Skin Care in Ethnic Populations

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ABSTRACT

Use of over-the-counter cosmetics, approaches to hygiene, and many basic dermatologic principles differ between individuals with Caucasian skin and ethnic skin. Still, comparatively few publications highlight these variations or discuss appropriate management. Among many ethnic patients, issues related to skin hydration, restoration of even pigmentation, hair removal, and acne care remain problematic yet not fully addressed. As well, there are some dermatologic conditions that may be rare in Caucasian skin but are much more common in the ethnic patient. Here, we discuss various aspects of skin hydration, dyschromia, sunscreen use, and chemical depilatories in the ethnic population.

KEYWORDS: Ethnic skin, Fitzpatrick type V skin, Fitzpatrick type VI skin, dyschromia, vitiligo, pseudofolliculitis barbae, postinflammatory hyperpigmentation

Cosmetic use, hygienic approaches, and many basic dermatologic principles differ for ethnic individuals. Still, comparatively few publications highlight these variations or discuss appropriate management. Among many ethnic patients, issues related to skin hydration, restoration of even pigmentation, hair removal, and acne care remain problematic yet not fully addressed. As well, there are some dermatologic conditions that may be rare in Caucasian skin but are much more common in the ethnic patient.

Although acne may be seen in white and black patients alike, patients with darker skin have specific characteristics that may complicate standard management of this problem.^{1,2} Whereas fungal infections such as tinea versicolor may be difficult to notice in a white patient, these will cause very noticeable hypopigmentation in darker skin tones.³ Although pseudofolliculitis barbae is a condition that is common in ethnic patients, a physician whose practice includes only white patients will likely never manage this condition.⁴ A recent article discussed the fact that conditions such as dyschromia, alopecia, and seborrheic dermatitis are found much more

frequently in skin of color when compared with that in white patients.⁵ All of this underscores the fact that different skin types have unique properties; thus, it is critical for today's physicians to anticipate potential differences in skin response, recognize therapeutic limitations, and appreciate patient concerns. Here, we discuss various aspects of skin hydration, dyschromia, sunscreen use, and chemical depilatories in the ethnic population.

PHYSIOLOGY OF ETHNIC SKIN

The most apparent difference in individuals of color involves pigmentation. Whereas the actual quantity of melanocytes does not differ between light- and dark-skinned populations, melanocytes of dark-skinned individuals (blacks) produce greater quantities of melanin.⁶⁻⁸ In addition, melanosomes contained within keratinocytes contain more melanin, which undergoes a slower rate of degradation. Although there are no differences in stratum corneum thickness, this layer contains more cell layers. Increased desquamation, increased lipid content,

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and decreased ceramide content have been histologically identified.⁶⁻⁹ Clinically, increased pigmentation confers greater intrinsic photoprotection, and photodamage, actinic keratoses, rhytides, and skin malignancies are less common in these skin types. However, melanocytes in those with darker complexions often show a labile, exaggerated response to cutaneous injury.^{8,9}

EVALUATION

As with other patient populations, ethnic patients are prone to trying a variety of products before consulting a physician. As such, the clinician must do a thorough job of eliciting a skin care history. The individual's skin type should determine the appropriate course of management—skin type refers both to the natural hydration level of the skin and the Fitzpatrick phototype.¹⁰ In general, most skin care regimens address one of four skin types: (1) normal, (2) dry, (3) oily, or (4) combination.^{7,11} Although those with more pigmented complexions express the full variety of skin types, darker individuals seem more prone to either dry or oily skin. In addition, physicians must anticipate the likely response of these skin types to the selected therapy. Because darker skins seem more prone to robust irritations, reactions, and poor scarring, a very fine balance must be reached between properly treating common complaints within this population versus either undertreating to no effect or damaging already inflamed tissues.

HYDRATING LOTIONS

Darker skin tones tend to dry and crack more frequently. This effect is often compounded by a greater tendency toward acne, and the treating physician must be mindful of these conflicting issues. Whereas oil-free, hydrating products will reduce local irritation, one must be cautious not to overstrip the skin and compromise its essential barrier function.^{9,11} In addition to gently hydrating these darker skin types, several available products help minimize fine lines and even out fluctuations in coloration. To this end, two in particular seem most popular. Preva MD (Allergan, Irvine, CA) is a topical antioxidant containing idebenone; a relative of coenzyme Q10.^{9,12} TNS (Skin Medica, Carlsbad, CA) is also very popular among ethnic patients. This product contains multiple growth factors from cultured human foreskin fibroblasts.^{12,13} MD Forte Skin Rejuvenation Lotion I, II, and III (Allergan) contain respectively increasing concentrations of glycolic acid and hydrate, even out tone, and improve skin texture.^{11,13} Whereas many options are currently available, use of harsh or abrasive mixtures may lead to skin irritation and worsening of postinflammatory hyperpigmentation. Two very common mistakes must be addressed. Many over-the-counter astringents contain alcohol and strip needed oils

from the skin, leaving it prone to inflammation, hyperpigmentation, and irritations.^{9,11-13} The popular idea of applying cocoa butter to every conceivable ethnic skin problem is also misleading. Instead, a rational assessment with identification of the specific problem and selection of targeted therapy must be advised.

