



# **Shining Light For Glaucoma Patients**

## **Clinical Out Come of New Treatment Modality for Glaucoma Patients Treated by Transscleral Micro-pulse Diode Laser (Photo-Bio-Modulation)**

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In this presentation

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Let's delve into light therapy potential in treating the 2<sup>nd</sup> cause of worldwide sight threatening.

# **Glaucoma**

# Clinical Evidence

## Aim of Study

To discover the potential of photo-bio-modulation with our new modality of treatment glaucoma patients in reducing intraocular pressure, improving function of neural layer of retina through acting on mitochondria, preserving and improve visual fields and visual acuity, as we will see.

## Study Design:

Prospective, observational cohort study.

## Methodology

- In Our Study We Use **TAHA's Technique** -Trans-Scleral infrared diode laser with a wavelength of 810 nm.
- Non-invasive laser therapy that delivers short and repetitive pulses shots, Perform in few minutes and in an office setting on Slit Lamp
- **Power is around 500mW, Duty Cycle 10%, interval time is 0.15 Sec, Repetitive Mode, average shots number of each eye around 400 to 500 per session, 360 Degree around the eye.**
- Inform patient and write medicolegal consent.

## *Participants:*

### Inclusion criteria:

- Suitable for a wide range of **Open Angle Glaucoma** types.
- Minimal follow up of our Cases 6 months
- High risk traditional surgeries patients

### Exculsion criteria:

- Congenital or Traumatic Glaucoma
- Active intraocular inflammation
- No PL Patients

## Follow Up Regimen

- Weekly follow up in the 1<sup>st</sup> month.
- Then every 2 weeks for 2 months then monthly for 6 months.

