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An Algorithm for the Management of Atopic Dermatitis in People With Skin of Color

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ABSTRACT

Background: Variations in the epidemiology, clinical presentation, and disease course in skin of color (SOC) atopic dermatitis (AD) patients have been reported that may impact treatment approach and skincare recommendations.

Methods: The project used a modified Delphi hybrid process comprising face-to-face discussions and an online review process. A panel of physicians (advisors) who treat SOC patients with AD used information from literature searches, expert opinions, and their experience to develop a practical algorithm to improve outcomes for SOC patients with AD.

Results: The algorithm for SOC patients with AD aims to inform dermatologists and other healthcare professionals caring for these patients. The first section of the algorithm addresses education and behavioral measures. Treatment adherence is a considerable challenge in chronic inflammatory conditions such as AD, making education essential. The second section discusses the assessment of the skin condition. The third section informs on treatment and maintenance measures for AD. Treatment and maintenance of AD in patients with SOC should be proactive, effectively control inflammation longitudinally, include effective skin barrier protective strategies, and consider cultural practices.

Conclusion: Robust comparative studies are needed to better understand racial/ethnic variations in AD. The algorithm supports educating healthcare professionals and patients to foster individualized treatment, prevention, and adjunctive skincare approaches across diverse patient populations.

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INTRODUCTION

Variations in the epidemiology, clinical presentation, disease course, and impact on quality of life have been reported in SOC populations.[1] Epidemiologic studies focused on atopic dermatitis (AD) suggest a higher prevalence among self-identified African Americans and greater health care utilization for AD among African Americans and Asian/Pacific Islanders.[2] Data from the US has also identified a higher prevalence and persistence of AD in African-American children. In addition, racial/ethnic disparities in health care utilization and access to therapies have been identified in some SOC populations.[2-6]

Clinically, AD can present differently in some SOC populations. Evidence suggests investigators may under-score skin signs in patients with SOC in clinical trials.[1] Nuanced expression of erythema and post-inflammatory pigmentary alteration may be observed in SOC patients with AD.[1,7-10] Black patients may show more frequent follicular accentuation, lichenoid morphologies, and papulonodular presentations.[1,7-10] Recognizing morphological variations and differing clinical presentations in SOC AD patients is important for an accurate diagnosis, while early treatment to reduce inflammation and pigmentary sequela may

improve outcomes.[1,11] SOC patients with AD frequently present with pigmentary sequelae (hyper- hypo- and depigmentation) that may contribute to the quality of life (QoL) impact of AD.[1,8-10] Recognition and management of SOC-related AD features and approaches are important in optimizing patients' outcomes.[1,8-10] Maintaining an intact skin barrier by preventing and treating xerosis using gentle cleansers and moisturizers may improve skin condition and attenuate AD by delaying or reducing flares.[1,11]

An algorithm was developed to support clinicians in recognizing distinct features of AD in populations with SOC and provide recommendations on early, effective treatment and skincare.

Scope of the Skin of Color Project

This algorithm is part of a larger project developed to improve SOC patient outcomes by offering tools to manage conditions including AD, acne, rosacea, and psoriasis and reduce flares and sequela.[1,11] Recommendations also recognize culturally sensitive communication and cultural practices for treating AD in diverse populations.[1] The advisors previously published a manuscript on insights into SOC patients with AD and the role of skin care.[1]

The next step in the project was to develop an algorithm for managing AD in people with SOC.

METHODS

The project used a modified Delphi hybrid process comprising face-to-face discussions and an online review process.[12,13] A previously published review[1] by the advisors gave guidance for developing the current practical algorithm. The process entailed preparing the project, selecting advisors based on published experience on this topic, conducting literature searches, summarizing the literature search results, and drafting the algorithm.[12,13] Based on the qualitative findings of the literature, the reviewers developed the first version of the algorithm. On July 22, 2022, the advisors convened to discuss the literature review results and draft the algorithm by integrating evidence and the clinical expertise of the advisors. Finally, the advisors reviewed and modified the algorithm. A further online process was refining the algorithm and preparing and reviewing the publication. Finally, a consensus was obtained on the algorithm by all advisors.

