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**EuroTimes Satellite Education Programme**  
**Glaucoma Management:**  
Long-Term Experience with Selective Laser Trabeculoplasty

**12-Year Results with SLT**

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# Glaucoma therapy – Laser Trabeculoplasty

Will **Laser Trabeculoplasty**  
be forgotten?

- ✓ low-risk
- ✓ cost-effective
- ✓ independent of compliance

# 12-Year Results With SLT

- More than **12 years** use of **SLT** for treatment of glaucoma
- To date, follow-up of **more than 2000 eyes treated with SLT**

# Selective Laser Trabeculoplasty **Methods**

- frequency doubled, Q-switched Nd:YAG Laser
- 532 nm, 3 nanosec
- 400  $\mu\text{m}$  spot size
- 0.8 - 1.0 mJ
- 50 spots, 180 degrees of the chamber angle
- Pigmented cells of trabecular meshwork

“Tango“. Ellex GmbH. Germany



# Selective Laser Trabeculoplasty: Medical Treatment

Preoperative:  
**Pilocarpin 0.5%.**

postoperative:  
none

# Selective Laser Trabeculoplasty

- **prospective follow-up study**
- **502 eyes**, 330 patients
- 312 eyes referred by doctors in the field
- follow-up time: **33±33 months**
- range: **1 - 144 months**

# Selective Laser Trabeculoplasty: **Diagnosis**

Diagnosis	Number of cases
Primary Open-Angle Glaucoma (untreated)	n = 42
Primary Open-Angle Glaucoma (pretreated)	n = 261
Ocular Hypertension	n = 52
Pseudoexfoliation Syndrome	n = 35
SLT after SLT	n = 38
SLT after ALT	n = 60
Pigmentary Glaucoma	n = 14

# Selective Laser Trabeculoplasty :

## Definition of success

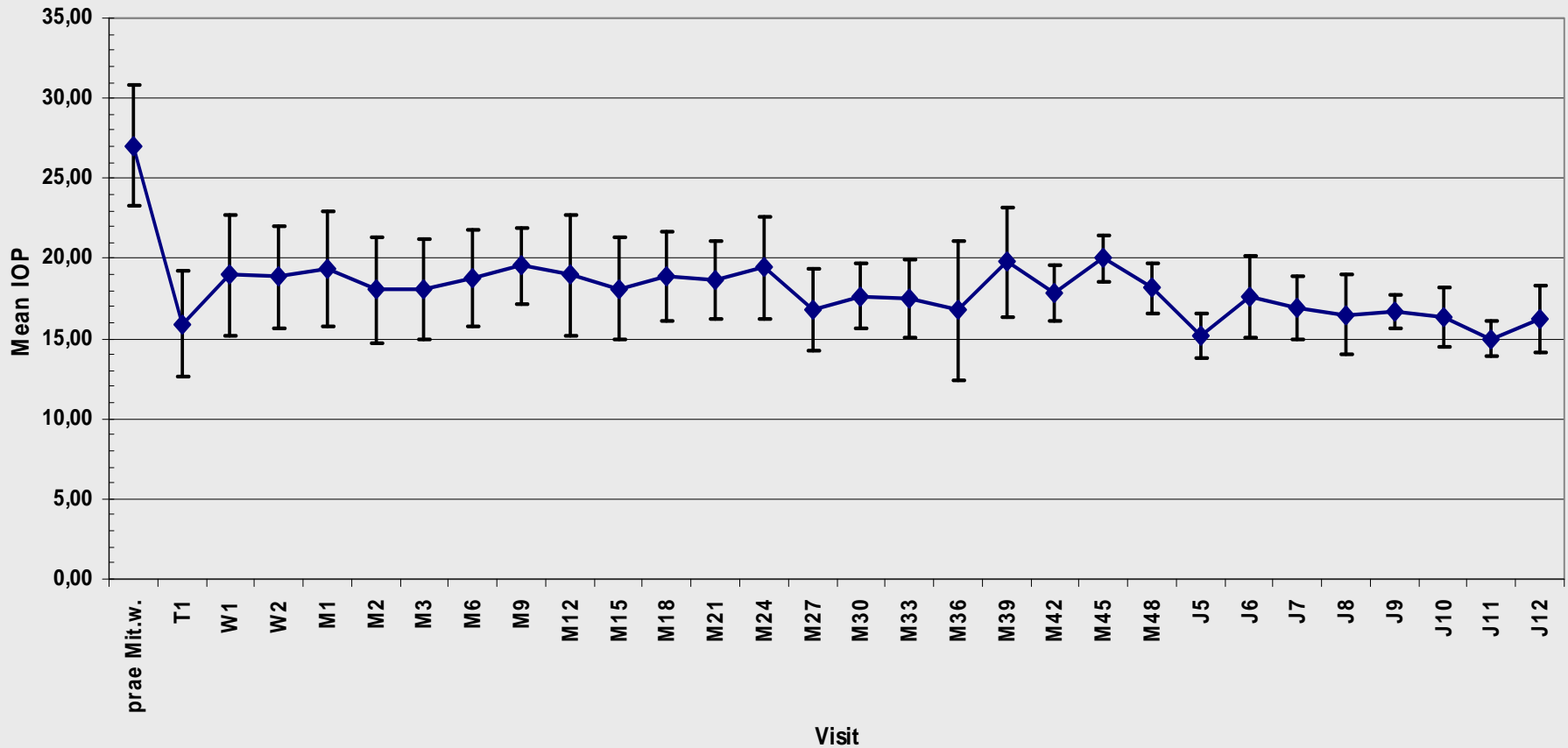
- ✓ IOP lowered  $< 20\text{mmHg}$
- ✓ Reduction of IOP at about 20%
- ✓ 1 Glaucoma medication less with at least unchanged IOP