## Primary outcome measures

- VF and VA Changes
- IOP Control
- Medication Reduction

## Visual Field Standards

- Heidl-berg Edge Perimeter, Stimulus: SAP III, Pattern: 24-2

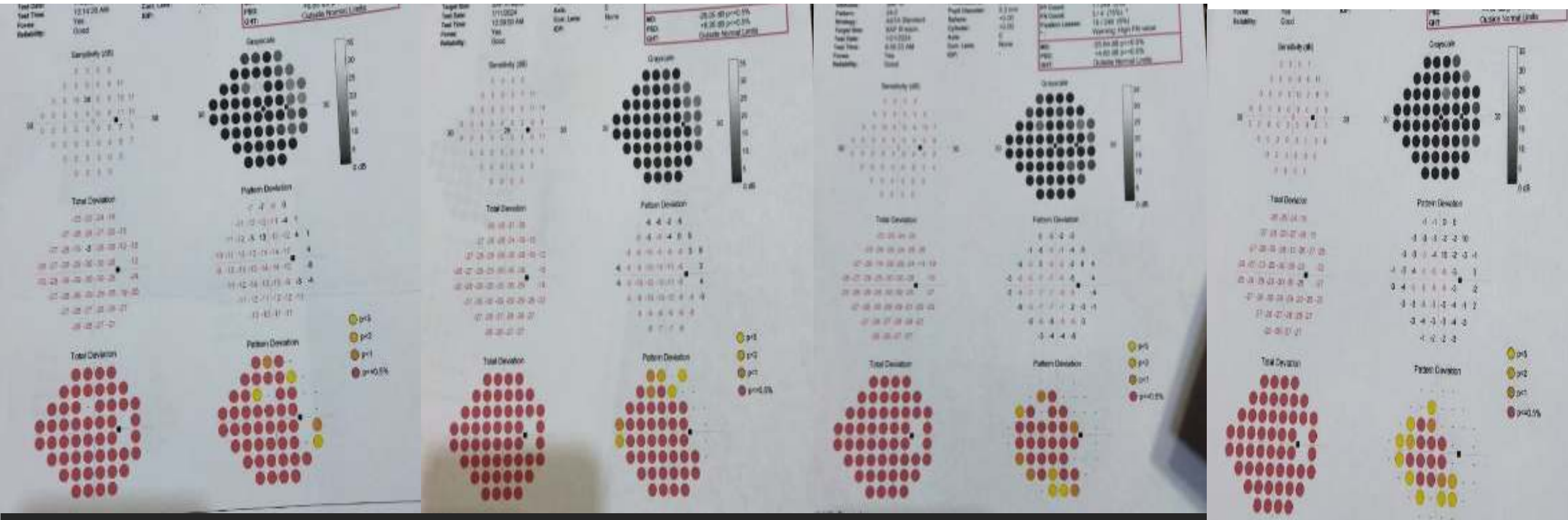
## Visual Field Comment

- Reliability Must be Good
- Mean Deviation
- Pattern Standard Deviation
- Glaucoma Hemifield Test

**And now we going to show some of our clinical data of patients**

## #Case 1# (Advanced Case)

- 70 yrs male, Dm 20 yrs ago, not HTN, C/O by Blurred and Impaired Vision **Specially (OD)**
- VA (OD) 6/60 (OS) 6/18
- IOP (OD) 25 mmHg
- C/D Ratio (OD) 0.9 (OS) 0.6
- Diagnosed as POAG on **triple therapy** Brimonidine, Dorzolamide and Cidmex.



