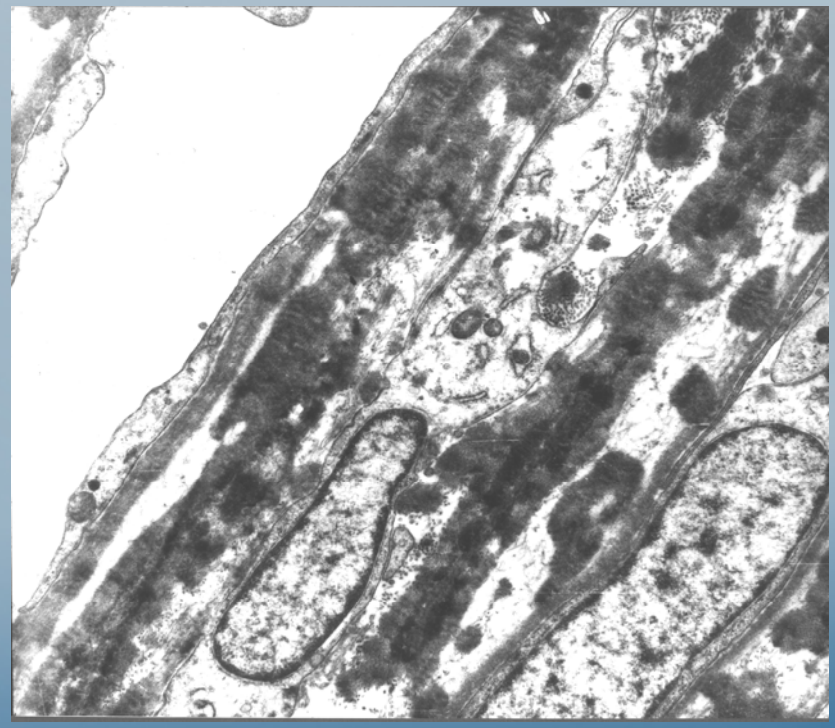






- Histologic study has shown that changes in trabecular meshwork can be found in areas away from visible PAS. (Sihota 2001)
  - *A gonioscopic evaluation alone may not reflect the extent of trabecular meshwork damage in acute and chronic PACG*





Will SLT work in PACG?

Limited amount of treatable area

Unhealthy TM

TREATMENT OF PRIMARY ANGLE CLOSURE GLAUCOMA BY SLT

- Dr Yaniv Barkana (Assaf Harofe Medical Center, Israel)
- Dr Ho Ching Lin (Singapore National Eye Center, Singapore)
- Dr Jimmy S.M. Lai (United Christian Hospital, Hong Kong)
- Dr Mario V. Aquino (St. Luke's Medical Center, Philippines)
- Dr Prin Rojanapongpun (Chulalongkorn University, Thailand)
- Dr Wong Hon Tym (Tan Tock Seng Hospital, Singapore)
- Dr Ma Cecilia Aquino (National University Hospital, Singapore)
- Dr Michael Belkin* (Tel Aviv University, Tel Hashomer, Israel)

*Dr. Belkin is a consultant to Ellex, manufacturer of SLT lasers

Purpose of Study

- To determine whether SLT can lower IOP in PACG eyes with a patent PI & certain degree of visible TM

Methods

- Multi-center, multi-national
- Prospective, interventional study (no control group)
  - Diagnosis of PAC(G)
  - IOP > 21 mmHg +/- medication
  - Patent iridotomy
  - At least 3 months post LPI or iridoplasty
  - Good visibility of trabecular meshwork for at least 90^{o} of the angle

Exclusion criteria

- Secondary angle closure
- Advanced glaucomatous optic neuropathy
  - CDR ≥ 0.9, or visual field defect threatening fixation
- Blindness in other eye
- Previous ALT
- Previous intraocular surgery

