Real-Life Treatment Strategies: Topical Combination Therapy for Plaque Psoriasis in Patients With Skin of Color

Management of psoriasis among individuals with skin of color will become increasingly important for medical professionals. Here’s a review of the distinguishing features of psoriasis in patients with skin of color and their treatment needs.

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Most studies of psoriasis and its treatment have focused on subjects with Fitzpatrick skin color types I-III. The relatively low proportion of subjects with skin of color enrolled in clinical trials for psoriasis may be due to structural, cultural, and socioeconomic factors such as access to care and clinical trials, mistrust of the medical community, and communication barriers. Alternatively, the disparity in enrollment of African Americans in clinical trials may reflect the lower prevalence of psoriasis in these individuals, as compared with the white population in the United States. Currently, psoriasis affects 1.9 percent of African Americans and 3.6 percent of white Americans. By 2050, the proportion of the US population made up of African Americans and other nonwhite ethnic groups is expected to increase to approximately 47 percent. Accordingly, the management of psoriasis among individuals with skin of color will become increasingly important for medical professionals, particularly dermatologists, physician assistants, and nurse practitioners. This article reviews the distinguishing features of psoriasis in patients with skin of color and their treatment needs.

**CLINICAL MANIFESTATION OF PSORIASIS IN SKIN OF COLOR**

The clinical manifestations of psoriasis are generally thought to be similar in all skin types regardless of differences in skin tone, although some studies have shown substantial differences in symptoms depending on skin type. In a survey 29 dermatologists who treated up to 50 African American patients with psoriasis per month, 66 percent responded that they perceived differences in clinical manifestations between African American and white patients. Specifically, 41 percent of the dermatologists reported more dyspigmentation, 24 percent reported less erythema, 21 percent reported thicker plaques, and 14 percent reported more scale in African American individuals than in whites. Actual statistics may be higher, as erythema and other distinguishing features of psoriasis may be masked in deeply pigmented skin.

Dark skin can be prone to postinflammatory hypopigmentation and hyperpigmentation, and these pigmentary alterations are often more severe than in lighter skin. Because of the propensity for dyspigmentation among patients with skin of color, and the considerable psychosocial distress associ-
lated with this condition, its resolution has been proposed as a more clinically meaningful end point for therapy in dark-skinned individuals than improvement in physical manifestations such as scale, thickness, and erythema. However, because dyspigmentation can take years to resolve, it should not be used as a measure of active disease.

**TREATMENT GUIDELINES FOR PSORIASIS VULGARIS**

The type of treatment used for plaque psoriasis depends on factors such as disease severity, extent and location of skin involvement, comorbidities, and patient preference, irrespective of skin color. Psoriasis is mild to moderate in most patients and, in the majority, it can be effectively controlled with appropriate topical agents. Topical vitamin D analogs and corticosteroids are recommended by the American Academy of Dermatology as first-line treatment for localized mild-to-moderate psoriasis vulgaris, without any specification to skin color. A recent survey conducted among 29 dermatologists to evaluate the clinical presentation and treatment of psoriasis in African Americans found that the most frequently prescribed first-line treatments for African American patients with mild to moderate psoriasis were topical high-potency steroids, topical vitamin D analogs, and topical intermediate-potency steroids (69 percent, 41 percent, and 38 percent, respectively). These treatment patterns for African American patients were similar to those for non–African American patients having the same disease severity.

The use of topical agents as monotherapy is not routinely recommended for the treatment of extensive disease or limited but recalcitrant disease. Using multiple topical monotherapies would theoretically be an option, but this is not always possible because of pH incompatibility between the individual medications, and the inconvenient dosing schedules can make this impractical. Combination therapy consisting of a vitamin D analog and a corticosteroid applied at different times takes advantage of the distinct mechanisms of action of the two components. A single-agent, fixed-combination topical preparation containing the vitamin D analog calcipotriene and the corticosteroid betamethasone dipropionate is available. This product has overcome the pH incompatibility issue and provides simplified, convenient dosing. It is well tolerated and has demonstrated superior efficacy compared with the individual components in the treatment of psoriasis of the body and scalp.

**TREATMENT OF BODY PSORIASIS**

The efficacy of calcipotriene + betamethasone dipropionate combination therapy was evaluated in all six Fitzpatrick skin types in a study among subjects with mild to moderate plaque psoriasis of the trunk and/or limbs. Treatments were applied once daily for up to eight weeks. The subjects treated with calcipotriene + betamethasone dipropionate were divided into two groups on the basis of skin type: Fitzpatrick skin types I to III and Fitzpatrick skin types IV to VI. No significant differences were found between the two groups in either the rate of disease control at weeks four and eight or the percentage change in the Psoriasis Area and Severity Index score from baseline to weeks four and eight. The most commonly occurring adverse drug reactions included increased blood parathyroid hormone level, pruritus, dizziness, and application-site pain.

