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 ORIGINAL ARTICLE

Racial/Ethnic Variations in Acne: Implications for Treatment and Skin Care Recommendations for Acne Patients With Skin of Color

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ABSTRACT

Background: Acne vulgaris is among the most common dermatologic diagnoses observed, including skin color (SOC) populations. This project sought to help clarify the existing published data and provide consensus statements on acne presentation, prevention, treatment, and maintenance in SOC populations to help improve patient outcomes.

Methods: Six SOC dermatologists convened for a virtual meeting and used a modified Delphi process to address: 1) Are there racial/ethnic differences in the clinical presentation and sequela of acne? 2) Are there racial/ethnic differences in the therapeutic endpoint of acne treatment and patient expectations? 3) Is there a need for specialized approaches to therapeutic options and skincare in acne patients with SOC?

The results of a literature review and the outcome of discussions, coupled with the panel's expert opinion and experience, are intended for health care providers caring for acne patients and clinician-researchers.

Results: Racial/ethnic differences in the clinical presentation, sequelae, and desired treatment outcomes for acne have been reported. Notwithstanding limitations in the number, size, and methodologies of studies to date, the available data suggest that strategies that improve outcomes in acne patients with SOC include: Early initiation and maintenance of treatment regimens and careful consideration of tolerability of active ingredients, vehicles, and dosing. Using pH-balanced, non-irritating cleansers and non-comedogenic ceramides containing moisturizers help minimize irritation or dryness.

Conclusions: There a need for specialized approaches to therapeutic options and skincare in acne patients with SOC. OTC skincare products are recommended before and during prescription therapy and as part of a maintenance regimen.

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INTRODUCTION

The Global Burden of Disease Project ranks acne vulgaris (acne) as the eighth most prevalent dermatologic disease worldwide.[1,2] Global acne prevalence is estimated at 9.4% affecting 650 million adolescents and adults.[1-4]

Acne vulgaris is also among the most common diagnoses observed in skin of color (SOC) populations.[5,6] A national United States (US)-based ambulatory medical care survey showed that acne was the leading dermatologic diagnosis in all non-White populations studied, including African Americans, Asians, and Hispanics.[6] In a four-city community-based study, involving a review of one-sided facial photographs of women

and girls aged 10 to 70, acne was found to be more prevalent in African American and Hispanic women than in Continental Indian, White, and Asian women.[5] Subtypes of acne were different in Asian and White women, and post-inflammatory hyperpigmentation (PIH) was prevalent in 65% of Black and 48% of Hispanic women.[5]

A cross-sectional, web-based survey examined racial differences in clinical characteristics, psychosocial impact, perceptions, behaviors, and treatment satisfaction in facial acne-affected adult women.[7] Of the 208 women participating in the survey, 51.8% and 48.6% self-identified as White/Caucasian and non-White/Caucasian, respectively. Acne onset was significantly (P<0.05) earlier in White/Caucasian (mean 14.8±5 versus 17.0±8 years) than in non-White subjects. The presentation of acne in White/Caucasian was primarily on the chin (28.0%) and cheeks (30.8%) versus cheeks (58.4%) in the non-White women.[7] Additionally, PIH was significantly more frequent (P<0.0001) in non-White/Caucasian women versus White/Caucasian women. Whereas acne lesion clearance was the most important aspect of treatment in 57.9% of the White/Caucasian women in this cohort, clearance of PIH was most important to 41.6% of non-White/Caucasian women.[7]

Although limited data is available comparing acne characteristics and the impact on the quality of life among different racial and ethnic groups, there is growing recognition that challenges may differ in those with SOC.[7]

PIH can occur as a sequela of the acne itself or as a complication of treatment and can worsen with persistent and recurring inflammation.[8-10] Additionally, keloidal scars often associated with greater acne severity are a potential more common sequela in non-White populations, frequently presenting along the jawline and trunk.[8-10]

Traditional acne treatments may lack consideration of specific risks in darker skin types, particularly in the development of PIH and keloids.[10] Treatment regimens including adjunctive skincare for acne in SOC must be aggressive enough to reduce acne inflammation and acne-induced PIH but not lead to irritation and subsequent dermatitis induced PIH.[8-10]

This project sought to help clarify the existing published data and provide consensus statements on acne presentation, prevention, treatment, and the role of general skincare in SOC populations to improve patient outcomes.

