“SLT as First Line Therapy & Long Term Results”

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No Financial Interests
**Ideal Rx for Glaucoma**

- Offers sufficient reduction in IOP
- Provides IOP reduction on long term basis
- Associated with minimal IOP fluctuations
- Independent of the compliance factor
- Tolerable systemic & local side effects or be devoid of S/E.
- Economically sound

**Question is**

Do we have an ideal treatment in our armamentarium?
Ideal Rx for Glaucoma

How does Medications, Laser and Surgery compare to each other?

No treatment for Glaucoma has a better Risk / Benefit ratio than Laser Trabeculoplasty
Selective Laser Trabeculoplasty

- Where does it fit in the treatment paradigm? First Line / Adjunctive Rx / Replacement therapy?
- Long term results of SLT ??
- Is it a repeatable treatment ??
Selective Laser Trabeculoplasty

Retrospective review of case notes of all the patients treated from Jan 2000

5 years of SLT experience (UK)

- Long-term results
- Efficacy of Re-treatment
## Distribution : Diagnosis

\( (n = 722 \text{ eyes of 451 patients}) \)

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Primary Rx</th>
<th>Adjunctive/ Replacement Therapy</th>
<th>Total No. of Eyes Rxed</th>
</tr>
</thead>
<tbody>
<tr>
<td>OAG</td>
<td>151</td>
<td>210</td>
<td>361 (50%)</td>
</tr>
<tr>
<td>OHT</td>
<td>184</td>
<td>99</td>
<td>283 (39%)</td>
</tr>
<tr>
<td>NTG</td>
<td>45</td>
<td>33</td>
<td>78 (11%)</td>
</tr>
<tr>
<td>Total</td>
<td>380 (52%)</td>
<td>342 (48%)</td>
<td>722 eyes</td>
</tr>
</tbody>
</table>

Primary group 25 and Adjunctive group 38 – Not analysed
Results: Primary Group (OAG & OHT)

- The primary group included data from 335 eyes (380).

- The IOP decreased from a mean of 27.8 mmHg +/- 3.9 mmHg to 19.0 mmHg +/- 4.7 mmHg.

- This represents a 32 % decrease in IOP or 8.8 mmHg (CI: 95%).

- The results were significant with a p-value < 0.001.

- Mean Follow up: 54 months (Range 6 - 72 months).
Primary SLT & IOP Drop

Clinically & Statistically Significant, p value <0.001, CI 95%

Pre SLT
n=325

Mth 6
n=293

Mth 12
n=292

Mth 24
n=257

Mth 36
n=249

Mth 48
n=213

Mth 60
n=204

27.8

32% IOP Reduction

F/U 54 months

19.0

OAG & OHT

Clinically & Statistically Significant, p value <0.001, CI 95%
Results: Secondary Group (OAG & OHT)

- The secondary group included data from 309 eyes (342).

- The IOP ↓↓ from a mean of 26.5 mmHg +/- -3.9 mmHg to 16.8 mmHg +/- 2.8 mmHg.

- This represents a 33% ↓↓ in IOP or 8.8 mmHg (CI 95%).

- The results were significant with a p-value < 0.001.

- Mean Follow up: 59 months (Range 6 - 84 months).
Secondary SLT & IOP Drop
Clinically & Statistically Significant, p value <0.001, CI 95%

F/U 59 months

Pre SLT n=304
Mth 6 n=275
Mth 12 n=258
Mth 24 n=238
Mth 36 n=225
Mth 48 n=213
Mth 60 n=208

OAG & OHT

26.5
33% IOP Reduction

16.8
Primary SLT & IOP Drop in NTG

Clinically & Statistically Significant, p value <0.001, CI 95%

NTG - Primary SLT

19.5 mm Hg

19.5 % IOP Reduction at 24 months

n = 45
Secondary SLT & IOP Drop

Clinically & Statistically Significant, p value <0.001, CI 95%

20% IOP reduction at 60 months

n = 33
Survival Curve – NTG
Success Criteria 20% drop

25-30% Non Responders
IOP 21mm Hg or less
N = 78 eyes
30% Success @ 5yrs
Survival Curve – OAG & OHT
Success Criteria 20% drop

Survival Time

Probability

22-25% NR

OAG & OHT
N = 644 eyes

50% Responders @ 5 yrs

0 20 40 60 80
Survival Time
Re-treatment results

Re-treatment:

**Enhancement**: Treating 180° virgin TM following initial 180° Rx

**Repeat Treatment**: Retreating the TM that has been treated previously
Results: Retreatment with SLT

The retreatment group includes data from 110 eyes.

