



COMPREHENSIVE OCULAR SURFACE WORKUP IN PATIENTS WITH MEIBOMIAN GLAND DYSFUNCTION TREATED WITH INTENSE REGULATED PULSED LIGHT

FRANCESCO CARONES, MD
MEDICAL DIRECTOR AND PHYSICIAN CEO
CARONES OPHTHALMOLOGY CENTER, MILAN - ITALY



FINANCIAL DISCLOSURES

Francesco Carones, MD has financial interests with the following companies:

- Johnson & Johnson Vision (not relevant to this presentation)
- Alcon Laboratories (not relevant to this presentation)
- Slack Inc (not relevant to this presentation)
- WaveLight GMBH (not relevant to this presentation)
- CSO (not relevant to this presentation)
- Vivior Ltd (not relevant to this presentation)



MEIBOMIAN GLAND DYSFUNCTION AND DRY EYE DISEASE

- Meibomian Gland Dysfunction (MGD) is the most common cause of Dry Eye Disease (DED)
- Patients suffering from MGD are significantly increasing, illness of the century
 - Multi-factorial disease: hormones, climate, pollution, food, etc.
- Subjective symptoms, vision fluctuation, visible signs as to be a social impairment in some cases



MEIBOMIAN GLAND DYSFUNCTION AND DRY EYE DISEASE

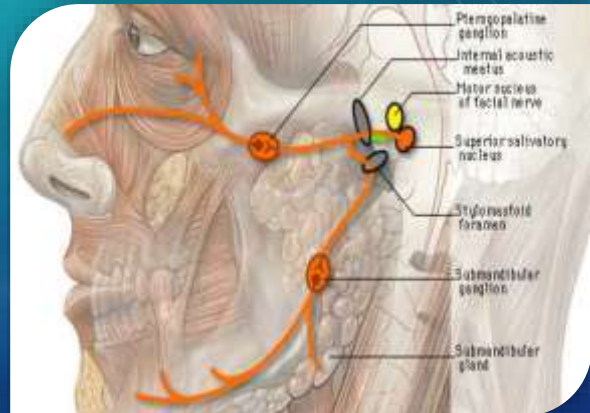
- Traditional therapy for MGD:
 - Eyedrops: artificial tears, corticosteroids, antibiotics
 - Physical: warm patches, eyelids hygiene
 - Mechanical: Meibomian glands expression
- Need compliance, costs, perseverance, frustration
- Results are not always there → unhappy patients



INTENSE REGULATED PULSE LIGHT (IRPL) THERAPY

Novel approach for MGD therapy

- Mechanism of action is neurological
- Infrared nerve stimulation induces a return to normal activity of the Meibomian glands



IRPL DEVICE





IRPL PROTOCOL

The full success of treatment depends on the compliance with 3 sessions as follows:

- Day 0
- Day 15
- Day 45
- (Day 75 optional)

SIMPLE AND FAST

- Eye mask are adjusted on patients eyes
- The gel is applied on the cheekbone and the temporal areas
- A series of 5 flashes are applied under each eye



STUDY PROTOCOL

56 eyes, 28 patients with clinical signs and symptoms of MGD, assessed before and 30 days after last IRPL treatment

- Subjective improvement questionnaire (0 to 4)
- Non Invasive Tear Break Up Time (NIBUT), SBM Systems, Italy
- Lipid Layer Thickness (LLT), SBM Systems, Italy
- Meibography, SBM Systems, Italy
- Tear Film Osmolarity, TearLab Corp, USA