MATERIALS AND METHODS

A panel comprised of six SOC dermatologists from the US and Canada (the authors) convened a virtual meeting on January 9, 2021, and used a modified Delphi process[11,12] to address the following questions:

1) Are there racial/ethnic differences in the clinical presentation and sequela of acne?
2) Are there racial/ethnic differences in the therapeutic endpoint of acne treatment and patient expectations?
3) Is there a need for specialized approaches to therapeutic options and skincare in acne patients with SOC?

The statements are intended for health care providers caring for acne patients and clinician-researchers and were developed based on the panel's available literature and expert opinion.

Literature Searches

To generate statements for discussion, a dermatologist and a physician/scientist performed literature searches on 4–5 January 2021, on PubMed and Google Scholar as a secondary source, selected present clinical guidelines, algorithms, and evidence-based recommendations describing current practice for acne-prone skin and acne in patients with SOC. Literature in the English language from 2010 to January 2021 was selected for clinical and scientific relevance, addressing acne prevention, treatment, and maintenance using OTC skincare in SOC. Articles that did not contain original data were excluded unless a review article was deemed relevant. Also, articles that did not include discussion of acne in SOC and/or OTC skincare use or articles in languages other than English were excluded. Search terms used: *Racial/ethnic differences in clinical presentation and sequela of acne; Acne affected SOC barrier structure and function(s); Skin lipids and ceramides; Tolerance to treatment; Differences in expected treatment outcomes; Clinical and cultural significance of cleansers and moisturizers in the SOC individual and cleanser and moisturizer ingredients; OTC skincare, the efficacy of skincare for adjunctive treatment; Safety; Tolerability; Skin irritation.*

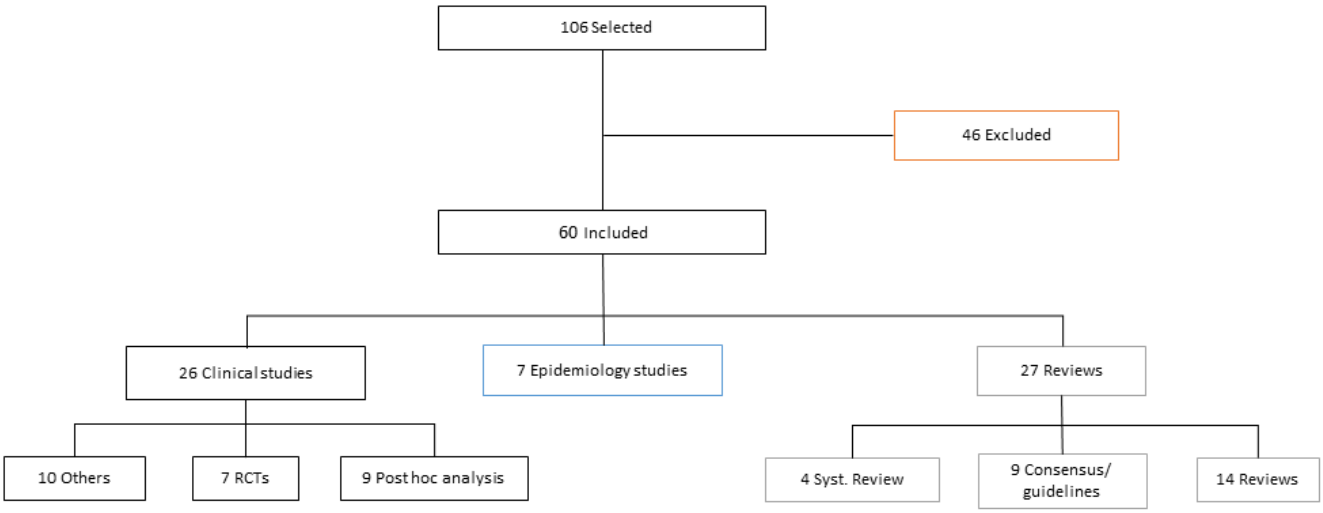
The searches yielded one-hundred-six papers, of which sixty qualified after the exclusion of duplicates and low-quality articles. Of these papers, twenty-six were clinical studies (seven randomized controlled trials [RCTs], nine post hoc, pooled, or subgroup analysis of large RCTs, and ten others [open-label, retrospective, prospective or observational studies]). Seven were epidemiological studies, and twenty-seven were reviews (four systematic reviews or meta-analysis, nine guidelines or consensus papers, and fourteen reviews) (Figure 1).

