Treatment of Melasma

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Question

How does one distinguish epidermal and dermal melasma? What are the current treatment options in melasma?

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Response

from Amy J. McMichael, MD, 02/10/2003

Melasma is a common acquired hypermelanosis that occurs exclusively in sun-exposed areas; it is exacerbated by sun exposure, pregnancy, oral contraceptives, and certain antiepilepsy drugs. The most common presentation is a centrofacial pattern involving the cheeks, forehead, upper lip, nose, and chin. It may also involve the hands and arms. The type of hypermelanosis may be epidermal (brown), dermal (blue-gray), or mixed (brown-gray). Wood's lamp examination distinguishes epidermal from dermal hyperpigmentation in all but skin phototypes V and VI, in which the Wood's lamp is of no value. In skin phototypes I-IV, epidermal melasma is accentuated but dermal melasma is not.

Successful treatment of melasma involves the triad of sun blocks, bleach, and time. Without daily use of sunscreens, treatment will fail. Sunscreens should be opaque, broad-spectrum formulations with an SPF of at least 30. Bleaching preparations include 2% or 4% hydroquinone-containing creams or gels. Combination products containing sunscreens and hydroquinone are now available and are very effective and convenient for the patient. These are applied once daily. Simultaneous use of topical tretinoin gel (0.025%) is usually required as well.

For our patients, we recommend combination sunscreen/hydroquinone products in the morning and tretinoin in the evening. Also available now are combination corticosteroid/hydroquinone/tretinoin creams, which are very effective and well tolerated by patients for short periods of time (ie, 8 weeks). Another option is glycolic acid peels in patients with primarily epidermal melasma. Regardless of the treatment modality, patients need to be aware that hyperpigmentation may occur even with effective treatment.

It is commonly believed that dermal melasma is more difficult to treat, but there is no controlled, large study that proves this is true. The best approach is to begin treatment and adjust dosages and agents used based on response.

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MEDLINE Abstracts: Treatment of Melasma

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What's new concerning our understanding of the treatment of melasma? Find out in this easy-to-navigate collection of recent MEDLINE abstracts compiled by the editors at Medscape Dermatology.

Combined Ultrapulse CO2 Laser and Q-Switched Alexandrite Laser Compared With Q-Switched Alexandrite Laser Alone for Refractory Melasma: Split-Face Design

Angsuwarangsee S, Polnikorn N
Dermatol Surg. 2003;29:59-64

Background: Melasma is common and can cause major psychological impact. To date, the mainstay of treatment, including various hypopigmenting agents and chemical peels, is ineffective and can cause adverse effects. Laser is a new approach and is yet to be explored for its efficacy and safety.
Objective: To compare combined Ultrapulse CO2 laser and Q-switched alexandrite laser (QSAL) with QSAL alone in the treatment of refractory melasma.
Methods: Six Thai females were treated with combined Ultrapulse CO2 laser and QSAL on one side of the face and QSAL alone on the other side. The outcome was evaluated periodically for up to 6 months using the modified Melasma Area and Severity Index score and the modified Melasma Area and Melanin Index score.
Results: The side with combination treatment had a statistically significant reduction of both scores. On the QSAL side, the score reduction was not significant. Two cases developed severe postinflammatory hyperpigmentation and were effectively treated with bleaching agents. Transient hypopigmentation and contact dermatitis were observed with the combination treatment side.
Conclusions: Combined Ultrapulse CO2 laser and QSAL showed a better result than QSAL alone but was associated with more frequent adverse effects. Long-term follow-up and a larger number of cases are required to determine its efficacy and safety for refractory melasma.