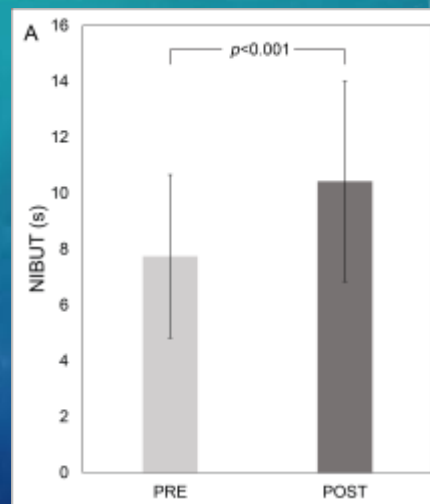
TREATMENT PROCEDURE

- Source: Xenon Flash Lamp
- Wavelength: 580-1200 nm
- Surface area treated: 7,5 cm²
- Energy: 8-13 J/cm²
- 5 pulses of the inferior eyelid
- 3 treatments, day 0, day 15 and day 45



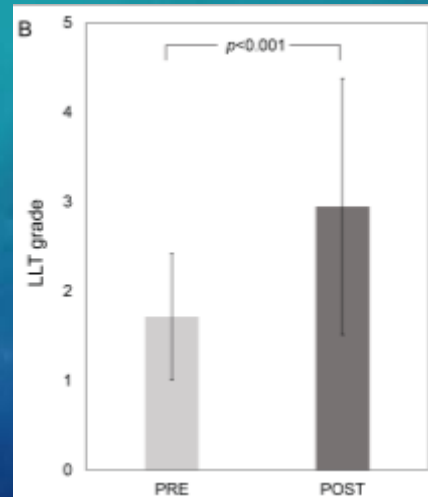
RESULTS - NIBUT

- Pre Rx: 7.7±10.4 sec
- Post Rx: 10.4±3.6 sec
 $p < 0.001$
- Improvement in 44/56 eyes
78.6%



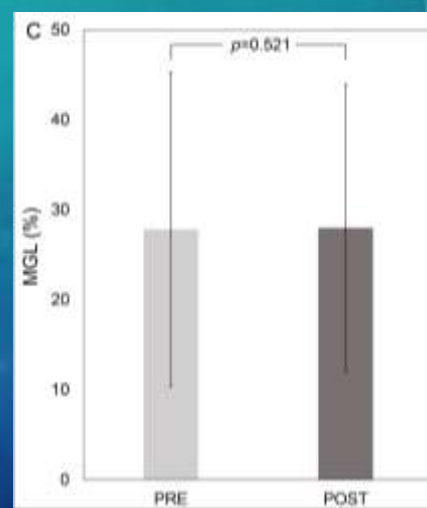
RESULTS - LLT

- Pre Rx: 1.7 ± 0.7
- Post Rx: 3.0 ± 1.4
 $p < 0.001$
- Improvement in 44/56 eyes
78.6%



RESULTS – MGL %

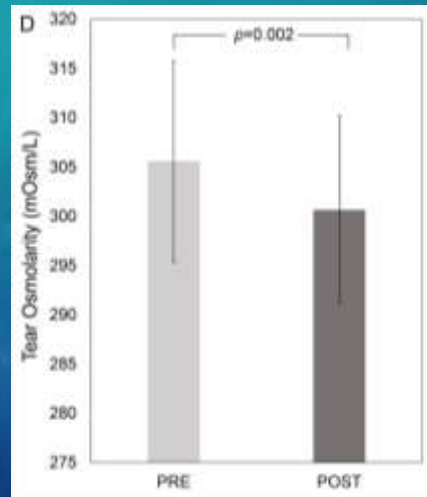
- Pre Rx: $28.4 \pm 20\%$
- Post Rx: $29.5 \pm 17\%$
 $p > 0.05$
- Improvement in 3/56 eyes
5%





RESULTS – OSMOLARITY

- Pre Rx: 305.6 ± 10.2 mOsm/L
- Post Rx: 300.7 ± 9.5 mOsm/L
 $p=0.002$
- Improvement in 37/56 eyes
66%



RESULTS – SUBJECTIVE SYMPTOMS

- 26/28 patients (93%) showed improvement in symptoms
- Mean value 2.25/4