RESULTS

The panel developed six consensus statements after review and discussion of drafted statements generated by the original literature search:

Statement 1: *Post-inflammatory hyperpigmentation (PIH) is a common sequela of acne in SOC but can also occur due to irritation from topical acne treatments or procedural therapies. Given that PIH can occur as a sequela of acne or as a complication*

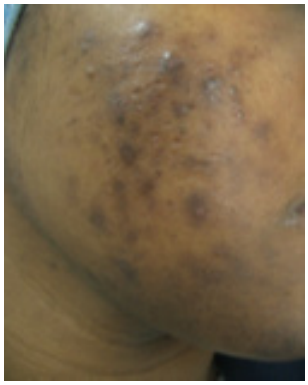
FIGURE 1. Results of the literature searches. Excluded were: Duplications, In case of an update on a review article the latest version was used; low quality. Systematic (Syst.), Randomized controlled trials (RCTs).



of treatment, regimens must be aggressive enough to reduce inflammation from acne and well-tolerated to avoid irritation from treatment. Therefore, when considering treatment and skincare regimens for SOC patients with acne, an individualized selection of a topical regimen to minimize irritation should consider tolerability characteristics of the active ingredients and vehicle.[10]

In the US, acne is the most commonly diagnosed condition in African-American, Asian, and Hispanic patients visiting a dermatologist, whereas the top skin condition in White patients is actinic keratosis.[6] PIH due to acne has been reported to occur in almost two-thirds of Black/African American women (Figure 2).[5] PIH can be epidermal or dermal and is due to alterations in biochemical processes that regulate melanogenesis although the pathophysiology is unclear.[13,14] One of the mechanisms involved may be increased production and transfer of melanosomes induced by inflammatory cytokines.[13,14] Halder and colleagues found that subclinical inflammation was present in clinically noninflammatory lesions (comedones), and the degree of histopathologic inflammation in Black patients with acne was out of proportion to their clinical appearance.[14] The researchers suggested that it may explain why PIH and scarring are more common in darker-skinned persons.[14]

FIGURE 2. Acne-related post inflammatory hyperpigmentation.



There is a perception that Asian subgroups are more susceptible to skin irritation from topical treatment, cleansers, and skincare and have a high predisposition to sequelae such as PIH. A study reported that 90.8% of Japanese patients with acne had some acne scarring degree.[15] Another study reported that 58.2% of 342 acne patients visiting a dermatologist in seven Asian countries had PIH.[16] Both PIH and scars are concerning to Asian patients and can significantly impact the quality of life. [16]

Prolonged and recurring inflammation can worsen PIH and lead to hypertrophic and keloidal scarring, all of which have a higher prevalence in SOC. PIH is often associated with greater acne severity and frequently presents at the jawline and trunk (Table 1).[17]

Given the higher risk of sequelae such as pigment alterations and scarring in individuals with darkly pigmented skin, prescribing regimens that maximize efficacy while mitigating irritation is a key goal in managing acne in SOC. Gentle OTC cleansers and non-comedogenic moisturizers are helpful adjuncts to achieve tolerability of acne regimens.

TABLE 1.

