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Atopic Dermatitis Skincare and Impact on Quality of Life for Patients With Skin of Color

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ABSTRACT

Atopic Dermatitis (AD) epidemiologic studies report a higher incidence and prevalence among populations with skin of color (SOC). Additionally, differences in AD underlying gene mutations and skin morphology are observed to lead to frequent and prominent xerosis, pruritus, and pigmentary sequelae in patients of color. However, populations with SOC are underrepresented in dermatology clinical trials, including AD. This article reviews the nuances in AD epidemiology, clinical presentation, and impact on quality-of-life among populations with SOC, plus highlight the role of skincare in AD management.

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INTRODUCTION

Atopic dermatitis (AD) is a chronic inflammatory skin disease characterized by pruritic eczematous lesions and associated adverse health outcomes, including cutaneous symptoms, subsequent sleep disturbance, and mental health impact.[1] AD has a high prevalence and is the leading cause of skin-related burden of disease globally.[2,3] Disparities in AD health care and variations in the clinical presentation have been reported to impact the quality-of-life (QoL) of patients of color.[4-6] This article reviews the nuances in AD epidemiology, clinical presentation, and impact on QoL among US populations with SOC, plus highlight the role of skincare in AD management.

Atopic Dermatitis Epidemiology in Patients With Skin of Color

AD pathogenesis involves a complex interplay of genetic factors, immune dysregulation, defective skin barrier, environmental factors and microbial dysbiosis.[1,7,8] AD epidemiologic data reports a higher incidence and prevalence among patients with SOC. For example, a study demonstrated that African Americans have 19% AD prevalence compared with 16% in European-Americans counterparts.[9,10] Similarly, higher AD prevalence and persistence in children with SOC in the US have been reported.[3]

Immunophenotypic and genetic variations between racial/ethnic populations have also been described, including filaggrin gene mutations, plus lipid content and stratum corneum structure differences.[11] The most studied genetic variation is filaggrin, which is a structural protein involved in skin barrier function, and filaggrin-2 mutations are associated with AD persistence.

However, African American children with AD show significantly fewer filaggrin mutations, which does not correlate with the increased AD prevalence and persistence in populations with SOC. This nuance may indicate that

the increased AD prevalence in African Americans is not fully explained by ancestry-related genetic effects.[11,12] Multiple genes involved in epithelial barrier function and immune regulation are implicated in AD pathogenesis, which results from the synergistic effect of numerous genes.[7]

Racial/Ethnic Variations in Atopic Dermatitis Presentation

Although AD presents similarly across racial/ethnic groups as chronic and relapsing pruritic eczematous lesions, it can differ in clinical presentation and morphology in certain populations with SOC. AD may present as gray, hyperchromic, reddish-brown, or violaceous rather than bright red in patients of color.[8] Furthermore, AD patients of color may show more frequent and prominent xerosis, pruritus, pigmentary sequelae (erythema and post-inflammatory dys-pigmentation), follicular accentuation, lichenoid morphologies, and papulonodular presentations.[7-9]

Populations with SOC remain underreported and underrepresented in dermatology and clinical trials.[13-15] When reporting occurs, the racial/ethnic categorization and incorporation of the racial/ethnic data into the results are often lacking. The lack of diversity in AD clinical trials contributes to the lack of knowledge and documentation surrounding the various possible AD clinical manifestations on multiple skin tones, which may impact clinicians' ability to diagnose AD in patients of color. Recognizing differing AD clinical presentations, and disease course, including morphological variations in ethnically diverse patients is important for an accurate and early diagnosis, plus appropriate short and long-term treatment.[16]

Atopic Dermatitis Impact on Quality of Life for Patients With Skin of Color

More pronounced AD clinical and morphological variations in patients of color may critically impact QoL.[7-9] In populations with SOC, AD prevalence was shown to be higher, while disease control poorer.[12] Due to greater visibility in the context of darker skin, AD-associated xerosis and post-inflammatory dys-pigmentation are more pronounced and stigmatizing in patients of color.[7,9] The increased xerosis prevalence and severity in patients of color is likely due to racial/ethnic differences in skin barrier properties. One study in 311 American women from four ethnic groups (African-American, Caucasian, Chinese and Mexican) showed that the skin dryness index markedly increases in African-American and Caucasian groups, but not in Chinese and Mexican counterparts.[17] Moreover, AD-related pruritus is more burdensome in patients of color due to potential scarring and lasting post-inflammatory dyspigmentation.[7,9,18] For example, one study reported higher levels of pruritus-related burning and scarring, as well as greater emotional impact in patients of color.[18] Another study reported children with SOC were more likely to be absent from school due to AD, which was not explained by sociodemographic factors, health care visits, and atopic comorbidities.[19]

Disturbing racial/ethnic disparities in health care utilization and access to standard-of-care therapies for AD have been identified in populations with SOC, impacting QoL.[4-6,9,20,21] Additionally, structural racism likely has significant impact on AD progression for patients of color.[22] AD patients with SOC have reduced specialty care utilization and more frequent primary care, urgent care, emergency department, and hospital utilization.[20-24] Among patients with AD, African-Americans are less likely than white to receive specialty care, such as a dermatologist.[20,21,23,24] Thus, efforts to improve access to specialty dermatologic AD care is needed to potentially decrease healthcare costs and improve outcomes for populations with SOC.

Overall, AD impact on QoL in patients of color is significant compared to white counterparts due to the disease burden, potential long-lasting sequelae, and disparities in healthcare, which impose many barriers to proper treatment.