TABLE 1.

Guidelines From Various Regions

Region	Treatment Guideline	Reference
Asian-Pacific countries' overall guidelines	Consensus guidelines for the management of AD: an Asia-Pacific perspective, 2013. A clinician's reference guide for the management of AD in Asians, 2018.	16,17
Argentina	National consensus AD guidelines, 2014.	18
Canada	Consensus recommendations and AD algorithm, 2019.	15
Europe	Consensus-based European AD treatment guidelines, 2018, Part I and Part II.	19,20
India	Treatment guidelines for AD – Part I and Part 2 (2017). Treatment guidelines for AD (2018).	19,20
Japan	Clinical guidelines for AD (2016).	24
Latin America overall	Position paper and guidelines on AD (2014).	25
Mexico	Clinical guide for AD (2018). Consensus on AD for adolescents and adults (2018).	26,27
Middle East	Practical algorithm for topical treatment of AD (2018).	28
Taiwan	Consensus paper on AD management (2015).	29
Singapore	Clinical guidelines for AD (2016).	30
South Africa	Standard treatment guidelines AD (2014).	31
South Korea	Consensus guidelines for AD, Part I and Part II (2015).	32,33
US	Guidelines (Section 2) for topical therapies for AD (2014)	36
South Africa	Standard treatment guidelines AD (2014).	31
South Korea	Consensus guidelines for AD, Part I and Part II (2015).	32,33
US	Guidelines (Section 2) for topical therapies for AD (2014).	36

AD, atopic dermatitis.
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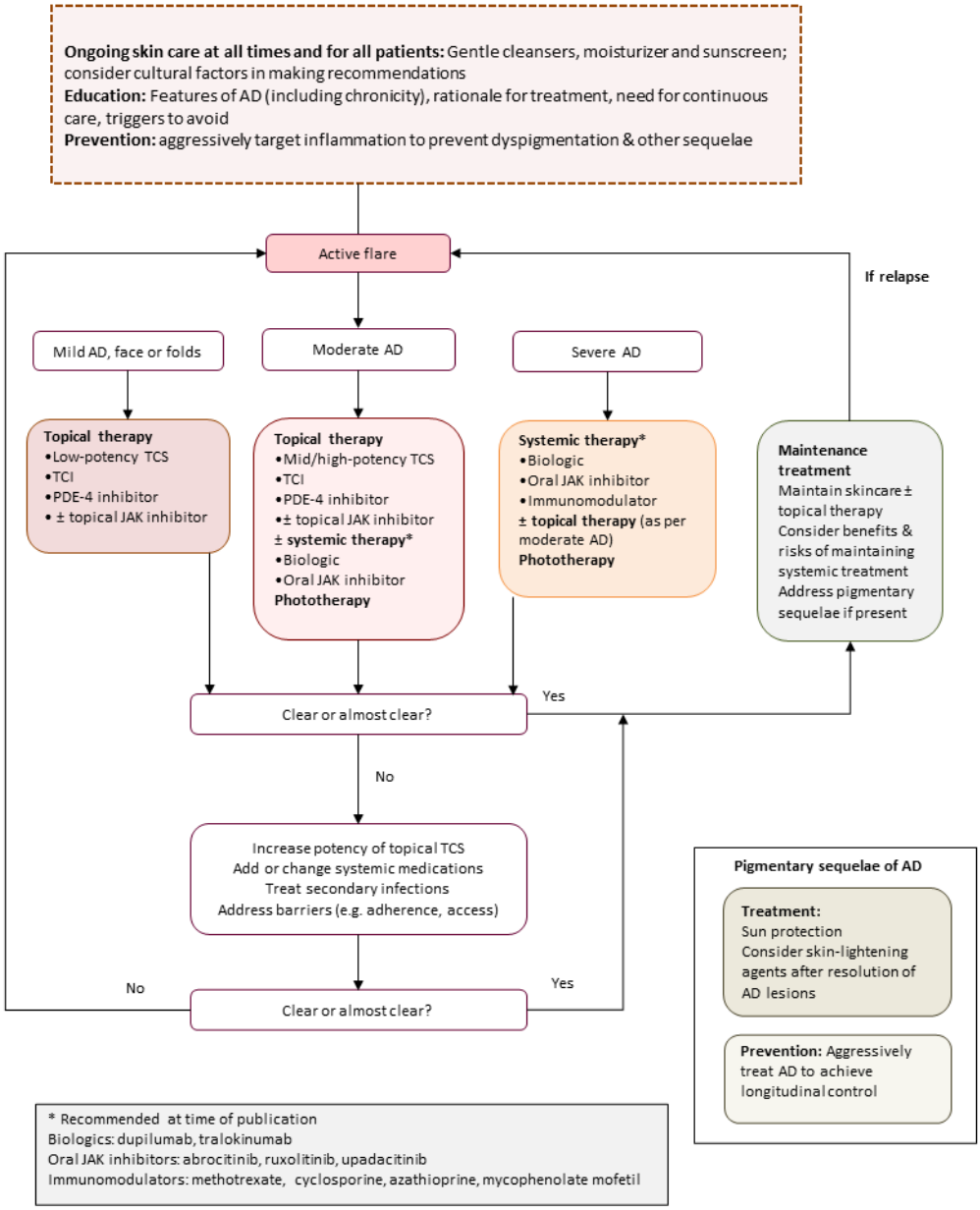
FIGURE 1. Algorithm for atopic dermatitis skin of color patients management.