DYSCHROMIA

Whether patient complaints concern hypo- or hyperpigmentation, many physiologic sources of uneven coloration exist. Hypopigmentation generally reflects damage to the melanocyte production system, and hyperpigmentation is often a postinflammatory response.^{8,9,14} Hypopigmentation may be the result of numerous mechanisms. Whereas minor variations in tone are often amenable to simple cosmetic camouflage, more significant hypopigmentation may require an extensive approach.

Two categories of cosmetics currently address hyperpigmentation: skin bleaches and brighteners. These agents suppress melanin formation either by melanocytotoxicity or by inhibiting tyrosinase.^{8,9} Several options exist to treat hyperpigmentation in people of color safely, including hydroquinone alone or compounded with tretinoin or topical steroids, α -hydroxy acid and β -hydroxy acid chemical peels, and laser use.^{8,9,11} These products, such as Tri-Luma (Galderma Laboratories, L.P., Fort Worth, TX), Epiquin Micro (Skinmedica, Inc., Carlsbad, CA), and Aclaro (JSJ Pharmaceuticals, Charleston, SC), typically contain hydroquinones.^{12,15} Hydroquinone 1.5 to 2% is available over-the-counter, and physicians may prescribe hydroquinone 4% products. In truth, compounds of 10% or higher may be used on occasion with close medical follow-up. Many physicians recommend hydroquinone application once a day 3 times per week for 1 week. This can be increased to every other day for a week, and then to daily use.^{9,11} Today's lightening products are powerful substances, and significant irritant and allergic contact dermatitis is always a risk with use.^{8,11,16} Before committing to prolonged use, a small test dose should be applied to the arm for 5 days. Because application to appropriately pigmented skin may result in hypopigmentation, patients must also be cautioned to apply lightening creams only to areas of hyperpigmentation. Although many options available here in the United States have undergone proper clinical trials and are approved by the Food and Drug Administration, products imported from Europe or South America may contain harmful ingredients, including mercury and other heavy metals. These contaminants may create allergic contact dermatitis and irreversible skin changes.^{16,17}

VITILIGO

Vitiligo entails macules or patches of depigmentation and may be distributed throughout all skin areas of the

body.⁷⁻⁹ The pathophysiology underlying vitiligo is not quite fully understood, but it is believed that the disappearance of melanocytes from the epidermis is secondary to self-destruction by an autoimmune process.¹⁸ Although this disease is by no means limited to patients with dark skin, the patchy areas of skin that lack pigment are obviously more noticeable in this patient population. Cosmetic camouflage with stains, makeup, or self-tanning lotions offers substantial improvement; however, most patients desire permanent repigmentation.¹⁹ Because vitiligo represents an autoimmune imbalance, more definitive therapy includes topical steroids, systemic steroids (extensive, progressive disease) topical and oral photochemotherapy, narrow-band UV-B phototherapy, pseudocatalase in combination with narrow-band UV-B phototherapy, and immunomodulators.^{8,11,14} Some patients are able to achieve moderate to excellent repigmentation.^{7,13}

SUNSCREENS

Sunscreen use in those with lighter skin has been strongly linked to decreased rates of skin cancer and photoaging.^{16,17,20,21} However, these processes are less frequent in ethnic populations, and the role of sunscreen remains poorly characterized in this group. Still, sunscreens play an important role in the prevention and treatment of pigmentary disorders, such as melasma. Sunscreens act by one of two different mechanisms, either UV blocking or UV absorbing.^{14,21} UV blockers, containing titanium dioxide and zinc dioxide, offer excellent protection against both UV-A and UV-B.^{20,22} Absorbing compounds are also effective against both UV-A and UV-B.^{20,22} Whereas the typical chalkiness of blocking mixtures has made them a traditionally unpopular choice among ethnic patients, absorbing lotions are generally very cosmetically elegant. Currently, there is a litany of available agents within the United States. As with all substances applied to the human body, patients may be allergic to ingredients contained within sunscreens. This is particularly true of para-aminobenzoic acid and its derivatives.^{22,23}

CHEMICAL DEPILATORIES

As with patients in other populations, chemical depilatories are commonly used by African Americans to remove unwanted hair. In this group, however, use seems more prevalent due to the higher incidence of pseudofolliculitis barbae.^{21,24} Traditional shaving leaves a sharp edged hair shaft, which may pierce adjacent skin and exacerbate pseudofolliculitis barbae. In contrast, depilatories dull the distal hair tip and reduce skin penetration.^{1,24,25} More specifically, depilatories cause swelling and degradation of the hair shaft, which may then be mechanically removed. Calcium thioglycolate or

sodium thioglycolate are the most commonly used active ingredients in the general population.^{21,25} However, African American men often require stronger ingredients due to the relative coarseness of their hair. The increased depilatory strength of sodium hydroxide, potassium hydroxide, strontium sulfide, and barium sulfide are more appropriate for this group.^{1,25} Of cautionary note, these stronger agents may be more irritating to affected skin and should be used with care.