- **Enhancement** – 56 eyes - IOP ↓↓ from 26 to 20 mmHg. This represents a 23% decrease in IOP.
  Mean Follow up: 24.7 months

- **Repeat** – 54 eyes - IOP ↓↓ from 25.3 to 18.3 mmHg. This represents a 25% decrease in IOP.
  Mean Follow up: 19.4 months

- The results were significant with a p-value < 0.001.
IOP Drop with Enhancement

Eyes: 66 Rxed 56 analysed
Initial Rx: Inferior half of TM
NR: 10 Eyes
40% NR again

Eyes : 56
Enhancement: Superior half of TM
NR: 7 Eyes

4/10 NR to 1st Rx were NR again
2 F @ 6/12, 2 F @ 12/12, 2 R @ 24/12
IOP Drop with Repeat SLT

Eyes: 54 (Following 360° Rx)
NR: 19

Eyes: 54 ReRx 360° Rx
NR: 14 Eyes
12/19 NR again – 63%
5/19 F @ 6/12 – 26%

Non Responder to 360° Rx
Consider Medical Rx or Surgery

Non Responder to 360° Rx
Consider Medical Rx or Surgery
Predictors for Success

- Baseline IOP

- Treatment Area 180 vs 360 degree Rx

- **Patient Selection**: OAG, Pigmentary, PEX glaucoma, Angle recession glaucomas, Narrow angles

- **Poorly compliant to medical therapy**
  - Rx completely washed off prior to SLT ??
  - ?? On outflow drugs
  - Still on Medical Rx

- **Previous failed ALT / SLT**
  - Primary Rx works better than Retreatment
## Correlation: Baseline IOP and IOP Drop

<table>
<thead>
<tr>
<th>Baseline IOP</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 21 mmHg</td>
<td>-4.35</td>
<td>-3.0</td>
<td>-4.3</td>
<td>-4.5</td>
<td>-3.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20%</td>
</tr>
<tr>
<td>22 – 25 mmHg</td>
<td>-5.8</td>
<td>-5.4</td>
<td>-6.4</td>
<td>-5.6</td>
<td>-4.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>22%</td>
</tr>
<tr>
<td>26 – 30 mmHg</td>
<td>-7.7</td>
<td>-7.7</td>
<td>-8.6</td>
<td>-9.7</td>
<td>-9.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30%</td>
</tr>
<tr>
<td>31 – 35 mmHg</td>
<td>-10.4</td>
<td>-10.0</td>
<td>-13.0</td>
<td>-10.7</td>
<td>-13.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>35-40%</td>
</tr>
<tr>
<td>&gt; 36 mmHg</td>
<td>-16.0</td>
<td>-19.2</td>
<td>-22.7</td>
<td>-24.6</td>
<td>-20.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>40-50%</td>
</tr>
</tbody>
</table>
### Success is proportional to Rx Area

<table>
<thead>
<tr>
<th>Treatment</th>
<th>&gt;20% IOP Reduction</th>
<th>&gt;30% IOP Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 degree</td>
<td>12 eyes (34%)</td>
<td>4 eyes (11%)</td>
</tr>
<tr>
<td>180 degree</td>
<td>32 eyes (65%)</td>
<td>21 eyes (48%)</td>
</tr>
<tr>
<td>360 degree</td>
<td>36 eyes (82%)</td>
<td>26 eyes (59%)</td>
</tr>
</tbody>
</table>

It is a **Dose Response**, 360 better than 180. Bilateral Rx better than unilateral.

- Response to Rx is better
- Response Rate increases
- Rx Effect lasts longer.

*Nagar et al: BJO 2005;89 1413-1417*
Predictors for Success

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EGS Guidelines

Wash off medical Rx prior to SLT

- Beta blockers: 2-5 weeks
- Sympathomimetics: 2 weeks
- Direct acting miotics: 1-3 days
- Indirect acting miotics: 1 month
- Topical CAI: 1 week
- Oral CAI: 1 week
- Prostaglandins: 4-6 weeks
Selective Laser Trabeculoplasty

- Where does it fit in the treatment paradigm?
  
  First line Rx / Adjunctive Rx / Replacement therapy

- Long term results of SLT - Good

- Is it a repeatable treatment - Yes
Current Profile (New pts)

1. Medical therapy
2. Maximally tolerated medical therapy
3. Laser trabeculoplasty
4. Surgical filtering
My Current Profile (New pts)

1. A new number one

2. Medical therapy

3. Maximally tolerated medical therapy
   
   Laser trabeculoplasty (SLT)

4. Surgical filtering
My Current Profile (pts on Rx)

Medical therapy / Maximally tolerated medical therapy

- Wash medical treatment
- Laser trabeculoplasty
- Restart medical Rx if required
- Surgical filtering
"That's all Folks!"