Acne Presentations In SOC Patients		
Type of Study	**Key Finding**	**References**
Epidemiology of acne in White, Asian, Continental Indian, and African American women	Acne is the leading diagnosis in all non-White populations included and sequelae are more common in SOC	5
Analysis of nationally representative data	Acne prevalence is greater in SOC populations than White populations	6
Review of ethnic differences in clinical presentation, perceptions, behaviors, and psychological impact of acne in women	PIH was significantly more frequent (P<0.0001) in women with SOC compared to White females	7
Review of acne in ethnic skin	PIH is more common in SOC, worsens with persistent and recurring inflammation. Keloidal scars are often associated with greater acne severity	8
PIH prevalence and impact on QoL in Japanese acne patients	Of Japanese patients with acne, 90.8% had some degree of acne-related PIH	15
Preliminary study on frequency and characteristics of acne-related PIH	58.2% of 342 acne patient visiting a dermatologist in seven Asian countries had PIH	16
Observational study of clinical features of acne in 444 patients with ethnic skin	PIH often associated with greater acne severity and frequently present along the jawline and trunk	17

For effective acne treatment in SOC, thoughtful selection of a topical regimen is paramount. Choosing the appropriate active agent, concentration, vehicle, dosing regimen, and adjunctive skincare can help to maximize benefit while minimizing skin irritation.[10] Various topical treatments are safe and effective in acne patients with Fitzpatrick skin type IV–VI, such as benzoyl peroxide (BPO) 2.5–5.5%, retinoids, dapsone, azelaic acid, and fixed combination products such as clindamycin-benzoyl peroxide, clindamycin-tretinoin, and adapalene-benzoyl peroxide (Table 2).

Statement 2: *Dry skin is a common concern among patients with SOC and may be more visible or stigmatizing in richly pigmented skin.*

TABLE 2.

Safe and Effective Treatment Options For SOC Acne Patients		
Topic/Treatment	**Findings**	**Reference**
Tretinoin 0.05% Lotion	Post hoc analysis of 2 Phase 3 RCTs on moderate-to-severe acne. Significant reduction in IF and well tolerated with more dryness reported in young White females	Lain E. J Drugs Dermatol. 2019 Nov 1;18(11):1128-1138.[48]
	Effective and well tolerated in Asians with moderate-to-severe acne	Han G. J Drugs Dermatol. 2019 Sep 1;18(9):910-916.[49]
	Effective in moderate-to-severe acne in Hispanics	Cook-Bolden 2019 [50]
Adapalene/Benzoyl Peroxide Gel 0.3%/2.5%	Subgroup analysis in Black subjects with moderate acne showed that treatment was safe and effective.	Alexis AF. J Drugs Dermatol. 2014 Feb;13(2):170-4.[51]
Clindamycin 1.2%/Benzoyl Peroxide 3.75% Gel	Well tolerated in Hispanic subjects with acne	Alexis AF. V J Clin Aesthet Dermatol. 2017;10:36-43.[52]
	Effective and well tolerated in Hispanics with moderate-to-severe acne	Cook-Bolden FE. J Drugs Dermatol. 2012 Apr;11(4):455-9.[54]
Clindamcyin/Tretinoin	Safe and effective for acne and acne-induced PIH in SOC patients	Callender VD. J Clin Aesthet Dermatol. 2012;5(7):25-32.[53]
Topical Dapsone Gel, 5%	Safe and effective for acne in females with SOC	Alexis AF. J Drugs Dermatol. 2016;15: 197-204.[55]
Topical Dapsone Gel, 7.5%	Once daily treatment with for acne is safe and effective: Subgroup analysis of pooled data from two RCTs	Draelos ZD, J Drugs Dermatol. 2017; 16:591-598.[56]
	Effective, safe and well tolerated by all Fitzpatrick skin phototypes	Taylor SC. J Drugs Dermatol. 2018;17: 160-167.[57]
Polymeric Tazarotene 0.045% Lotion	Used for moderate-to-severe acne at 12 weeks treatment a significant lesion reduction and well tolerated across racial and ethnic groups.	Bhatia ND, J Drugs Dermatol. 2020 July 1;19(7):727-734.[58]

Dry skin in acne patients may occur due to treatment such as topical retinoids, alpha and beta hydroxy acids, benzoyl peroxide, skincare products, procedures, or lightening creams. Skin dryness and irritation are particularly problematic in SOC as it appears as an ashy discoloration and can increase the risk for PIH, respectively.[8] When using topical therapies in SOC patients, irritation (eg, retinoid dermatitis) can result in pigmentary sequelae. More tolerable formulations such as creams, lotions, and aqueous gels with hydrating ingredients may decrease the risk of dry skin and irritation. Adjunctive skincare is needed to minimize dryness, peeling, and irritation due to topical treatment such as with retinoids.[64] Applying a non-comedogenic moisturizer after the prescription topical is one strategy for reducing dryness, while the less frequent prescription application can reduce erythema, stinging, or burning.