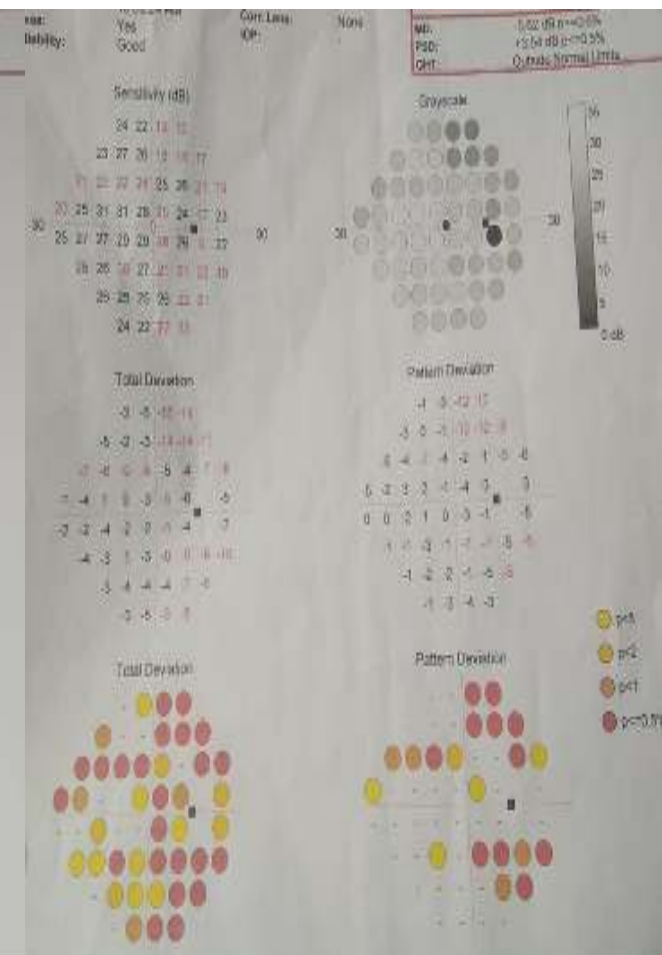
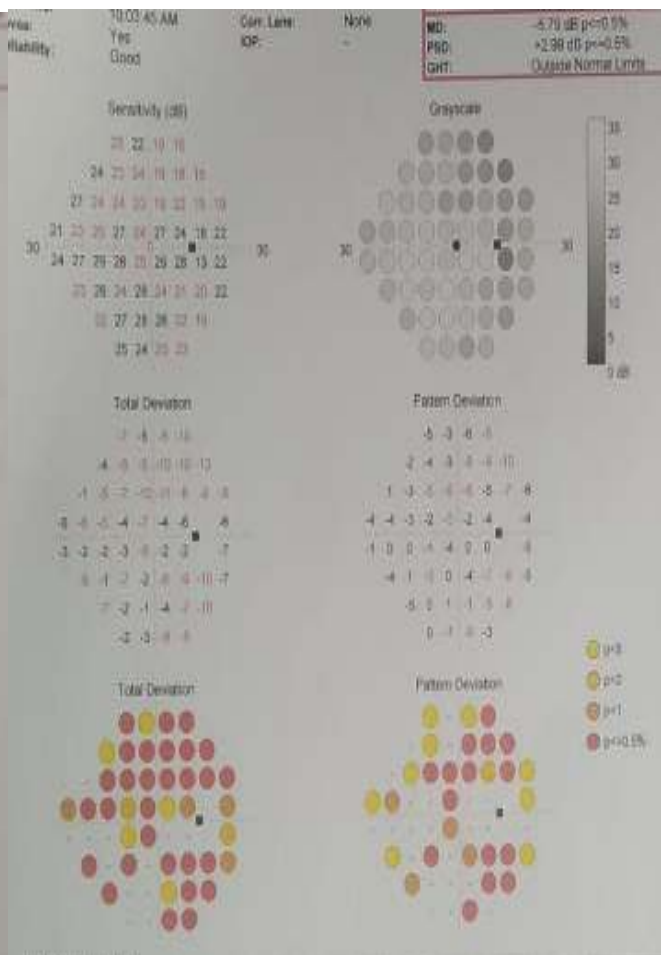
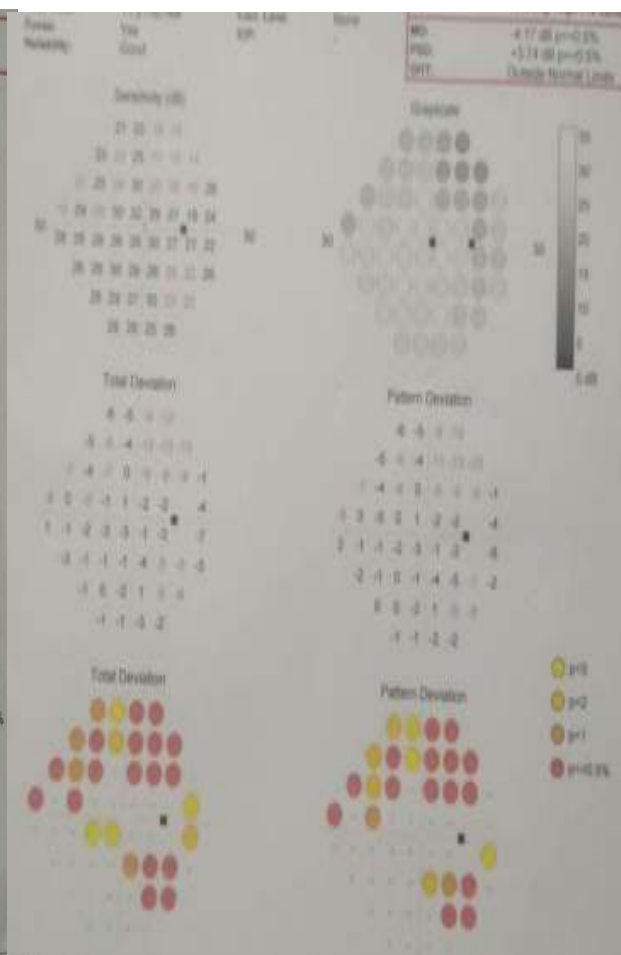
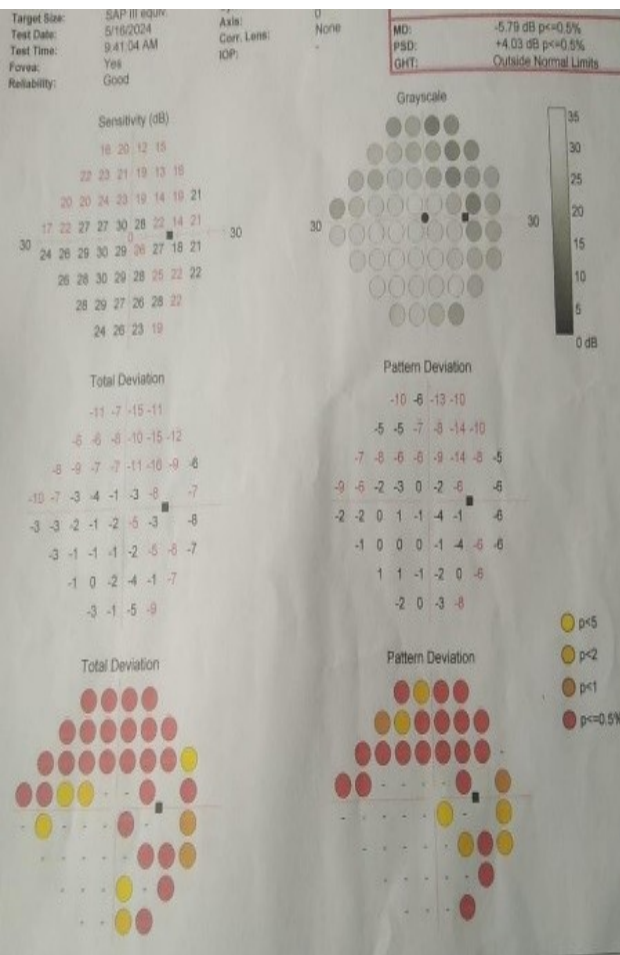
|            | At Start                                                                                                                                       | 1 <sup>st</sup> Follow Up                                                                                                           | 4 <sup>rd</sup> Follow up                                                                                                                                 | 7 <sup>th</sup> Follow up                                                                                                                                 |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| IOP        | 25 mmHg                                                                                                                                        | 23 mmHg                                                                                                                             | 18 mmHg                                                                                                                                                   | 16 mmHg                                                                                                                                                   |
| Medication | Triple Therapy                                                                                                                                 | as before                                                                                                                           | Shifted to Dual Therapy                                                                                                                                   | Dual Therapy                                                                                                                                              |
| V/A        | 3/60                                                                                                                                           | 4/60                                                                                                                                | 6/60                                                                                                                                                      | 6/24                                                                                                                                                      |
| VF         | <ul style="list-style-type: none"> <li>• Good Reliability</li> <li>• MD -26 dB</li> <li>• PSD 5.6 dB</li> <li>• GHT: Outside normal</li> </ul> | <ul style="list-style-type: none"> <li>• Good Reliability</li> <li>• MD -25.64 dB</li> <li>• PSD 5.36 dB</li> <li>• GHT:</li> </ul> | <ul style="list-style-type: none"> <li>• Good Reliability</li> <li>• MD -25.05 dB</li> <li>• PSD 4.85 dB</li> <li>• GHT: Outside normal Limits</li> </ul> | <ul style="list-style-type: none"> <li>• Good Reliability</li> <li>• MD -23.05 dB</li> <li>• PSD 4.05 dB</li> <li>• GHT: Outside normal Limits</li> </ul> |