➤ Study endpoint: failure

# Results:

## Primary Open-Angle Glaucoma, untreated

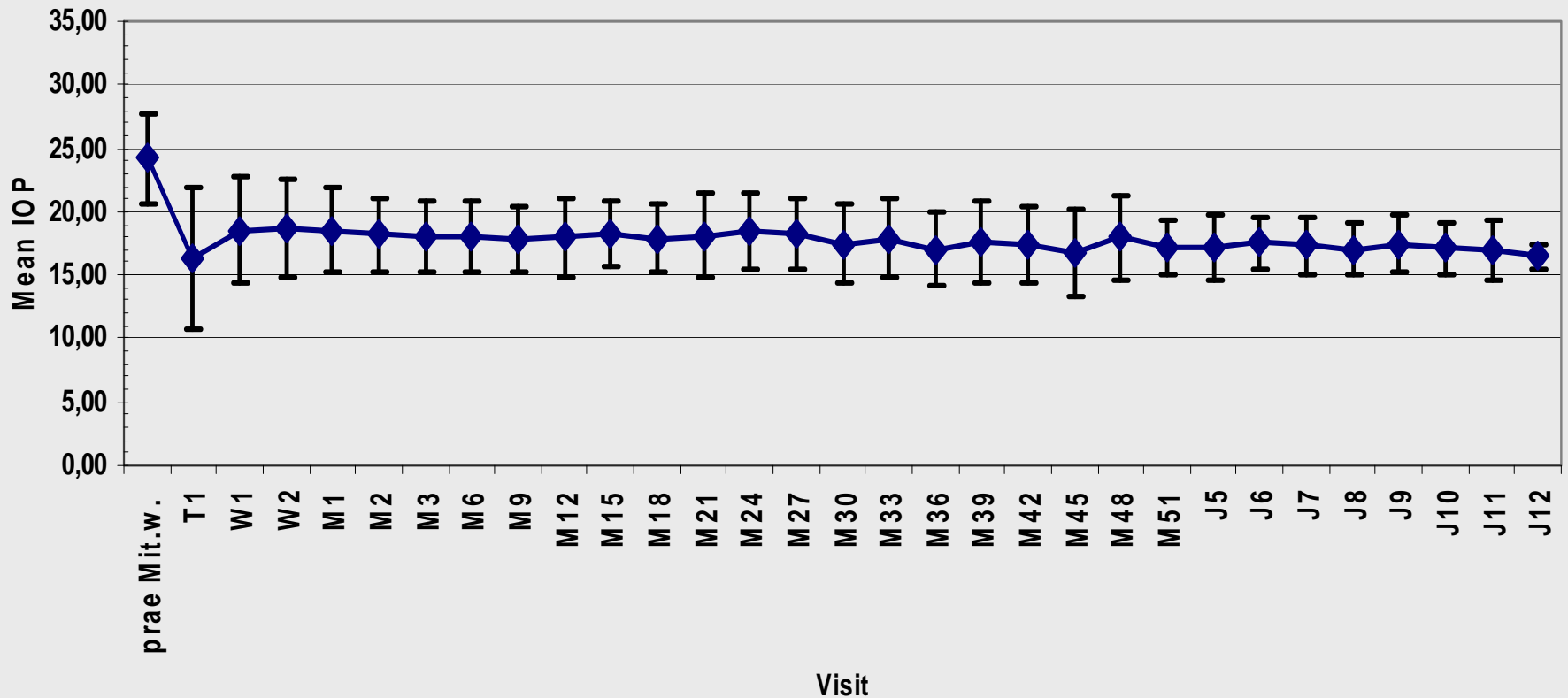
Mean IOP  $\pm$  SD  
Naive POAG



# Results:

## Primary Open-Angle Glaucoma, pretreated

