

Acidified Amino Acids in the Management of Melasma

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Melasma is an acquired hyperpigmentary disorder that primarily occurs in sun-exposed facial skin of darker-skinned women. A variety of topical treatments, including hydroquinone, retinoids, kojic acid, and glycolic acid, are available for treatment, but results are variable; lesions are notoriously stubborn and difficult to remove, and recurrence is a frequent problem. We report the use of a novel combination of standard outpatient treatments and an emerging in-office acidified amino acid peel in a patient with melasma.

Melasma is an acquired hyperpigmentary disorder that primarily occurs in the sun-exposed facial regions of darker-skinned women.¹ Lesions may present as tan, brown, blue, or black macules and patches in the centrofacial, malar, or mandibular regions.² As well as a sun-induced etiology, an estrogen-related link to this condition has been reported.² It is thought that the hormonal component to melasma is the reason that lesions are difficult to treat and recurrence after effective treatment is common. Therefore, it is often acknowledged that prolonged treatment—sometimes for a lifetime—is required to control this condition.

A variety of topical treatments, including hydroquinone, retinoids, kojic acid, and glycolic acid, as well as combinations thereof, are available for treatment, but results are variable.¹ These regimens can be complicated, requiring substantial at-home effort, and prolonged periods of time may elapse before any visible changes in the skin's appearance occur. Moreover, recurrence is a frequent problem, particularly after discontinuation of treatment.

We report the use of an in-office acidified amino acid peel along with standard outpatient treatments to

produce a more rapid improvement in a typical patient with melasma. The rapid improvements achieved with the acidified amino acid peel may encourage better life-long adherence to outpatient regimens, producing an overall superior cosmetic result than that achievable with outpatient regimens alone.

CASE REPORT

A 45-year-old Hispanic woman with Fitzpatrick skin type IV and a 15-year history of melasma presented to our office complaining of a further darkening of the facial skin over the past year (Figure 1). A combination of in-office and at-home treatment was prescribed. At home, the patient used a combination cream containing fluocinolone acetonide 0.01%, hydroquinone 4%, and tretinoin 0.05% applied once every morning and tretinoin 0.04% gel applied to the whole face at bedtime nightly. We also recommended an acidified amino acid facial cleanser or an α -hydroxy acid (AHA) wash to be applied whenever the patient washed her face (once or twice daily). Because the patient wanted more rapid efficacy than these topical agents alone provide, we performed weekly in-office facial peels with 40% acidified amino acid gel as well.

Five weeks later, after 6 peels, a noticeable lightening of the hyperpigmented regions of the face was observed (Figure 2). No peri-treatment or posttreatment erythema, peeling, or flaking was noted. The peel itself was virtually painless, and the patient was highly satisfied with the overall aesthetic result.

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Biopelle, Inc, provided product support for this study.

Figure Not Available Online

Figure 1. Standard-light (A) and UV light (B) photographs of a 45-year-old Hispanic woman with Fitzpatrick skin type IV and a 15-year history of melasma with further darkening of the facial skin before treatment.

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Figure 2. Standard-light (A) and UV light (B) photographs of a 45-year-old Hispanic woman with Fitzpatrick skin type IV and a 15-year history of melasma with further darkening of the facial skin after receiving 6 peels of 40% amino acid gel over 5 weeks. A noticeable lightening of the hyperpigmented regions was observed.

DISCUSSION

Melasma is an acquired form of hyperpigmentation of unknown cause. At least 90% of cases occur in women, particularly women with darker skin.¹ Genetic predispositions, exposure to UV radiation, pregnancy, oral contraceptive use, and hormone replacement therapy have all been identified as potential risk factors (the last 3 risks suggest that estrogen exposure may contribute to melasma).^{1,2}

Exposure to UV radiation appears to be the most important risk factor exacerbating melasma—lesions typically worsen during the summer months and may recede during winter months.³ The lesions of melasma are usually symmetric hyperpigmented macules—tan, brown, blue, or black depending on location of melanocytes in the skin—that most often appear on the cheeks, upper lip, chin, and forehead, as well as on other sun-exposed areas of the skin.^{1,2}

Amino acids are molecules that contain amine and carboxyl functional groups. They are the basic building blocks of proteins and contribute to multiple biologic processes, including the maintenance of connective tissue. Acidified amino acids are synthesized by the dissolution and acidification of naturally occurring amino acids that result from the proteolysis of filaggrin⁴ and have an additional carboxyl group on the α -carbon atom. Like AHA and other acid peels (eg, azelaic acid, kojic acid, and glycolic acid), acidified amino acids promote exfoliation.⁴ However, because of their chemical composition, acidified amino acids are potentially less irritating and help retain moisture. Furthermore, the additional carboxyl group on the α -carbon atom contributes to its antioxidant properties, and the amino group has an alkaline pH, which may render the product closer to physiologic pH and therefore more tolerable to the skin.⁴ Combined, the amino group in this formulation induces exfoliation while maintaining hydration, thereby reducing irritation, which can be beneficial in the treatment of melasma.

SUMMARY

Multiple topical therapies—hydroquinone, retinoids, various acids, herbal agents—and ablative procedures are available for the management of melasma. Unfortunately, these topical options must often be used for prolonged periods of time to produce acceptable aesthetic results. Long-term topical treatment may negatively affect patient compliance, which may, in turn, negatively affect patient outcome. Moreover, ablative procedures, as well as some topical treatments, may induce discomfort, erythema, scaling, and posttreatment hyperpigmentation.

Here, we present a combination of standard topical therapy (hydroquinone/tretinoin/AHA wash) plus an acidified amino acid peel. We show that, remarkably, even after one treatment with an acidified amino acid peel, patients can experience marked improvement of clinical melasma symptoms. This immediate improvement may encourage better adherence to home regimens and encourage patients to seek long-term therapy.

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