Statement 3: *Decreased ceramide levels have been demonstrated in the skin of African Americans.*

Although evidence is scarce, researchers are increasingly interested in epithelial barrier dysfunction in acne patients, which directly affects comedogenesis and inflammation.[18] For SOC patients with acne, there are only a few small studies. An older Japanese study examined sebum secretion, stratum corneum (SC) lipids, transepidermal water loss (TEWL), and conductance within the SC of male patients with mild-to-moderate acne (n=36), age range 14 to 26 years, and age-matched male control subjects (n=29).[19] They found that acne patients exhibited markedly higher sebum secretion and greater TEWL and decreased SC hydration which was more significant in those with moderate compared to mild acne and normal control subjects. Acne patients had significantly reduced free sphingosine and total ceramides in their SC.[19]

Another small study evaluated skin barrier properties in adolescent males (n=7) with moderate acne vulgaris with ten subjects without acne for 12 months.[20] SC lipids were sampled from the cheek in each season using tape stripping. Acne-affected skin showed lower levels of ceramides with more profound reductions in the winter months than those without acne, which partially improved in the summer.[20]

Studies investigating differences in Black versus White skin have yielded variable results. Five studies found that TEWL is greater in Black skin than White skin,[21-25] seven found no difference,[26-32] and two reported decreased TEWL in Black patients.[33,34] There has been no difference demonstrated in TEWL between Hispanic and White skin[22,31]; however, the diversity of Fitzpatrick skin types and ancestral heritage of the Hispanic population contributes to the complexity of interpreting such studies.

Controversial findings have been reported regarding the lipid levels found in the SC of varying ethnic groups. Although greater overall lipid content has been reported in Black SC, subsequent studies have shown that ceramide levels were lowest in Black skin. Sugino et al found ceramide levels existed in decreasing order in Hispanic and Asian, White, and Black skin. Ceramide levels were inversely correlated with transepidermal water loss (TEWL). Additionally, the ceramide levels directly correlated with water content of the SC.[23] This was again demonstrated by Hellemans et al, who quantified ceramide levels using hydrolysis and found the lowest lipid level in the SC in Black skin.[35] Another study found African Americans to have significantly fewer ceramides compared to Caucasian and Asian American subjects.[33]

More recently, high-performance thin-layer chromatography has evaluated SC lipid profiles in Asian, Black, and White subjects. The highest ceramide/cholesterol ratio was seen in the Asian group, while the lowest ratio was observed in Africans. However, no significant differences were found in the ceramide subgroups.[36]

To what extent the data mentioned above has implications for SOC patients with acne is to be further examined.

Statement 4: *Acne-related PIH in the SOC individual can be as bothersome as the acne lesions themselves. Thus, the therapeutic endpoint of acne treatment in SOC patients includes the resolution of PIH and long-term control of underlying acne vulgaris.*

PIH results from the overproduction of melanin after cutaneous inflammation. Although the exact mechanism is unknown, there is an increase in melanocyte activity, stimulated by prostanoids, cytokines, chemokines, and other inflammatory mediators and reactive oxygen species that are released during the inflammatory process.[37] Also, common acne treatments can be drying and contribute to PIH if the patient develops significant irritation.[38,39]

Retinoids are recommended as a first-line treatment in acne guidelines[40-47] and are particularly useful in the management of acne in SOC due to their dual effects on PIH resolution as well as acne. For all patients, including SOC patients, retinoid use should be titrated to decrease irritation and maximize efficacy.