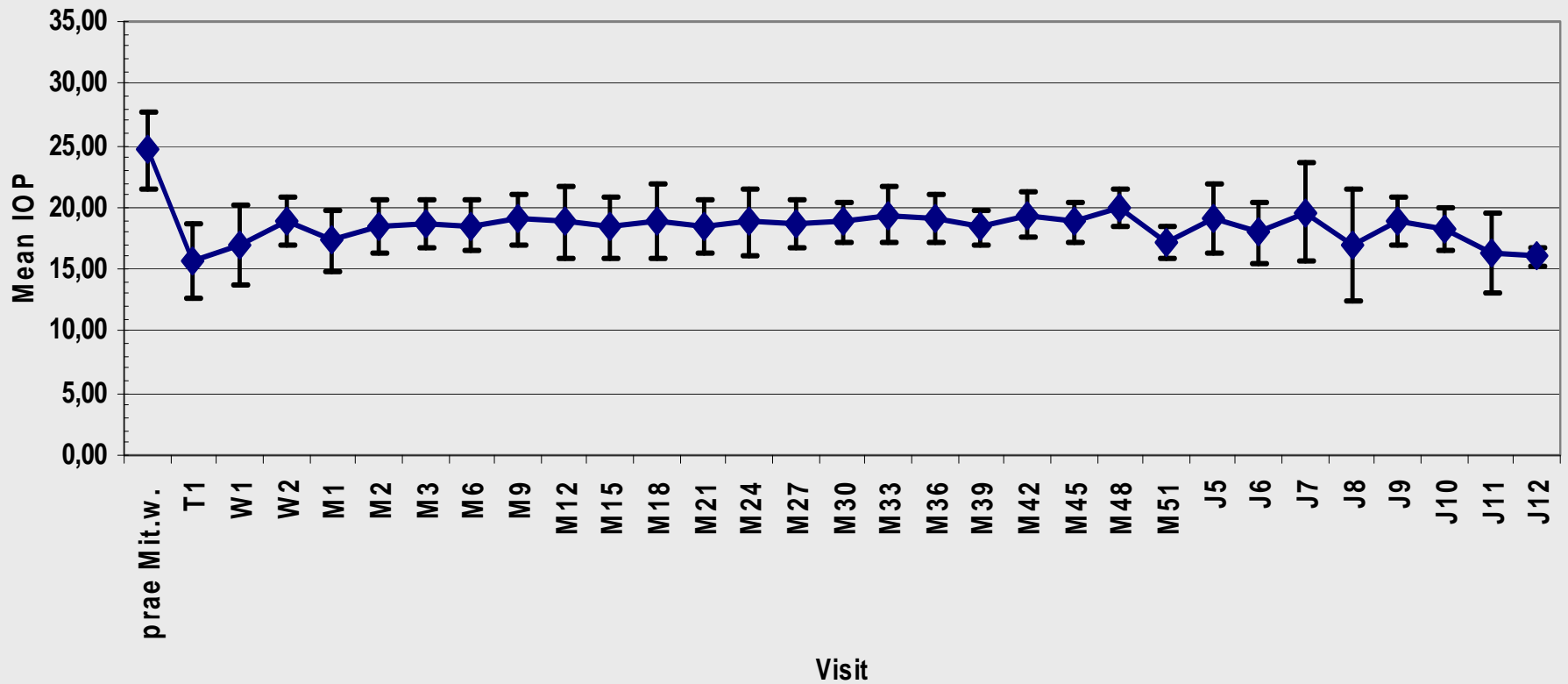
Mean IOP  $\pm$  SD  
Pretreated POAG



# Results:

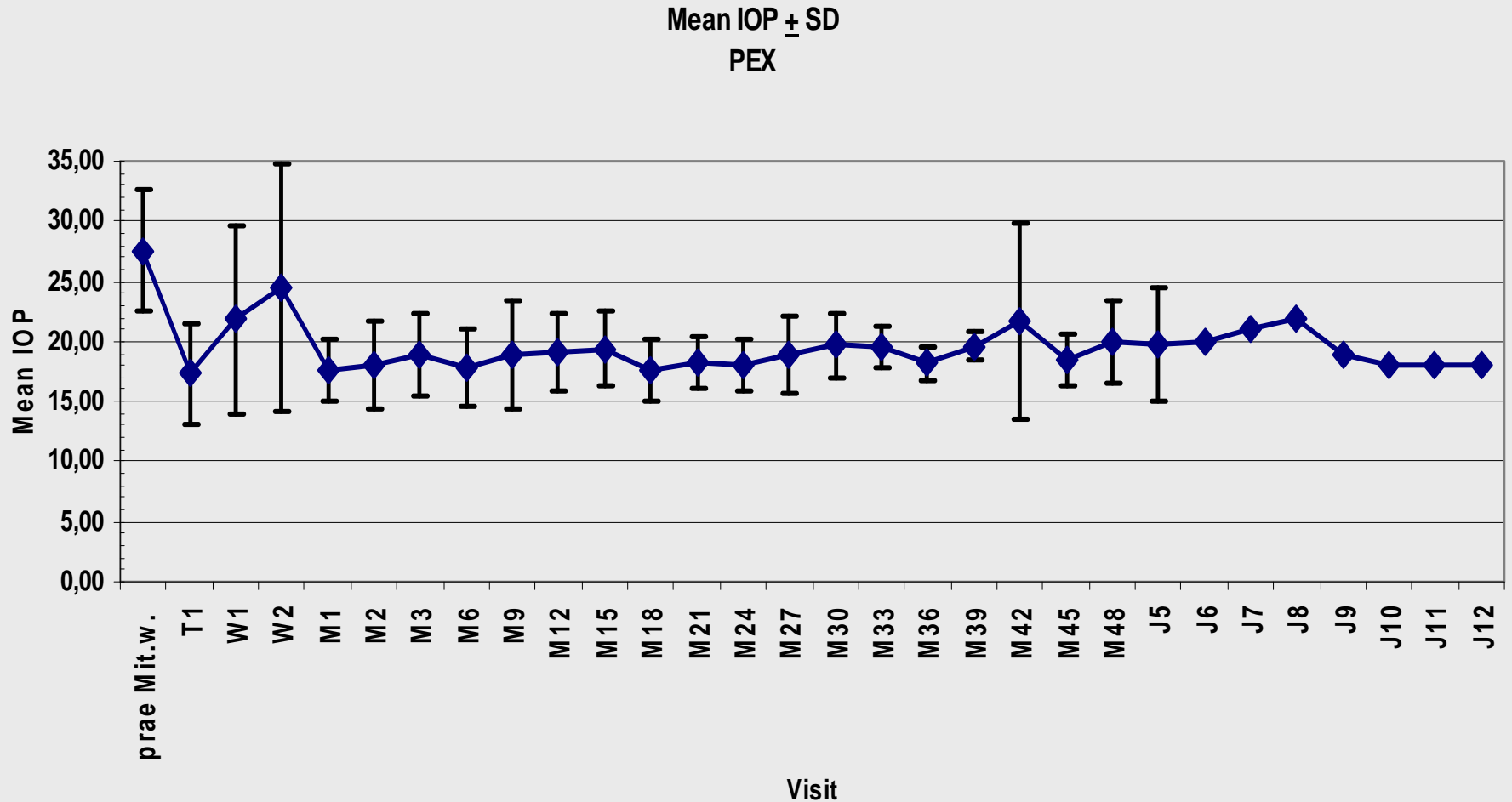
## Ocular Hypertension

Mean IOP  $\pm$  SD  
Ocular Hypertension