The Effect of Combination Treatment of the Recalcitrant Pigmentary Disorders With Pigmented Laser and Chemical Peeling

Lee GY, Kim HJ, Whang KK
***Dermatol Surg*. 2002;28:1120-1123**

Background: The pigmentary disorders including melasma, freckles, postinflammatory hyperpigmentation, or acquired bilateral nevus of Ota-like macules, etc, are usually resistant to all treatment modalities, and are therefore very frustrating to the patient and clinician.
Objective: The purpose of this study was to demonstrate the effect of the combination treatment of recalcitrant pigmentary disorders with pigmented laser and chemical peeling and to observe any side-effects.
Methods: Twenty-four patients with recalcitrant facial pigmentary disorders were treated with the Q-switched alexandrite laser at fluences of 7.0-8.0 J/cm2 or the pigmented lesion dye laser (PLDL) at fluences of 2.0-2.5 J/cm2, and at the same session, 15-25% trichloroacetic acid (TCA) with or without Jessner's solution were used for the chemical peeling. And the results were clinically analyzed.
Results: In the assessment by the patients, 63% of them considered the result as "clear, excellent, or good" in

respect to the color and 54% of them assessed that the size of the lesion had cleared more than 50%. In the assessment by a clinician, 67% of the patients were categorized into the grade of clear, excellent, or good. There were no significant complications with this combination method.
Conclusions: The combination treatment with pigmented laser and chemical peeling is effective, safe, and relatively inexpensive treatment modalities in the recalcitrant pigmentary disorders.

Efficacy of Glycolic Acid Peels in the Treatment of Melasma

Hurley ME, Guevara IL, Gonzales RM, Pandya AG
***Arch Dermatol.* 2002;138:1578-1582**

Background: Melasma is an acquired hypermelanosis that is often recalcitrant to treatment with hypopigmenting agents.
Objective: To assess the efficacy of 4% hydroquinone cream vs 4% hydroquinone cream combined with glycolic acid peels as treatment for melasma.
Methods: Twenty-one Hispanic women with bilateral epidermal and mixed melasma were enrolled in a split-faced prospective trial lasting 8 weeks. Patients underwent 20% to 30% glycolic acid peels every 2 weeks to one side of the face only in addition to twice-daily full-face application of 4% hydroquinone cream and sun protective factor 25 UV-B sunscreen each morning. Pigmentation was measured objectively using a mexameter and the Melasma Area and Severity Index and subjectively using a linear analog scale and physician and patient global evaluation.
Results: Hydroquinone treatment alone and treatment with the combination of hydroquinone and glycolic acid had a significant effect in reducing skin pigmentation compared with baseline (P<.001). However, no significant difference was found using combination therapy compared with hydroquinone alone (P =.75).
Conclusions: Use of 4% hydroquinone and a daily sunscreen is effective in the treatment of melasma; however, the addition of 4 glycolic acid peels did not enhance the hypopigmenting effect of hydroquinone treatment alone.

A Comparative Study of 20% Azelaic Acid Cream Monotherapy Versus a Sequential Therapy in the Treatment of Melasma in Dark-Skinned Patients

Sarkar R, Bhalla M, Kanwar AJ
***Dermatology.* 2002;205:249-254**

Background: Melasma is a commonly found hyperpigmentary disorder in dark-complexioned persons, which is rather difficult to treat. Azelaic acid (AZA) 20% is considered efficacious in the treatment of melasma, although the response is rather slow. It has also been combined synergistically with topical retinoic acid, where the results were satisfactory.
Objective: The study was done to evaluate the usefulness of a sequential therapy of potent topical steroids +20% AZA cream versus only 20% AZA cream in the treatment of melasma.
Methods: This was a prospective, single-blind, right-left comparison pilot study with (1) twice daily application of 20% AZA to one half of the face for 24 weeks and (2) a potent topical steroid, 0.05% clobetasol propionate cream, to be applied for 8 weeks only and then to be followed by 20% AZA cream only for the next 16 weeks on the other half. Concomitant use of a broad-spectrum sunscreen was also mandatory. Thirty Indian patients (25 females, 5 males), whose ages ranged from 21 to 45 years and who were not pregnant, nursing or on any concurrent therapy, completed the study. Clinical evaluation, photography and the overall response were assessed at 4, 8, 16 and 24 weeks.
Results: At 4, 8 and 16 weeks, the lightening of melasma was significantly more marked on the side receiving the sequential therapy rather than the side receiving only 20% AZA cream ($p < 0.001$). However, at 24 weeks, although the difference was still significant ($p = 0.0052$), as many as 96.7 and 90% of patients of each group (sequential therapy and AZA) had good to excellent responses to treatment. The side-effects noted were mostly mild and transient and mainly local irritant effects.
Conclusions: A sequential therapy of topical potent steroids +20% AZA cream can be considered as another alternative treatment for melasma, which combines the beneficial effects of both besides perhaps increasing the compliance of the patients. 20% AZA monotherapy itself is also an effective and well-tolerated therapy for melasma in dark-skinned races.