AD, atopic dermatitis; JAK, janus kinase; PDE, phosphodiesterase; SOC, skin of color; TCI, topical calcineurin inhibitor; TCS, topical corticosteroid.

Literature Review

A previous literature review on English-language literature [2015-2021] on April 12, 2021, on PubMed, with Google Scholar as a secondary source, was conducted on managing AD in SOC patients and skincare's role in AD treatment in different racial/ethnic populations.[1] In preparation for the meeting, the previously conducted literature review[1] was updated (April 2021-May 2022) on June 15, 2022, using the same search terms, inclusion, and exclusion criteria. Search terms included: Racial/ethnic*, skin of color* AND atopic dermatitis OR differences in clinical presentation OR sequela OR pigmentation disorders OR pigmentary sequelae (hyper- hypo- and depigmentation) OR post-inflammatory dyspigmentation; Racial/ethnic*, skin of color* AND atopic dermatitis AND prescription treatment OR cleansers and moisturizers OR OTC skincare, efficacy, safety, tolerability, skin irritation; Racial/ethnic*, skin of color* AND atopic dermatitis AND cultural practices OR skincare choices.

The same dermatologist and physician/scientist who conducted the first literature searches[1] also performed the search update.

There were insufficient clinical randomized controlled trials (RCTs) addressing SOC AD patients' prescription treatment and skincare to rate the quality of studies/findings. However, the recommendations on prescription treatment and skincare in clinical guidelines, consensus papers, and algorithms available per region with different racial/ethnic populations provided valuable clinical information (Table 1).[14-34]

Algorithm for Managing Atopic Dermatitis in People With Skin of Color

The algorithm aims to improve patient outcomes and reduce flares and sequela using prescription medication and skin care (Figure 1). The algorithm starts with addressing education and behavioral measures. Treatment adherence is a considerable challenge in people with AD, making education essential.[1] The second section discusses the assessment of the skin condition in SOC AD patients. The third section addresses treatment and maintenance measures for AD in SOC patients.