# Results:

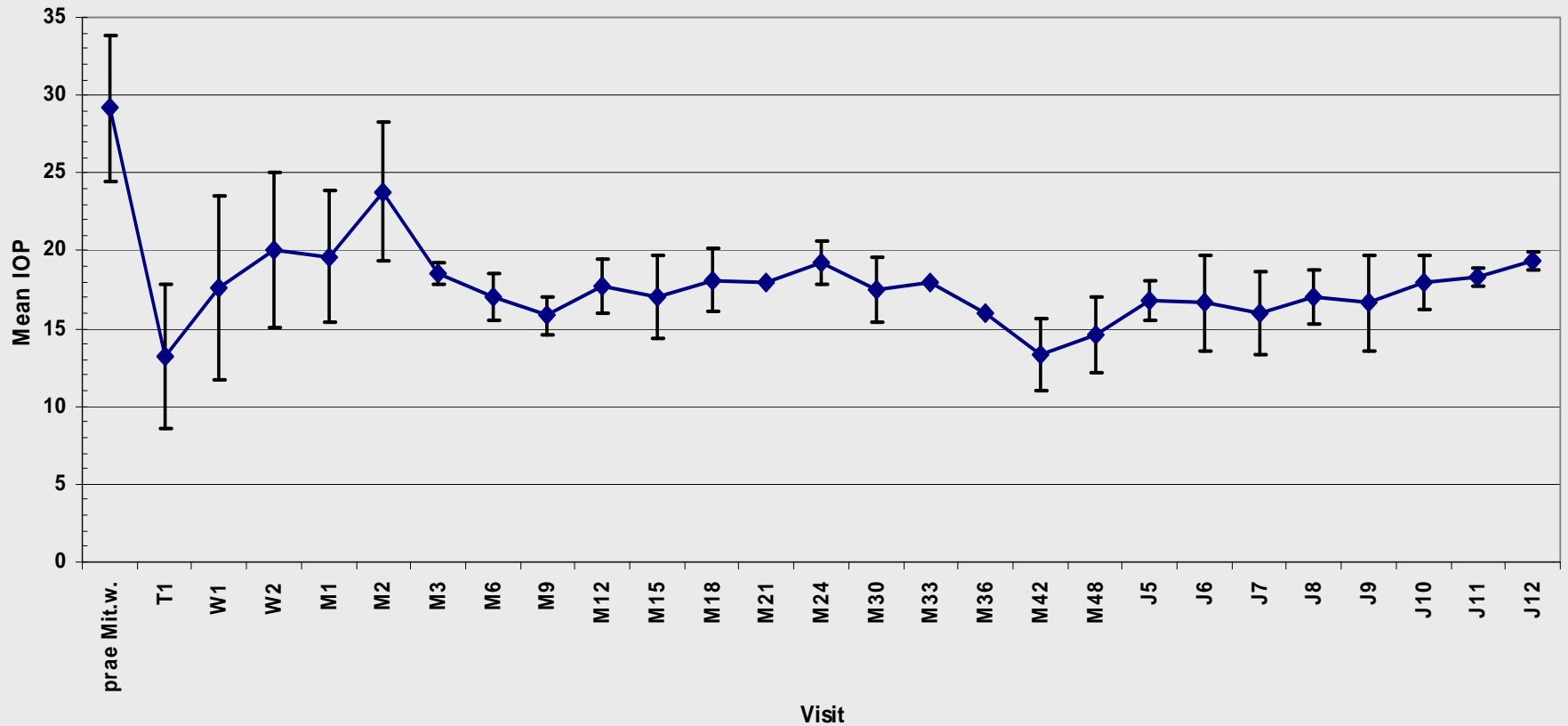
## Pseudoexfoliation Syndrome



# Results:

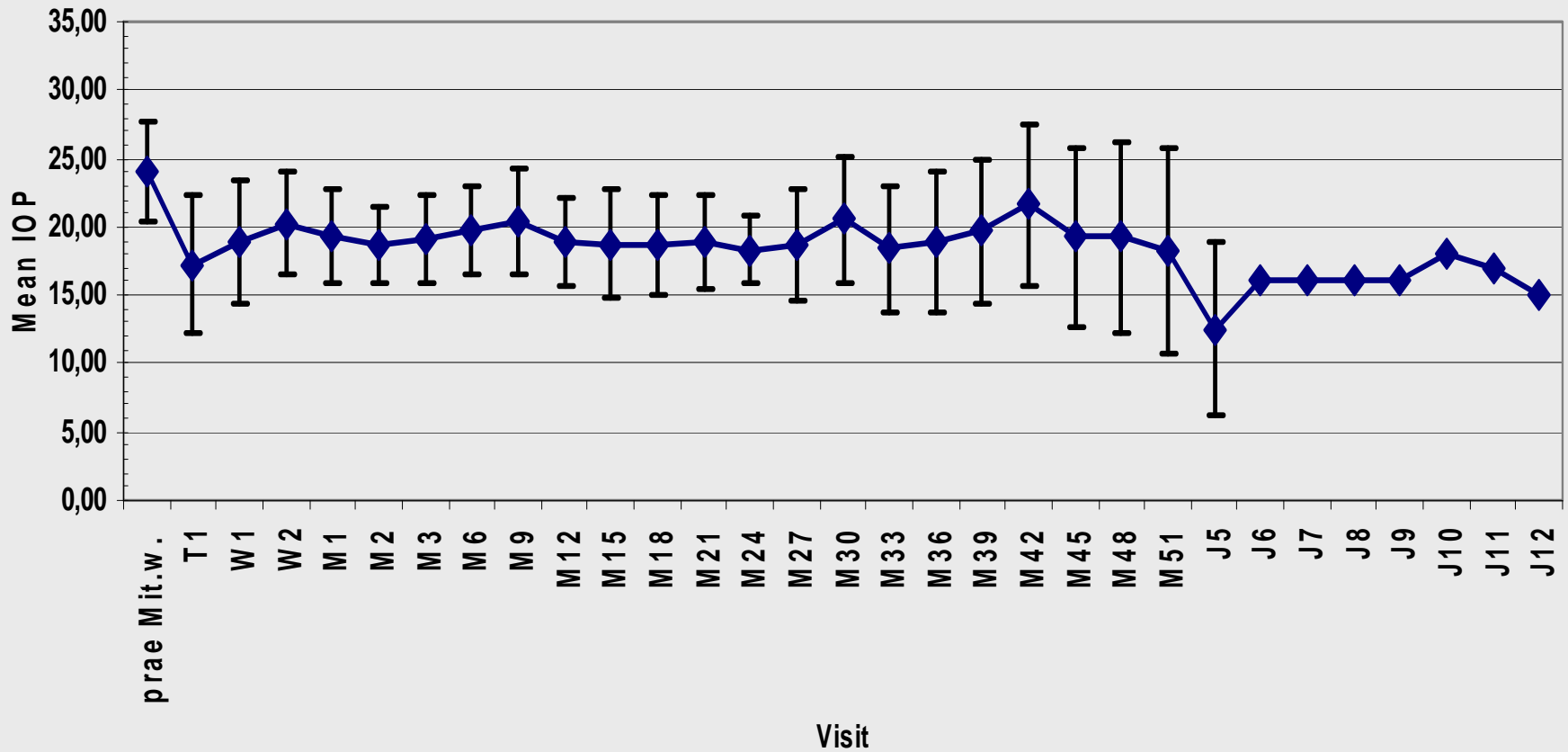
## Pigmentary Glaucoma

Mean IOP  $\pm$  SD  
Pigmentary Glaucoma



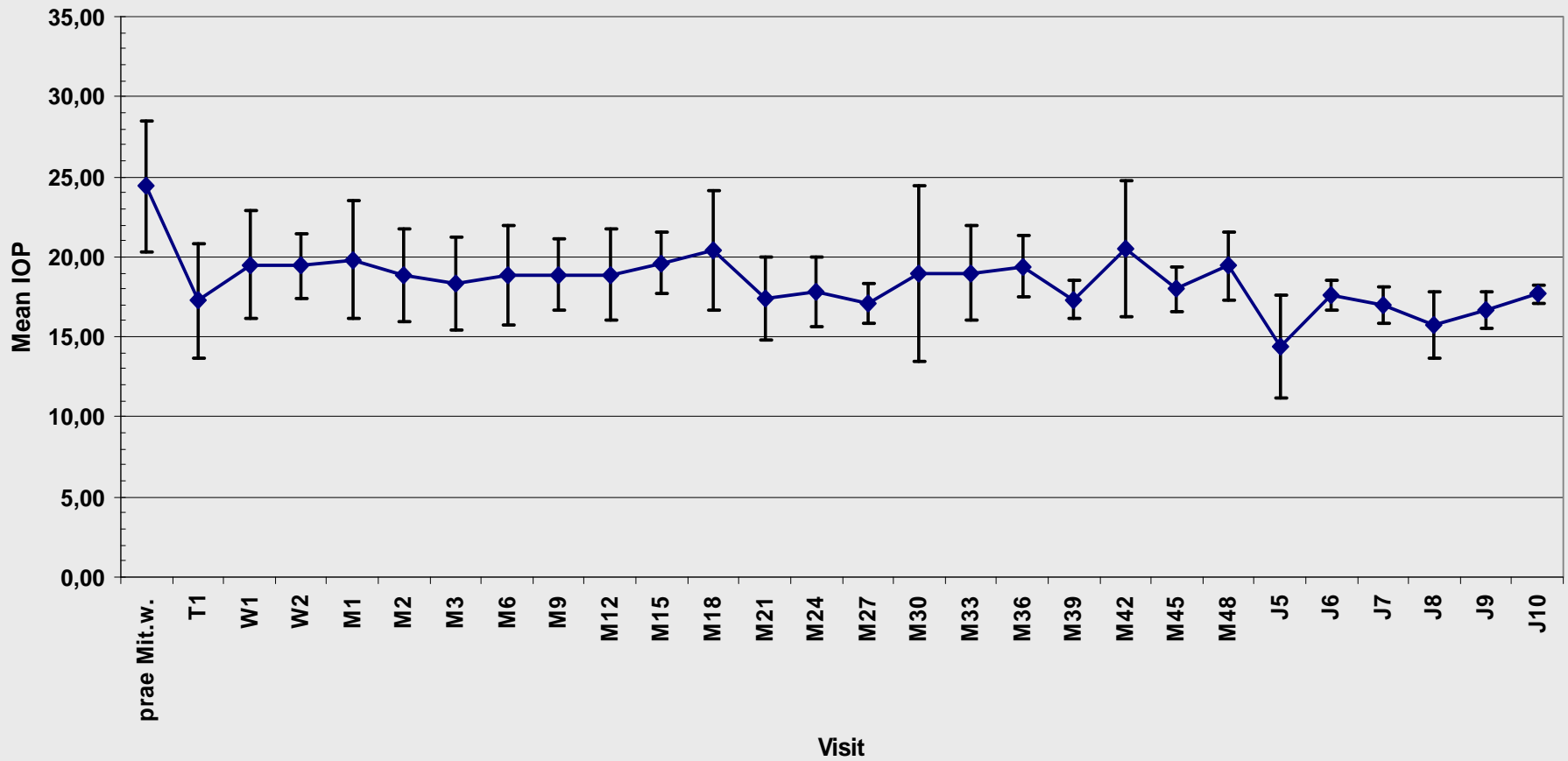