## #Case 2# (Advanced Case)

- 63 yrs male, Dark Race, not Dm not HTN, C/O Blurred, Impaired Vision and intermittent pain **Specially (OD)**
- Bilat. Pseudo-Phakic, OD on top of Trabeculectomy, OS Complicated cataract Surgery
- VA (OD) 2/60 - (OS) HM
- IOP 25 - 15 mmHg

Diagnosed as POAG on **Dual Therapy** Alphagen and Dorzolamide.





|            | At Start                                                                                                                                         | 1 <sup>st</sup> Follow Up                                                                                                                         | 4 <sup>rd</sup> Follow up                                                                                                                        | 8 <sup>th</sup> Follow up                                                                                                                               |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| IOP        | 25mmHg                                                                                                                                           | 24 mmHg                                                                                                                                           | 20 mmHg                                                                                                                                          | 17 mmHg                                                                                                                                                 |
| Medication | Dual Therapy                                                                                                                                     | as before                                                                                                                                         | as before                                                                                                                                        | Shifted to Dual Therapy                                                                                                                                 |
| V/A        | 4/60                                                                                                                                             | 5/60                                                                                                                                              | 6/60                                                                                                                                             | 6/18                                                                                                                                                    |
| VF         | <ul style="list-style-type: none"> <li>• Good Reliability</li> <li>• MD -5.80 dB</li> <li>• PSD 4.5 dB</li> <li>• GHT: Outside normal</li> </ul> | <ul style="list-style-type: none"> <li>• Good Reliability</li> <li>• MD -5.64 dB</li> <li>• PSD 4.02 dB</li> <li>• GHT: Outside normal</li> </ul> | <ul style="list-style-type: none"> <li>• Good Reliability</li> <li>• MD -4.00 dB</li> <li>• PSD 3.5 dB</li> <li>• GHT: Outside normal</li> </ul> | <ul style="list-style-type: none"> <li>• Good Reliability</li> <li>• MD -3.5 dB</li> <li>• PSD 2.99 dB</li> <li>• GHT: Outside normal Limits</li> </ul> |

# #Case 3# (Moderate Case)

- 24 yrs old female, not Dm not HTN, C/O Intermittent attacks of pain with severe headache **Specially (OD)**
- VA (OD) 6/18 - (OS) 6/9
- IOP 25 - 16 mmHg
- Diagnosed as POAG on **Dual Therapy** Dorzolamide and Brimonidine eye drops



|            | At Start                                                                                                                                         | 1 <sup>st</sup> Follow up                                                                                                                         | 4 <sup>rd</sup> Follow up                                                                                                                 | 6 <sup>th</sup> Follow up                                                                                                                               | 8 <sup>th</sup> Follow up                                                                                                                        |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| IOP        | 25 mmHg                                                                                                                                          | 23 mmHg                                                                                                                                           | 20 mmHg                                                                                                                                   | 18 mmHg                                                                                                                                                 | 16 mmHg                                                                                                                                          |
| Medication | Start Dual Therapy                                                                                                                               | as before                                                                                                                                         | as before                                                                                                                                 | Shifted to Mono Therapy                                                                                                                                 | Monotherapy                                                                                                                                      |
| V/A        | 6/18                                                                                                                                             | 6/18                                                                                                                                              | 6/12                                                                                                                                      | 6/9                                                                                                                                                     | 6/6                                                                                                                                              |
| VF         | <ul style="list-style-type: none"> <li>• Good Reliability</li> <li>• MD -5.80 dB</li> <li>• PSD 4.5 dB</li> <li>• GHT: Outside normal</li> </ul> | <ul style="list-style-type: none"> <li>• Good Reliability</li> <li>• MD -5.64 dB</li> <li>• PSD 4.02 dB</li> <li>• GHT: Outside normal</li> </ul> | <ul style="list-style-type: none"> <li>• Good Reliability</li> <li>• MD -4.00 dB</li> <li>• PSD 3.5 dB</li> <li>• GHT: Outside</li> </ul> | <ul style="list-style-type: none"> <li>• Good Reliability</li> <li>• MD -4.00 dB</li> <li>• PSD 3.5 dB</li> <li>• GHT: Outside normal Limits</li> </ul> | <ul style="list-style-type: none"> <li>• Good Reliability</li> <li>• MD -4.00 dB</li> <li>• PSD 3.5 dB</li> <li>• GHT: Outside normal</li> </ul> |

# Advantages of Micro pulse & Photo-bio-modulation

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- **Non-invasive, outpatient Procedure**
- **Preserves quality of life with minimal side effects as we called it New Age of Glaucoma Treatment which make it more attractive.**
- **No activity restriction for patients, Minimal risk of infection or failure.**
- **Easy, Quick & Portable Tools.**

# Conclusion

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In our Study, we got these Points:

- IOP Reduced approximately 20 – 30 % but still need more search
- Glaucoma Medication Reduced by at least one medication from baseline
- No significant Complication after sessions

# Take Home

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**Trans-scleral Photo-Bio-Modulation is  
a valuable addition to Glaucoma  
treatment arsenal.**





# Thank you For Attention

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**ANY QUESTIONS?**

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