Protocol

- **Pre-SLT** brimonidine & anesthesia drop
- All visible angle treated
- Energy start at 0.6 mJ
  - Preferable endpoint= Micro-bubble formation
  - Energy setting remained for later applications
  - 0.1 mJ increment step, Max 1.0 mJ
- **Post-SLT**: Pred Forte qid. for a week & continue same glaucoma med.
- **Follow-up** visits at 1 day, 1 week, 4 weeks, 3 months and 6 months

Results

- 67 eyes of 60 patients treated
  - 43 F, 17 M
- Age 64 ± 8

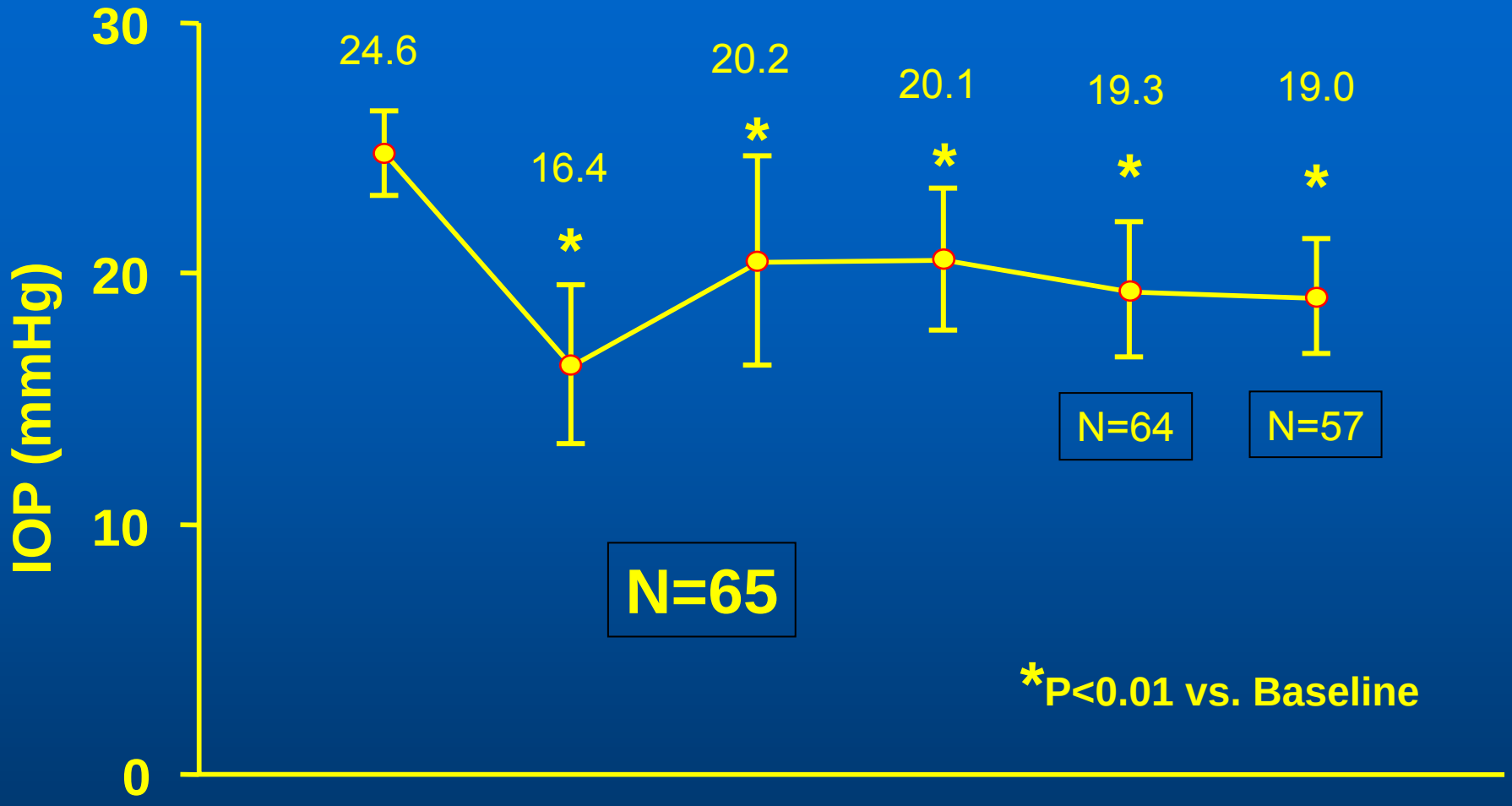
- Degree of angle treated: 171 ± 44
- Number of applications: 56 ± 14
- Total energy: 38 ± 9 mJ