# Results: SLT after ALT

Mean IOP  $\pm$  SD  
With Prior-ALT



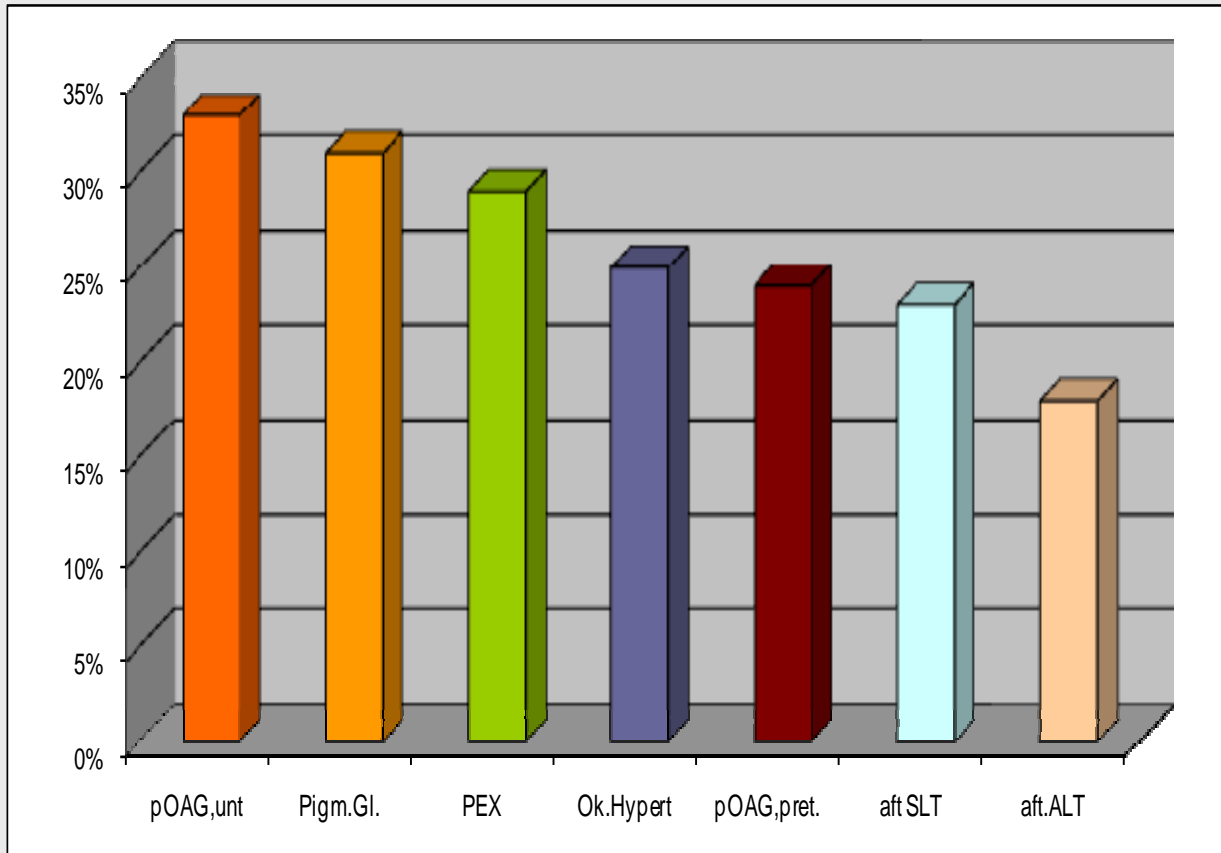
# Results: SLT after SLT

Mean IOP  $\pm$  SD  
Post Repeated SLT



# Results

## IOP reduction (%)



