
Melasma: A comprehensive update

Part II

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2. Reading of the Source Article
3. Achievement of a 70% or higher on the online Case-based Post Test
4. Completion of the Journal CME Evaluation

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Authors

Dr. Pandya has been an investigator and consultant for Galderma Laboratories within the last 5 years and has received grants and honoraria for these services. Dr. Sheth reported no relevant financial relationships with commercial interest(s).

Planners

Matthew Zirwas, MD, served as a peer reviewer for this CME activity and is a speaker and consultant for Coria Laboratories and has received honoraria for these services. He is also a consultant for Onset Therapeutics and has received honorarium for this service. The other planners involved with this journal-based CME activity have reported no relevant financial relationships. The editorial and education staff involved with this journal-based CME activity have reported no relevant financial relationships with commercial interest(s).

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Learning Objectives

After completing this learning activity, participants should be able to list the various treatment options available for melasma and describe their respective efficacy, side effect profiles, and risks and benefits; and develop an individualized, evidence-based treatment plan for patients with melasma.

Date of release: October 2011

Expiration date: October 2012

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doi:10.1016/j.jaad.2011.06.001

Several methods of treatment are available to patients with melasma. First-line therapy usually consists of topical compounds that affect the pigment production pathway, broad-spectrum photoprotection, and camouflage. Second-line therapy often consists of the addition of chemical peels, although these must be used cautiously in patients with darker skin. Laser and light therapies represent potentially promising options for patients who are refractory to other modalities, but also carry a significant risk of worsening the disease. A thorough understanding of the risks and benefits of various therapeutic options is crucial in selecting the best treatment. (*J Am Acad Dermatol* 2011;65:699-714.)

Key Words: chemical peels; chloasma; hydroquinone; laser therapy; melasma; pigmentation.

Melasma has traditionally been treated with a combination of photoprotection, avoidance of trigger factors, and topical depigmenting agents with varying degrees of success. New pathways involved in pigment production are being studied as targets for topical therapy. Of late, there has also been a significant increase in the types of laser and light technologies available for the treatment of disorders of hyperpigmentation. While multiple options currently exist to help treat melasma, some of these therapies have come under increasing scrutiny, underscoring the need for more research into the pathogenesis and treatment of melasma.

TREATMENT OPTIONS FOR MELASMA

The treatment of melasma includes topical formulations, chemical peels, lasers, and light sources.

While no single therapy has proven to be of benefit to all patients as the sole therapy, combinations of modalities can be used to optimize management in difficult cases. Levels of evidence for the trials presented below are provided for each treatment modality based on guidelines adapted from the US Preventive Services Task Force on health care.¹ In this system, a rating of I means that the evidence is obtained from at least one properly designed, randomized controlled trial, and a rating of A means there is good evidence to support the use of the procedure (Appendix).

SUNSCREENS AND CAMOUFLAGE FOR MELASMA

Key points

- **Ultraviolet and visible light can induce melanin formation**
- **The regular use of broad spectrum sunscreen is effective both in preventing**

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Funding sources: None.

Reprints not available from the authors.

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0190-9622/\$36.00

melasma and in enhancing the efficacy of other topical therapies once melasma has developed

- **Camouflage makeup can be an important component of melasma treatment**

Several studies have shown that light from both the ultraviolet (UV) and even the visible spectrum can induce pigmentary changes in the skin, including in Fitzpatrick skin phototypes IV to VI.^{2,3} Immediate pigment darkening caused by the redistribution and oxidation of preexisting melanin occurs after low-dose ultraviolet A (UVA) exposure and usually fades after 2 hours.⁴ Persistent pigment darkening lasts up to 24 hours and occurs after higher doses of UVA exposure. Delayed tanning can occur from either UVA or UVB exposure and is caused by melanin synthesis. To investigate if broad-spectrum sun protection could be used to inhibit the onset of melasma, Lakhdar et al⁵ enrolled 200 Moroccan women who were less than 3 months pregnant and gave them a sunscreen with a sun protection factor (SPF) of 50+ and a UVA protection factor of 28 (Anthelios; La Roche-Posay L'Oreal, Clichy, France) to use every 2 hours during the day, regardless of sun exposure.⁵ Five of the 185 women (2.7%) who completed the 12-month trial developed melasma during pregnancy. Notably, the same investigators reported a 53% prevalence of melasma with pregnancy in a similar population in an earlier study.⁶ Eight of 12 patients with preexisting melasma improved with the sunscreen (level of evidence, II-iii). Broad-spectrum sun protection has also been shown to enhance the efficacy of hydroquinone.⁷ A double blind study examining the difference in efficacy between patients using a hydroquinone-containing agent with either vehicle or broad-spectrum sun protection found that 96.2% of patients using concomitant sun protection showed improvement versus 80.7% of patients using hydroquinone alone (level of evidence, II-i). A recent study revealed that visible light can produce significant pigmentation in normal skin, a finding that may be important in the pathogenesis of melasma.³

With the currently available data, a broad-spectrum UVA- and UVB-protective sunscreen with an SPF of at least 30 along with a physical block, such as titanium dioxide or zinc oxide, should be used by

CAPSULE SUMMARY

- Topical treatment of melasma includes hydroquinone, retinoids, chemical peels, and many other less well studied compounds.
- The evidence for improvement with laser therapy is mixed with a significant potential for worsening.
- Newer topical agents and laser technologies represent promising options for therapy, especially in treatment-resistant patients.

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