Results

- 2 eyes (3%) → trabeculectomy
  - excluded from analysis
- 6 eyes (9.2%) → repeat SLT

- Average # of meds pre-SLT= 1.1 ± 1.0
- Average # of meds at 6m= No change

SLT-PACG Study



	Baseline	1 day	1 week	4 weeks	3 month	6 months
mmHg		- 8.2	- 4.4	- 4.5	- 5.3	- 5.6
%		- 33.5 %	- 17.9%	-18.4%	- 21.7%	- 22.9%

Success rate

IOP Reduction at 6 months

≥ 3 mmHg	79%
≥ 20%	54%
≥ 30%	23%

No significant complications

SLT-PACG: Conclusion

- SLT appears to be a safe, effective and simple method to reduce IOP in PACG eye with patent iridotomy and a sufficient extent of visible angle

Comparison of Efficacy of Selective Laser Trabeculoplasty (SLT) in open angle glaucoma and angle closure glaucoma patients

Tantisevi V, MD, Suramethakul P, MD,
Rojanapongpun P, MD, Supattanawong Y, MD.

King Chulalongkorn Memorial Hospital, Thailand

Objective

- To compare efficacy of SLT on IOP lowering in patients with open angle glaucoma & angle closure glaucoma

Design

- Retrospective, comparative case series

Methods

Inclusion criteria

- Patients who underwent selective laser trabeculoplasty from June 2005 to July 2006 at King Chulalongkorn Memorial hospital, Bangkok, Thailand
- Visible trabecular meshwork > 180^{o}

61 patients (34 OAG patients and 13 ACG patients) were enrolled into the study

Methods

- Measurement
  - IOP
  - Number of glaucoma medication at baseline, 4 weeks and 12 weeks after SLT
- Main outcome
  - IOP reduction > 20% from baseline at each follow up visit

Methods

- Fisher's Exact test
  - To compare the difference of patients who reached target IOP at week 4 and week 12 between open angle and angle closure groups

Results

- Mean (SD) IOP at Baseline
  - Open angle glaucoma = 18.6 ± 4.7
  - Angle closure glaucoma = 18.3 ± 3.5

IOP reduction 20% from baseline

	4 weeks S/P SLT	12 weeks S/P SLT
Open angle glaucoma	8/34 (23.53%)	14/34 (41.18%)
Angle closure glaucoma	None	2/13 (15.38%)
p value	**0.085**	**0.168**

Average number of glaucoma medication

- Baseline; mean ± SD
  - OAG = 1.79 ± 0.64
  - ACG = 1.77 ± 1.01
- 12-week post SLT; mean ± SD
  - OAG = 1.88 ± 0.69
  - ACG = 1.85 ± 0.90

Conclusion

- Selective Laser Trabeculoplasty can reduce IOP in both OAG and ACG patients
- OAG group had greater percentage of eyes that achieved 20% reduction of IOP than ACG group
  - However, the percentage of eyes that achieved 20% IOP reduction was not statistically significant different between the two groups (small sample size)

Summary

- SLT appears to be a good alternative in the treatment of PACG
- Effectiveness is acceptable
  - >half achieve ≥ 20% IOP reduction
- Excellent safety profile
  - Less inflammation, less or no PAS
  - Less discomfort, no pain
- Quick, simple & easy method

AOGS 10th Anniversary Congress

(Asia Oceanic Glaucoma Society)

Bangkok, Thailand

2-4 Dec. 2007

Thank you