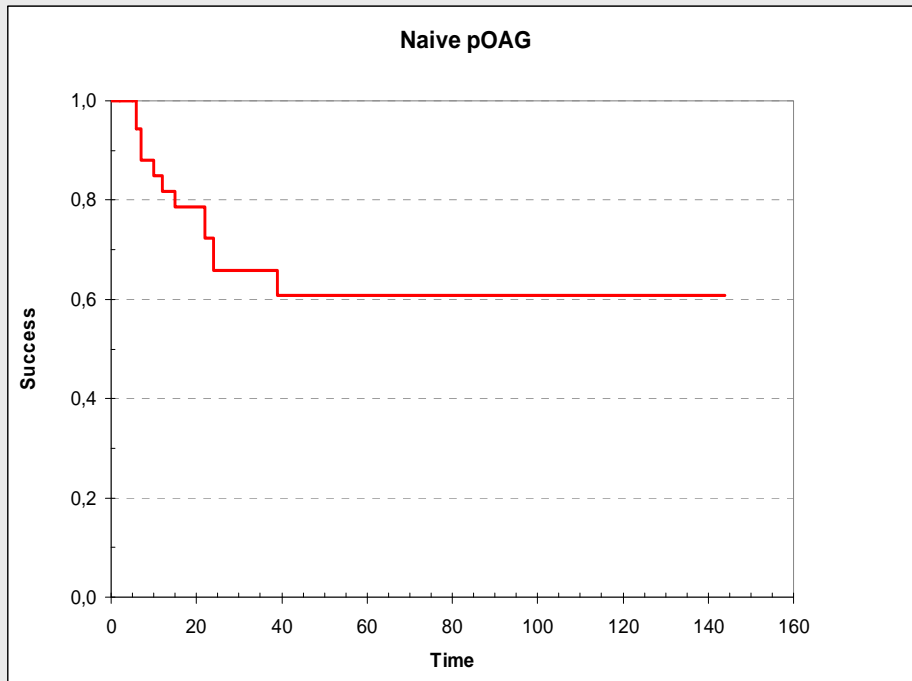
mean of 3 years follow up

<u>Indication</u>	<u>IOP lowering</u>
pOAG. untreated	33%
Pigmentary Glaucoma	31%
PEX	29%
Oc.Hypert	25%
pOAG. pretreated	24%
after SLT	23%
after ALT	18%