Skincare Management of Atopic Dermatitis in Patients With Skin of Color

Epidermal skin barrier dysfunction plays a key role in AD development, and various types of emollients are shown to prevent AD in both pediatric and adult patients.[25-27] Maintaining an intact skin barrier by using gentle cleansers and moisturizers can attenuate AD by delaying or reducing flares.[9,26] AD-associated hyperpigmentation is more frequent and pronounced in patients with SOC; however many hyperpigmentation treatments, such as hydroquinone, can be irritating in AD affected skin.[9] Moreover, though effective, long-term continuous AD treatment with standard-of-care topical corticosteroids

TABLE 1.

Racial Ethnic Variations in Atopic Dermatitis Patients

Author/Year	Study Population/N	What was studied?	Key Findings
Shaw, 2011	102,353 children	Eczema prevalence in the US: data from the 2003 National Survey of Children's Health	African American and metropolitan living were significantly associated with a higher eczema prevalence
Hirano, 2012	645 clinical trials	Race and ethnicity in published AD clinical trials in the US between 2000 and 2009	No significant improvement in demographic data reporting in AD clinical trials
Margolis, 2012	857 children	Association of filaggrin variants with AD persistence children	The filaggrin variants in US children with AD differ significantly by race and association with AD persistence
Hay, 2014	Prevalence study in 187 countries	The global burden and prevalence of skin disease and impact of skin conditions	AD has a high prevalence and is the leading cause of skin-related burden of disease globally
Brunner, 2019	PubMed literature review (years 2000-2018)	Racial differences in AD	AD has differences among various ethnic and racial groups
Kim, 2019	1437 mother-child pairs	Racial/ethnic differences in incidence and persistence of childhood AD	AD incidence and persistence are higher among certain nonwhite racial/ethnic subgroups
Margolis, 2019	741 children	Association of filaggrin loss-of-function variants with race in children with AD	The filaggrin variants in US children with AD differ significantly by race and association with AD persistence
McKenzie, 2019	4898 mother-child pairs	The prevalence and persistence of AD in urban US children	AD prevalence and persistence were highest in African American US urban children
Abuabara, 2020	86,893 adults	Genetic ancestry association with AD susceptibility and disease control among US African Americans	Ancestry-related genetic effects do not explain increased AD prevalence or poorer disease control among African Americans
Bell, 2020	40,906 adults	Racial and ethnic disparities in access to emerging and frontline AD therapies	Racial and ethnic disparity in accessing newly approved and standard of care medical therapies for AD
Tackett, 2020	201 children	Race and socioeconomic influence on the AD severity in African American children	Race and socioeconomic status affect AD severity in African American children
Sevagamoorthy, 2022	119 clinical trials	Racial and ethnic diversity of US participants in AD clinical trials	Race and ethnicity remain underreported in dermatologic clinical trials

and calcineurin inhibitors is associated with adverse effects and hypopigmentation in patients with SOC.[7,28] Early intervention of pigmentary changes, plus topical alternatives with anti-inflammatory and skin barrier repair properties that allow routine long-term use without risk can be effective in reducing AD severity, and related symptoms for patients of color.[26,29-31]

The skin microbiome plays an important role in AD pathophysiology.[32-34] Several studies have evaluated the role of the microbiome in skin barrier function, and the efficacy of prebiotic emollients to target *Staphylococcus aureus* for AD management.[35-38] More recently, a prebiotic emollient, containing shea butter, canola oil, niacinamide and *Aqua posae filiformis* (a lysate of *Vf* grown in La Roche-Posay thermal spring water), was shown to significantly decrease the usage frequency of topical corticosteroid after 28 days in AD patients, compared to control group who used their usual classical emollient.[39] Similarly, the same prebiotic emollient provided significant greater reduction pruritus in AD patients under systemic therapy (cyclosporin A, dupilumab or a Janus kinase inhibitor).[40] Additionally, emollients 'plus', which correspond to prebiotic emollients have recently been recommended in European AD guidelines.[41,42] Altogether, these results highlight the benefits of prebiotic skincare in AD treatment and the role of microbiome for healthy skin barrier.

Though, a plethora of AD moisturizers are available, the lack of robust comparative studies with ethnically diverse populations poses a challenge. Racial/ethnic variations in AD clinical presentation, as well as a greater burden of pruritus and xerosis among patients with SOC may require different approaches to AD management and treatment. US guidelines strongly recommend moisturizers and gentle cleansers as an integral part of AD management to reduce disease severity and the need for pharmacological intervention.[26] Therefore, clinicians should integrate QoL assessments, skincare, and prescription therapies with patient perspectives on cultural norms and treatment priorities.

CONCLUSION

In populations with SOC, AD is more prevalent and is associated with a variety of physical and mental QoL impacts. In addition, healthcare and socioeconomic disparities affect the access to AD specialty care and dermatologic clinical trials for patients with SOC. Increased clinician awareness of AD presentation, associated symptoms and comorbidities, plus impact on patients of color will improve treatment outcomes. Further research is needed on the benefits of adjunctive emollients, moisturizers, and cleansers in the management of AD and their impact on QoL in diverse ethnically populations.

DISCLOSURES

HD is an employee of La Roche-Posay Laboratoire Dermatologique, L'Oreal USA. CK has served as on the advisory board and speaker for Lilly, UCB, Aerolase, Sun Pharmaceuticals, Regeneron; a speaker for Nutrafol, Norvatis; consultant for Abbvie, Pfizer; and Janssen steering committee, SOC advisory board. CNF has served as an advisor and consultant for L'Oreal. ZDD has served as an researcher and consultant for L'Oreal.

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