Patient and Caregiver Education

The algorithm highlights the importance of educating patients and caregivers while emphasizing the value of ongoing preventive and adjunctive skin care, both during flares and periods without flares.[1] Atopic dermatitis features such as xerosis may be more stigmatizing in SOC patients due to the greater visibility of scale and dryness in melanin-rich skin.[1] Practitioners should continue to educate and assess patients while proactively targeting inflammation to attenuate AD and prevent pigmentary sequelae.[1]

Increasingly, AD guidelines address skincare, using gentle cleansers and moisturizers as part of topical therapy or as an adjunct to systemic treatment; however, few contain recommendations for racial/ethnic-specific skincare as an individual approach to AD SOC patients.[1]

Cultural factors related to skincare preferences need to be considered, such as increased scrubbing, cleansing, and fragrance use that may vary across diverse patient populations with AD.[1] The daily skin care regimen should include gentle cleansers, moisturizers, and sun protection, considering cultural factors in making recommendations (Box 1).[1,14-34]

Healthcare providers need to be aware of different approaches to AD treatment. In some AD patients of African, Asian, and Hispanic descent, various traditional topical emollients may be combined with prescription therapies.[14,35] Further combining Chinese herbal medicine with Western prescription treatment

Box 1: Skincare Use

Cleansers and bathing

- Use nonsoap cleansers (eg, syndets, aqueous solutions) with a neutral or low pH that are less allergenic, nonirritating, and fragrance-free.
- Soap-based cleansers, which have a high pH and contain surfactants, should be avoided because they can cause dry skin and irritation.
- Antiseptic-containing cleansers are not recommended due to antiseptics' limited duration of action and limited clinical data regarding their effectiveness.
- Consider a bleach bath for specific cases such as infections.
- After bathing, gently pad the skin with a soft towel, avoiding rubbing. Next, apply moisturizer while the skin remains moist (within 3 min).

Moisturizers

- A moisturizer should be used at least twice daily and more frequently during acute flare-ups.
- Consider patient tolerance and preferences for a moisturizer to enhance treatment adherence.
- Cream-type moisturizers containing lipids are suitable, and higher lipid contents are preferred in winter.
- Adult patients with AD should use approximately 250 g or more of moisturizer per week and apply it to their whole body, regardless of lesions, since barrier defects and subclinical inflammation may also be present on lesion-free skin.
- During acute flare-ups, moisturizers should be used more frequently with anti-inflammatory treatment and continued as maintenance therapy.

Box 2: Ingredients of Moisturizers

Ingredients	Function	Examples of Specific Ingredients
Emollients	Lubricate the skin	Glyceryl stearate, soy sterols
Occlusive agents	Prevent water evaporation	Petrolatum, dimethicone, mineral oil
Humectants	Attract and hold water into the SC	Lactic acid, urea, glycerol
Lipids	Play a critical role in skin health for the integrity of the SC barrier function and retaining skin hydration	CERs, cholesterols, free fatty acids, cholesterol-3-sulfate, and cholesteryl esters

CER, ceramides; SC, stratum corneum.

for AD has been described.[35] Some consensus guidelines recommend discussing with patients the belief that natural ingredients in cleansers or emollients are not necessarily better and that "natural" does not mean "safe" as these natural ingredients may increase the risk of contact dermatitis.[32,33] Other guidelines recommend examining and discussing the patients and their caregivers' attitudes to treatment options to understand better how to tailor AD care.[15,19,20,34,35]

Type of Moisturizers

Moisturizers should be applied directly after bathing and up to 3 times per day; furthermore, they must be suitable for the patient's climate, humidity, and environmental conditions.[1,11,36]

Patients with AD may have a depletion of skin lipids such as ceramides (CERs).[37-42] Racial and ethnic differences have been reported in stratum corneum barrier function, including ceramide content and TEWL.[1,11,42]

Conventional moisturizers contain occlusives, humectants, and emulsions (Box 2).[1,36]

Newer classes of moisturizers designed to restore skin barrier deficiencies associated with AD include distinct ratios of lipids that resemble physiological compositions, such as ceramides.[37-42] CER-containing moisturizers were found to benefit AD patients when used as mono, adjunctive, and maintenance treatment.[1,43-50] The Canadian algorithm and United States guidelines agreed that the use of moisturizers that contain humectants, lipids, and CERs (or their precursors) reduces pruritus, helps control xerosis, and improves the dysfunctional skin barrier in AD patients.[15,34]