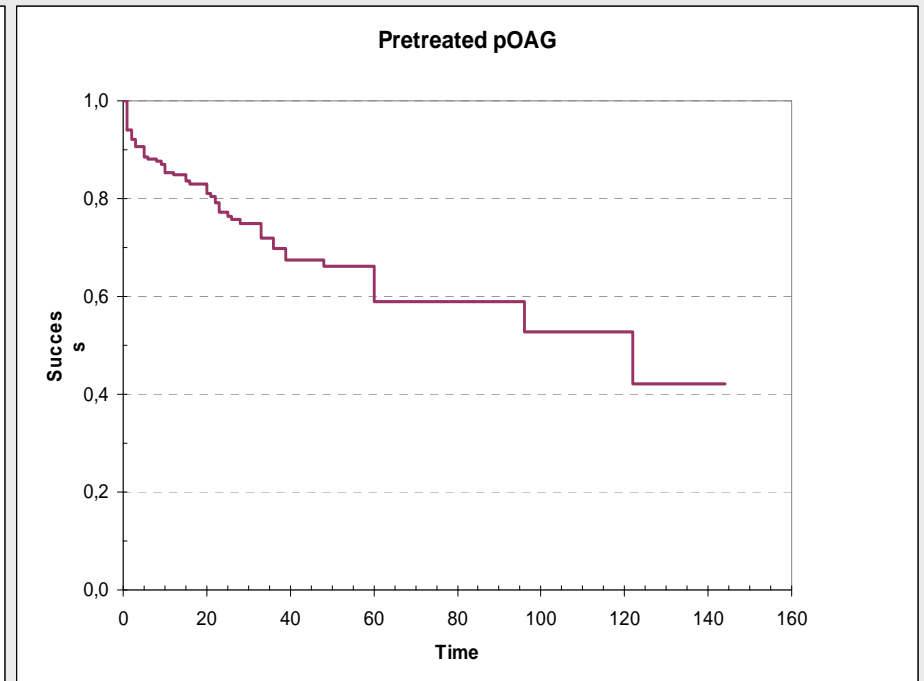
# Results:

## Primary Open-Angle Glaucoma

Success rate, Kaplan-Meier Plot

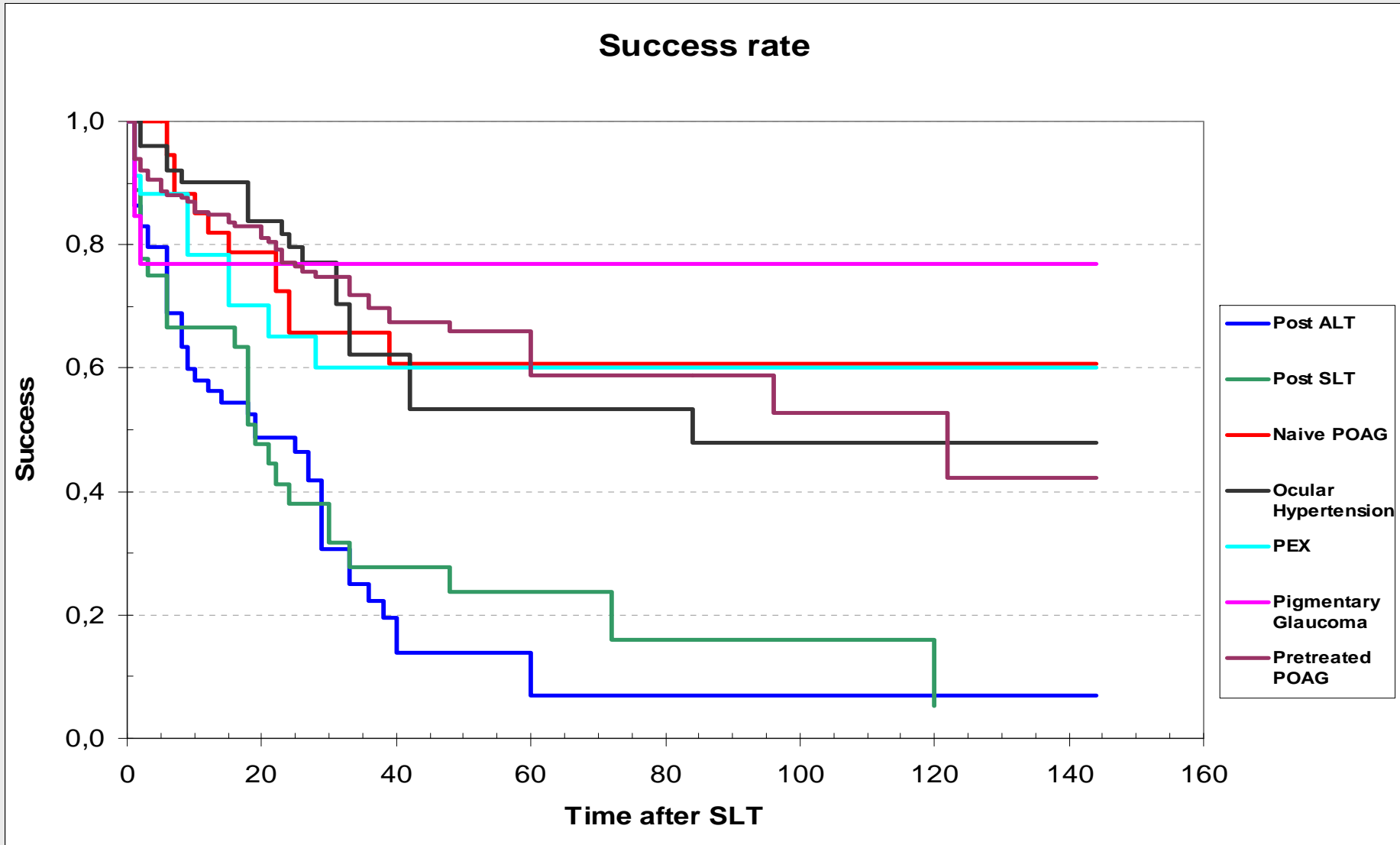


untreated



pretreated

# Results: different Diagnosis



# Results:

## Number of Drugs (pOAG)

preoperative:	1.66 ± 0.74
postoperative:	1.29 ± 0.86

n=216. p< 0.0001. Student t-test

# Results:

## Correlations (pOAG)

### Spearman-Rank-Test

	age	IOP pre	grade of pigmentation	success	IOP lowering
age		0.01	0.01	0.01	
IOP pre	0.01		0.001		0.001
grade of pigmentation	0.01	0.001			0.001
success	0.01				0.001
IOP lowering		0.001	0.001	0.001	

