Menegament of Melasma with Ablative Laser Treatment

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MELASMA

- Acquired
- Symetric
- Hypermelanosis
- Age 30-55 years
- ♀/♂: 90/10
- Epidermal
- Dermal
- Mixt
Mechanism of action of main bleaching agents used to treat melasma (adapted from Gupta et al., 2006)

<table>
<thead>
<tr>
<th>Mechanism of action</th>
<th>Substance</th>
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<tr>
<td>Tyrosinase inhibition</td>
<td>Hydroquinone</td>
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<tr>
<td></td>
<td>Tretinoine</td>
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<td></td>
<td>Azelaic acid</td>
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<td>Kojic Acid</td>
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<td>Non-selective suppression of Melanogenesis</td>
<td>CS</td>
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<tr>
<td>Ínhibition of ROS</td>
<td>Azelaic acid</td>
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<td>Melanin removal</td>
<td>Chemical peeling</td>
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<td>Thermal damage</td>
<td>Lasers</td>
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Melasma Laser Treatment

- Non-ablative
  - Q-SW Ruby
  - Q-SW Alexandrite
  - Q-SW Nd-YAG
  - Cu-Bromide
  - FLPLDL
  - IPL

- Ablative
  - CO2
  - Er-YAG
  - Thullium
Ablative Laser Treatment of Melasma

- Laser resurfacing
- Fractional resurfacing
Laser resurfacing; Er-YAG

- Rhesa May at al.,
- Postpeel results
  - Immediate results excellent
  - 3rd-6th week PIH (universal, all patients)
    - GA peeling beweekly
    - Bleaching regimen
  - 6th month MASI score significantly decreased
- Conclusion: Perform just for refractory melasma patients

Melasma; Ablative Laser Treatment with Er-YAG

- Manaloto et al., 1999
  - CS, N=10
  - ER-YAG (Continuum Biomedical, Dublin, CA) 1-1.5 J (5.1-7.6J/cm²), 5 mm spot, 8 Hz
  - PIH 3-6 weeks after procedure
    - Azelaic acid 20% cream, GA peeling weekly

Fractional laser (nonablative)

- Non-ablative Fractional treatment has significant improvement effect on the melasma pecthes Melanocyte count is decreased
- But at 6th month follow-up, recurrence was noted in 50% patients
Melasma; Fractional Ablative Laser Treatment with Er-YAG

- Wanitphakdeedecha et al, 2009
  - CS, N=20 ♀, Epidermal Melasma, 2 treatments 1 month apart
  - VSP Er-YAG (FidelisM320A, Fotona, Ljubliana, Slovenia) 160 mJ(0.4 J/cm²), 300 µs PW, 7 mm spot, 10 Hz
  - PIH (n=3) cleared spontaneously within 2 weeks
  - Acneiform eruption (n=2) treated with clindamycin and adapalene
  - 15% of patient had 50% improvement
Melasma; Fractional Ablative Laser Treatment with CO2

- Trelles et al., 2010 RCCT
  - 30 woman FSP II-V
  - GroupA. Kligman’s formula + TT2 ☉ cream (n=10)
  - GroupB. CO2 laser (n=10)
  - GroupC. CO2 laser + TT2 cream (n=10)
    - Laser: Ultrapulse Active FX Lumenis, Yorknaem, Israel) 7.5 W, 150 mJ (11.3 J/cm2), 350 ms PW, 50 Hz
  - 1st month A,B,C groups absence of complications
  - QoL index 100% all groups
  - MASI score decreased A,B group 12 month of follow-up, stabil at C group


☉ TT2: Hydroquinon 2%, Kojic acid 2%, GA
Melasma; Fractional Ablative Laser Treatment with Thullium Laser

- Polder et al.
- CS, N=14
- Thullium Fiber Laser (Fraxel Dual, Solta Medical, USA) 10-20 mJ, 252-784 MTZ/cm²,
- 3-4 treatment, 4 week intervals
- 51% improvement, PIH (-)
- 34% MASI score at 3rd-6th month post treatment follow-up

Melasma; Combined Ablative + Non-ablative Laser Treatment

- Idea;
  - Ablative: Remove epidermal melanin & melanocytes
  - Non-Ablative: Remove melanin in dermal melanophages

- Angsuwarangsee et al.
- N=6,
  - Right: QSAL
  - Left: Ultrapulse CO2 + QSAL
  - Significant response combination treatment site
  - Contact dermatitis & PIH
  - Hence: Just for refractory melasma

Conclusion

- In the management of melasma with ablative lasers is controversial
- Thullium laser seems to promising laser type for epidermal melasma
- Needs further investigation
- Topical bleaching agents remain the gold standard treatment
- Combining pre&post laser and topical treatment greater efficacy compared to treatments alone
Melasma; My Treatment Approach

- **Topical Treatment**
  - Kligman formulation or TTT
  - Dermamelan peeling system
  - Sunscreen SPF 30+ or opaque

- **Oral Medication**
  - Tranexamic acid 1500 mg/day PO
  - NAC 400 mg/day PO

- **Mesotherapy**
  - Tranexamic acid + NAC + Vit-C equal, 0.01 ml/cm² weekly intervals

- **Laser**
  - FPDL 585 nm, 7 mm spot, 2-2.5 J/cm²
  - Q-SW Nd-YAG 1064 nm, 6 mm spot, 0.6-1 J/cm²
Dermamelan Peeling

Before

3 Month after
Melasma + PIH

Before

8 Month After
Melasma + PIH

Before

5 Month after
Melasma PIH

Before

5 Month after
Thank you
Serafettin Saracoglu, MD