A study found that a CER-containing cream and lotion significantly increased skin hydration and reduced xerosis for at least 24 hours following a single application compared with an untreated control site.[44] Compared with 3 reference paraffin-based emollient creams, the CER-containing cream and lotion were the only products capable of sustaining clinically meaningful improvements in skin moisturization for the full 24 hours.[44]

A further study comparing a paraffin-based cream with a CER-containing cream demonstrated that the sites treated with the CER-containing cream displayed enhanced lipid chain order, which was significantly associated with improved skin barrier integrity (r=0.61).[45] Compared with the paraffin-based cream, treatment with the CER-containing cream increased hydration and decreased xerosis.[45]

Many types of moisturizer are available; however, robust comparative studies are scarce, especially in SOC populations.[1] Therefore, the clinician should consider AD patients' preferences in product choice, which may differ between gender, skin type, and racial/ethnic groups.[51] According to the advisors, skin care practices have a cultural significance that must be respected to improve adherence to AD treatment and, thus, patient outcomes. Clinicians should integrate evidence-based recommendations with cultural norms and explore creative ways of communicating information, focusing on the benefit to the patient or caregiver (eg, not hearing their child scratch at night). Additionally, incorrect advice from some social media sources may be addressed, and scientific data translated into culturally sensitive messaging.

The advisors agreed on the importance of informing patients

FIGURE 2. Reddish-brown and violaceous atopic dermatis lesions in a skin of color infant. *Photo courtesy of Dr Rao.*

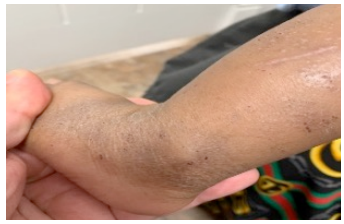


FIGURE 3. Gray appearing atopic dermatitis lesion in a skin of color toddler. *Photo courtesy of Dr Rao.*

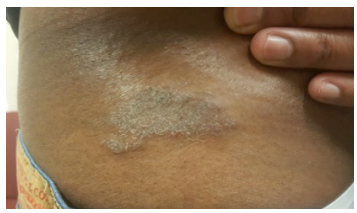
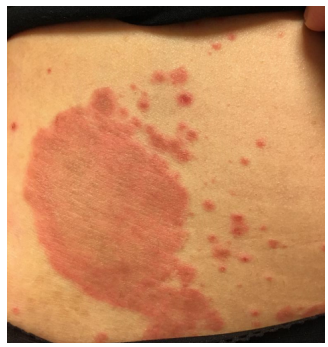


FIGURE 4. Plaque-like atopic dermatitis lesion in an Asian patient. *Photo courtesy of Dr Han.*



about promoting a healthy skin barrier using CER-containing products and omitting irritating substances in skin care products to help them make appropriate choices when faced with the extensive array of options in the pharmacy or department store skincare section. Conversely, the wrong choice can negatively impact an otherwise effective therapeutic approach, such as by adding irritating substances that can counter effective AD therapy.

The plan should be discussed with cultural humility when communicating selections, products, and treatments that replace multi-generation culturally accepted practices.

Assessment of the Skin Condition in Skin of Color Atopic Dermatitis Patients

Atopic dermatitis presents with chronic relapsing erythema, xerosis, and pruritic plaques in a characteristic distribution. Some features are more or less prominent in AD patients with SOC.[1,7-10,52] SOC patients with AD present with lesions that may appear reddish-brown (Figure 2), violaceous, gray (Figure 3), or hyperchromic rather than bright red.[1,7-10,52] Atopic dermatitis lesion location may differ between racial/ethnic populations (ie, in patients of African descent, lesions may present more frequently on extensor areas than the typical flexural lesions in the lighter skin types and may be more papular in nature).[7-10] Patients with AD of Asian descent may have a variety of skin tones, influencing the clinical presentation of their AD lesions (Figure 4).