Treatment of Melasma With Pycnogenol

Ni Z, Mu Y, Gulati O
***Phytother Res*. 2002;16:567-571**

Melasma (or chloasma) is a common disorder of cutaneous hyperpigmentation predominantly affecting sun-exposed areas in women. The pathogenesis of melasma is not fully understood and treatments are frequently disappointing and often associated with side effects. Pycnogenol is a standardized extract of the bark of the French maritime pine (Pinus pinaster), a well-known, potent antioxidant. Studies in vitro show that Pycnogenol is several times more powerful than vitamin E and vitamin C. In addition, it recycles vitamin C, regenerates vitamin E and increases the endogenous antioxidant enzyme system. Pycnogenol protects against ultraviolet (UV) radiation. Therefore its efficacy in the treatment of melasma was investigated. Thirty women with melasma completed a 30-day clinical trial in which they took one 25 mg tablet of Pycnogenol with meals three times daily, i.e. 75 mg Pycnogenol per day. These patients were evaluated clinically by parameters such as the melasma area index, pigmentary intensity index and by routine blood and urine tests. After a 30-day treatment, the average melasma area of the patients decreased by 25.86 ± 20.39 mm(2) ($p < 0.001$) and the average pigmentary intensity decreased by 0.47 ± 0.51 unit ($p < 0.001$). The general effective rate was 80%. No side effect was observed. The results of the blood and urine test parameters at baseline and at day 30 were within the normal range. Moreover, several other associated symptoms such as fatigue, constipation, pains in the body and anxiety were also improved. To conclude, Pycnogenol was shown to be therapeutically effective and safe in patients suffering from melasma.

Therapeutic Effect of Topical Application of Linoleic Acid and Lincomycin in Combination With Betamethasone Valerate in Melasma Patients

Lee MH, Kim HJ, Ha DJ, Paik JH, Kim HY
***J Korean Med Sci.* 2002;17:518-523**

Melasma is an acquired symmetric hypermelanosis characterized by irregular light-to gray-brown macules and patches on sun-exposed areas. Many therapeutic agents are available but are unsatisfactory. Recently, it has been demonstrated that lincomycin (LM) and linoleic acid (LA) can inhibit melanogenesis in vitro. Our purpose was to investigate the clinical efficacy of topical application of LM and LA in combination with betamethasone valerate (BV) in melasma patients. Forty-seven Korean female adults with clinically diagnosed melasma were enrolled in a 6-week, double-blind, randomized clinical trial. Patients were treated with one application of the vehicle (group A), 2% LM mixed with 0.05% BV (group B), or 2% LM mixed with 0.05% BV and 2% LA (group C) on the face every night. Determination of efficacy was based on the Melasma Area and Severity Index (MASI) score and objective assessment (no effect, mild, moderate, or excellent) at intervals of 2 weeks until the end of the study at 6 weeks. After 6 weeks, in comparison with the pre-treatment MASI score, the average MASI score of group C decreased to 68.9%, compared with 98% in group A ($p<0.05$) and 85.4% in group B. There was no statistically significant difference between group A and group B. Seven patients (43.7%) in group C revealed more than moderate improvement in objective assessment, compared with none in group A and two patients (12.5%) in group B. There were no significant side effects. Topical application of linoleic acid is considered to be effective in the treatment of melasma patients.