ACNE MANAGEMENT

Acne is a frequent concern among those with dark complexion, and recent research has identified several important factors unique to these individuals. The nodulocystic variant of acne occurs less frequently in African Americans than in other groups,^{22,26} and this is thought to reflect a decreased inflammatory reaction within blacks.^{16,17} Not only are the follicles of darker individuals less likely to rupture, but also the follicular epithelium of the pilosebaceous unit is thicker, and these structures are less likely to cause an inflammatory reaction and more likely to keratinize and form comedones.^{21,22} These factors may explain the high incidence of subclinical skin irritation seen in ethnic populations as opposed to that in Caucasians. These smoldering inflammatory responses seem to be linked to the high prevalence of postinflammatory pigmented maculae seen commonly with acne in darker-skinned races. Clinically, the face, upper chest, back, and shoulders are commonly involved. Although the disease course is typically mild in this patient population, a wide variety of inflammatory reactions is often present. Papules, hyperpigmented maculae, pustules, comedones, nodules, and cysts are seen. These nodules and cysts frequently heal with hypertrophic scarring and keloid formation.²³

Perhaps the major issue in acne management in patients with darker skin is the prevention of postinflammatory hyperpigmentation; this may be best approached with early intervention with combination therapy.²⁷ Because irritation reactions can lead to further hyperpigmentation, selection of acne treatment agents must be thoughtfully based on the patient's propensity for developing a poor reaction and whether the skin is oily or dry.^{17,23} In addition, monotherapy is commonly ineffective, and topical retinoids or benzoyl peroxide agents are usually applied in combination with a systemic or topical antibiotic. Recent work has demonstrated that these traditional combination therapies may be further improved by the addition of all three agents: topical retinoid, benzoyl peroxide, and clindamycin.²⁷

Benzoyl peroxide is often helpful in managing acne within lighter-skinned groups. However, darker skin seems more susceptible to its irritating, drying effect. The powerful drying agent may be useful in managing the patient who complains of oily skin.^{13,24}

Lower concentrations of benzoyl peroxide, such as a 2.5% concentration solution, should be used initially to evaluate potential irritation and postinflammatory hyperpigmentation. Benzoyl peroxides are available in a variety of forms (creams, cream-based washes, lotions, water-based and alcohol-based gels), but the alcohol-based gels are the most irritating to those with darker complexions.^{20,22} As a result, creams or water-based gels should be used initially. In combination with a second antiacne agent, topical clindamycin or erythromycin is commonly used for milder cases of acne. Both are effective in reducing the amount of *Propionibacterium acnes* within follicles, and both provide an anti-inflammatory effect.^{15,21} Although the development of resistance during long-term use is a concern, this may be reduced by using these topical agents in combination with benzoyl peroxides.¹ More significant cases often warrant oral antibiotic use. Most commonly, tetracycline, doxycycline, and minocycline are used. However, caution must be taken when using minocycline as it has been associated with a lupus-like syndrome.²⁵ In addition, bluish-gray pigmentation and generalized discoloration can develop with use of minocycline.^{15,27} Topical retinoids decrease acne inflammation as well as combat postinflammatory hyperpigmentation.^{9,26} Their use, however, can be associated with significant inflammation and drying. Of particular concern, retinoid compounds may produce long-term hyperpigmentation without the clinical signs of irritation being present.¹ A cream is preferred over gel, because it is less drying. In addition, concentrations of 1% and 0.04% appear to be less irritating. The recent introduction of adapalene, a third-generation retinoid, reportedly offers even less irritating effects.^{16,20} Hydroquinone-based agents are a mainstay for treating acne-related maculae. These compounds oxidize melanin and tyrosinase into oxygen radicals that prevent melanin production, thus blocking melanocyte pigment production. Azelaic acid is a naturally occurring dicarboxylic acid that reduces both inflammation and melanocyte activity. By reversibly inhibiting tyrosinase, topical application of 20% cream improves the appearance of acne-related maculae without affecting surrounding skin.^{1,20,26}

CONCLUSION

Dermatologic issues within populations of darker skin tone are rapidly moving toward the forefront of today's medicine. With the number of ethnic individuals seeking out specialized skin care consistently growing, it is critical that we as physicians appreciate and respond appropriately. Whether discussing sunscreen regimens, providing advice on personal skin hydration, or planning therapy for various dyschromias, the physician must anticipate and account for physiologic differences between racial groups. While further research will advance

our physiologic understanding of darker skin tones tomorrow, clear communication and a thorough medical knowledge are essential in treating the patients of today.

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