An adapted version of Scoring Atopic Dermatitis (SCORAD) developed for Black patients with AD focusing on objective signs such as erythema and lichenification, which are nuanced in Black patients, may be used to enable accurate assessment.[53]

Treatment and Maintenance Measures for Atopic Dermatitis in Skin of Color Patients

Skin of color patients with AD have a higher risk of developing post-inflammatory dyspigmentation, which may subside within weeks to months or can last for months to years.[1,11]

Treatment and maintenance of AD in patients with SOC should be proactive, effectively control inflammation longitudinally, include effective skin barrier protective strategies, and consider cultural practices.[1,11] To improve SOC AD patient outcomes, inflammation should be proactively targeted to prevent long-term sequelae (eg, dyspigmentation).[1]

Clinicians should counsel patients and caregivers on the appropriate use of potent TCS to minimize the risk of hypopigmentation.[1,11] Racial and ethnic disparities in AD clinical trials have been reported.[53,54] Two studies examined racial/ethnic differences in the safety and efficacy of approved AD therapies. Specifically, a post hoc analysis by race/ethnicity was performed for crisaborole and dupilumab in phase 3 AD trials.[56] The crisaborole study did not demonstrate any differences in safety and efficacy between pooled (1) White vs non-White and (2) Hispanic vs not Hispanic/Latino groups.[56]

Dupilumab significantly improved primary week 16 outcomes vs placebo in White and Asian subpopulations. However, it is important to note that this was in the context of clinical studies being performed in Asian countries, which may not necessarily be as relevant for Asian immigrants in other environments. In a small Black/African-American subgroup (dosing at 300 mg subcutaneous (SC) once every other week (qOW), n=25), some endpoints did not achieve statistical significance vs placebo despite a positive trend. It is important to note that larger sample sizes may be necessary to confirm this finding.[57]

Hyperpigmentation is a common sequela in SOC AD patients and may be particularly distressing to patients who often suffer the additional psychosocial impact of their AD as a result of long-lasting pigmentary changes. This is particularly challenging because many of the treatments for hyperpigmentation (such as hydroquinone) can be irritating in AD populations and therefore must be used with caution.[1,11] A focus on pre-emptively addressing pigmentary changes through effective longitudinal control of AD itself is paramount. A case report suggested early intervention with dupilumab may help to address hyperpigmentation in these patients. More research is needed to clarify the nuanced treatment of AD in SOC patients.[58]

Pruritus

Pruritus in SOC patients with AD may have unique features.[59-61] Pruritus should be effectively managed to prevent scratching, which may lead to lesions and scarring.[59-61] Skincare use with a cleanser and moisturizer decreases pruritus, other symptoms, and AD severity.[40,41,44,45,56] Additionally, the number of AD flares is reduced, and time periods of remission between flares are increased when CER-containing skincare is frequently applied.[43-47] A CER-containing moisturizing cream on xerosis of the lower leg skin of 49 women resulted in a reduction of xerosis-related pruritus and an 11% increase in total ceramide content, a 14% increase in free fatty acids, and an 11% increase in cholesterol.[47]

LIMITATIONS

A detailed discussion of the genetic factors of AD is outside the scope of the review. Many OTC skincare products are available;

however, robust comparative studies on skincare in AD in SOC are lacking and do not allow conclusive recommendations. There is an overall lack of prospective, evidence-based studies focusing on the treatment of AD in SOC. However, the available data suggest that skincare strategies to improve AD patients' outcomes should consider racial/ethnic differences.

CONCLUSION

Atopic dermatitis is a chronic inflammatory skin condition associated with altered immune function and epidermal barrier dysfunction. Racial/ethnic differences in genetic and clinical presentation and sequelae have been reported.

Treatment of AD in patients with SOC should be proactive; effectively minimize inflammation not only acutely but longitudinally, protect the skin barrier, and consider cultural practices. In SOC AD populations, clinicians should integrate skincare recommendations and prescription therapies with patient perspectives on skin care norms and priorities in treatment targets.

More research is needed to tailor culturally appropriate recommendations.

DISCLOSURES

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All the authors developed the manuscript, reviewed it, and agreed with its content.

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