**TREATMENT OF SCALP PSORIASIS**

Calcipotriene + betamethasone dipropionate combination therapy was safe and effective in the treatment of scalp psoriasis in a randomized, double-blind study of 99 Hispanic/Latino and 78 African American subjects, all of whom had moderate-to-severe disease. Clear or minimal disease, as measured by the investigator’s global assessment of severity of scalp psoriasis, was achieved by 72 percent of subjects in the calcipotriene + betamethasone dipropionate group, compared with 41 percent in the vehicle group, after eight weeks. The calcipotriene + betamethasone dipropionate formulation was also significantly more effective than vehicle as measured by secondary efficacy criteria. The secondary efficacy criteria in the study consisted of the following dichotomous end points at week eight: total sign score ≤ 1 by the investigator’s assessment of clinical signs of scalp psoriasis; “cleared” or “very mild disease” by the patient’s global assessment of severity of scalp psoriasis; and a score of 0 by the investigator’s assessment for redness, thickness, and scaliness. The frequency of adverse events (AEs) in the two groups was not statistically significantly different: 7.0 percent for the calcipotriene + betamethasone dipropionate combination and 7.9 percent for vehicle. The most commonly reported AEs were paresthesia with calcipotriene + betamethasone dipropionate (1.6 percent) and vehicle (2.6 percent), and dysgeusia, headache, and skin irritation in the vehicle group (2.6 percent each). All AEs were mild to moderate in intensity. Serious AEs occurred in three subjects in the calcipotriene + betamethasone dipropionate treatment arm (cerebrovascular accident in one subject; nausea in a second subject; and nausea, tremor, and depression in a third subject) but were considered unrelated to study treatment.

A similar efficacy response rate for calcipotriene + betamethasone dipropionate was reported in a randomized, double-blind study in 1,505 subjects, the majority of whom (87.8 percent) had moderate-to-severe disease severity at baseline (6.5 percent mild, 5.7 percent very severe). The subjects in this study were predominantly white (95.7 percent). Significantly greater proportions of subjects achieved “absent” or “very mild” disease at week eight with
CASE 1

R.B. is a 64-year-old African American man with a 30-year history of generalized moderate psoriasis involving his trunk and extremities. He refused systemic therapy such as retinoids, methotrexate, and cyclosporine over concern about potential adverse reactions. In the past, he has had limited response to topical corticosteroids and calcipotriene 0.05% ointment. Partial response was noted with topical combination therapy with a vitamin D ointment applied in the morning and a corticosteroid cream applied at night. The patient conceded that he was less than 100 percent adherent to his treatment regimen. He now expresses a strong desire for greater involvement in the treatment of his psoriasis.

Course of Treatment. It is clear from the literature that burdensome or time-consuming regimens have a negative effect on adherence. A once-daily therapy with a fixed-combination formulation should be considered for this patient, as it may increase adherence by simplifying his treatment regimen.

CASE 2

F.L. is a 40-year-old African American woman with mild-to-moderate scalp psoriasis. She has expressed a need for an effective topical therapy that will not interfere with her hairstyling techniques, which include the use of a hydroxide hair relaxer every six to eight weeks. In the past, she wore weaves but stopped because of mild traction alopecia at the front and temporal hair lines. She complains of excessive hair dryness and breakage. Her dermatologist prescribed clobetasol propionate shampoo, but F.L. was concerned that the required daily shampooing would cause further dryness and breakage.

Course of Treatment. Based on the severity of this patient’s psoriasis, first-line treatment such as a topical corticosteroid or a single-agent, fixed-combination topical preparation of a corticosteroid and vitamin D analog should be considered. The optimal choice of vehicle is generally the one that is most acceptable to the patient. The product should not be heavy or greasy, which many patients with clinically straightened hair feel weighs the hair down and interferes with styling. Full-bodied hydrating gels, which are not as watery as some other products, might be the treatment of choice, yielding the best adherence. Allowing patients to test products from sample tubes often yields the highest levels of adherence and the greatest effectiveness, as patients feel that they have participated in their treatment selection. The topical combination gel product consisting of the vitamin D analog calcipotriene and the corticosteroid betamethasone dipropionate is often the treatment of choice when patients are given samples to evaluate.

the combination scalp formulation (71.2 percent) than with betamethasone in the same vehicle (64.0 percent), calcipotriene in the same vehicle (36.8 percent), or vehicle alone (22.8 percent). The significantly greater efficacy of the calcipotriene + betamethasone dipropionate scalp formulation, as compared with the other three treatments, was evident from week two onward.