# SLT- Follow-up study:

## Summary

- Effective for pOAG, PEX, Ocular Hypertension, Pigmentary Glaucoma

Success rate after

- ✓ 3 years: 90-70%
- ✓ 5 years: 60-75%
- ✓ 10 years: 40-60%

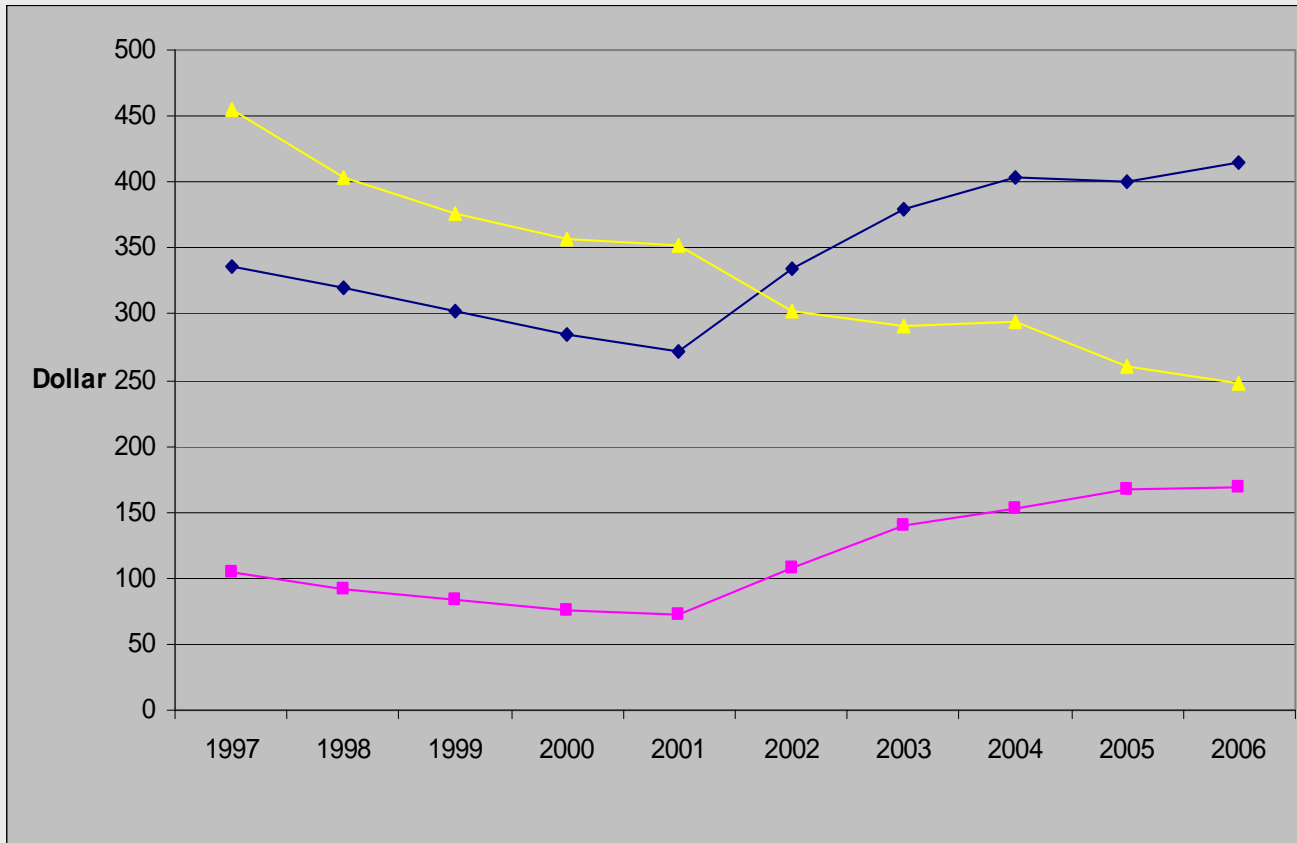
- Grade of efficacy dependent on:
  - ✓ age of the patient
  - ✓ grade of pigmentation of the chamber angle
  - ✓ height of initial IOP
- success rate dependent on indication

# SLT- Follow-up study: Summary

- **repeatable**
- with ALT and SLT **combinable**
- **good long-term results** (10 years) for **pOAG** (also pretreated), **Ocular Hypertension, PEX, Pigmentary glaucoma (?)**
- acceptable long-term results after ALT/SLT

# Selective Laser Trabeculoplasty: Discussion

Schwier J.K. et al., Trends in annual medicare expenditures for glaucoma procedures from 1997-2006. ARCH OPHTHALMOL 2009,127.7:900-905



Year	Y1	Y2	Y3
1997	336	104	455
1998	320	92	403
1999	303	84	377
2000	284	75	357
2001	272	72	352
2002	335	107	303
2003	380	140	291
2004	403	152	295
2005	400	168	260
2006	414	169	248

**Y1**= nr.of glaucoma procedures.  
reimbursement by Medicare.  
1000\$

**Y2**= nr.of lasertrabeculoplasties.  
1000\$

**Y3**= average payment in US\$