No serious treatment-related AEs were reported, and the majority of the other AEs were considered unrelated to study treatment. Lesional and perilesional AEs were more common in the calcipotriene and vehicle groups than in the groups treated with the combination scalp formulation or betamethasone dipropionate. Pruritus was the most frequent lesional or perilesional AE in all four treatment groups (2.8 percent in the calcipotriene + betamethasone dipropionate group, 1.8 percent in the betamethasone dipropionate group, 6.0 percent in the calcipotriene group, and 6.7 percent in the vehicle group). In addition, sensation of burning and skin irritation were more frequent in the calcipotriene group than in the combination scalp formulation group (1.1 percent vs 0.2 percent and 1.5 percent vs 0 percent, respectively). The investigators hypothesized that the anti-inflammatory action of betamethasone dipropionate in the combination scalp formulation may minimize the irritation produced by the vitamin D component.

SPECIAL CONSIDERATIONS IN SKIN OF COLOR

Effective treatment of scalp psoriasis in patients with different skin tones requires an understanding of the differences in scalp and hair characteristics, hair care, and clinical manifestations of psoriasis in persons with skin of color. In a recent survey of 200 African American women, 68 percent of those who had visited a physician to discuss hair and scalp concerns felt that their doctor lacked a good understanding of African American hair.

The vehicle of a topical medication affects the potency of the drug and its efficacy, but it is also a factor in patient preference and medication adherence. Vehicle preference may not be the same for all ethnic groups, nor may it be the same among individuals within an ethnic group. Investigators in the Midwest explored vehicle preference using a questionnaire distributed to 100 African American individuals and 100 age- and sex-matched white individuals at an outpatient dermatology clinic. The African American respondents were 12 times more likely to prefer ointment, 3.5 times more likely to prefer solution, and 2.5 times more likely to prefer cream.
likely to prefer lotion than the white respondents.\textsuperscript{18} There was no significant difference between the two groups in their preference for gel, foam, or cream. The differences in preference in this analysis could not be attributed to differences in age, sex, or hairstyle. However, a significantly larger number of African Americans interviewed (21 of 94, 22.3 percent) chose vehicles based on “similarity to products already used” compared with whites (6 of 94, 6.4 percent).

Some topical agents for psoriasis and other scalp conditions adversely affect hair texture and styling among patients with skin of color, thereby affecting the acceptability of these formulations.\textsuperscript{17-19} In a focus group of patients with psoriasis, consisting mostly of white individuals (19 white, 1 African American), preference scores for foam and solution preparations were significantly higher than for cream, ointment, gel, and emollient preparations.\textsuperscript{20} In contrast, a larger study that recruited only African Americans suggested that acceptability of a topical foam medication for scalp seborrheic dermatitis may be related to its effect on hair texture and styling.\textsuperscript{21} After four weeks, 24 percent of 42 patients who used chemical hair straighteners (relaxers) reported that the foam caused hair dryness.\textsuperscript{21} However, less than five percent of the 27 patients who used other hairstyling methods (curling perm, hot comb, natural hairstyle, or synthetic braids) reported negative experiences with the foam.

In 2014, chemically relaxed hair has been reported as the most common hairstyle among African American women.\textsuperscript{2} Although the prevalence for natural hairstyles is increasing,\textsuperscript{2,22} African American patients who use chemical hair relaxers seem to prefer creams or ointments over thinner vehicles due to a belief that the thicker vehicle will prevent frizzing and overdrying.\textsuperscript{19} These are important observations, since the physical properties of African American hair make it innately dry and prone to breaking.\textsuperscript{2,22} Frequent hair washing contributes to brittleness and overdrying of African American hair and is generally avoided.\textsuperscript{22,23} Medicated shampoos are recommended for regular use by patients with scalp psoriasis and can be effective at debriding thick psoriatic scales.\textsuperscript{19,24} These shampoos are often avoided by many African American patients, however, as they can exacerbate the drying effect of frequent hair washing.

CONCLUSIONS

As the US population of people with skin of color continues to grow, healthcare professionals specializing in dermatology must be cognizant of the specific challenges related to the diagnosis and treatment of psoriasis in patients with dark skin tones. Currently available topical combination products for psoriasis are effective and well tolerated throughout the spectrum of skin color types. The topical combination of a vitamin D analog and a corticosteroid formulated in a cosmetically acceptable vehicle is a good treatment option for psoriasis in patients with skin of color. Ultimately, treatment should be tailored to meet individual patient needs and vehicle preferences to improve medication adherence.

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