A polymeric lotion containing tretinoin 0.05% effectively and safely treated moderate-to-severe acne in all skin types improving patients' quality of life (QoL) scores, although racial and gender differences exist. This study also demonstrated beneficial effects on PIH in those patients most at risk.[48] A further study evaluated the efficacy, tolerability, and safety of tretinoin 0.05% lotion in moderate-to-severe acne in an Asian population.[49] A post hoc analysis of two phase III studies showed that the treatment

significantly reduced noninflammatory acne lesions, improving QoL compared to vehicle. The lotion was well-tolerated in the Asian population, with no reported skin dryness, irritation, or PIH.[49] Another study including Hispanic acne patients with moderate-to-severe acne using 0.05% tretinoin lotion showed good efficacy and safety.[50] A subgroup analysis of self-identified Black subjects from data of three studies involving 3,855 patients with moderate acne showed that ADAP 0.3%/ BPO 2.5% gel was safe and more effective than vehicle in reducing both inflammatory and noninflammatory acne lesions.[51]

Topical antibiotics such as clindamycin in combination with BP or a retinoid are shown to be effective and safe for SOC patients for acne and acne-induced PIH.[52-54]

Both topical dapsone 5% and 7.5% gel are effective and safe in treating moderate acne in extensive studies including SOC patients.[55-57] Topical dapsone is an option as it is well-tolerated and effective for both inflammatory and noninflammatory lesions.[55-57]

A pooled, post hoc analysis of data from two phase III studies included subsets of participants that self-identified as White (n=1191) or Black (n=262) and Hispanic (n=352) or non-Hispanic (n=1262). The analysis showed that tazarotene 0.045% lotion was effective, safe, and well-tolerated in all ethnic groups and resulted in decreased incidence of PIH in Black acne patients.[58]

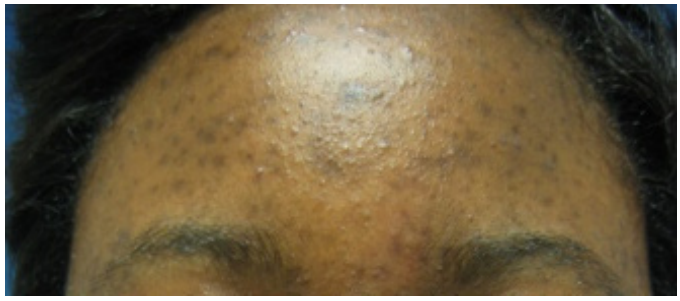
Statement 5: *Adjunctive skincare can play an essential role in preventing, treating, and maintaining acne. When selecting a cleanser and moisturizer for acne and acne-prone skin, individual and/or cultural variations in skincare preferences should be considered. Some skincare and haircare products that are commonly used in communities of color, such as cocoa butter and petrolatum, may exacerbate acne.*

When recommending prevention, treatment, and maintenance approaches, acne guidelines from the US and Europe do not distinguish between skin phototypes or ethnic groups.[40-43] However, Canadian guidelines recommend considering skin type and tolerance and applying creams and lotions for sensitive skin versus gels that may be more suited for oily skin.[42]

The Ibero-Latin American acne algorithm discusses the risk of PIH for darker phototypes. It incorporates skincare and sunscreens as an essential part of acne prevention, treatment, and maintenance care and recommends using it combined with medical treatment.[44]

The Japanese acne guidelines recommend preventing skin irritation and carefully choosing low-irritant and non-comedogenic products based on clinical trials in acne patients.[45] The guidelines recommend combining skincare with topical drugs to reduce skin irritation from the drugs, improve treatment effect, and help treatment adherence.[45]

FIGURE 3. Hair grooming products related acne.



In contrast, a South African acne guideline recommends avoiding skincare products to prevent acne exacerbation (Table 3).[47]

Daily application of fragrance-free, non-irritating, and non-comedogenic cleansers, moisturizers, and sunscreen may reduce adverse events such as dryness, erythema, photosensitivity, and PIH resulting from topical drugs.[44-46] Special consideration should be applied to SOC patients prone to PIH. Using the appropriate skincare is prudent in this population to minimize irritation.

Skincare products, such as non-comedogenic cleansers and moisturizers, have been successfully used to reduce skin irritation and can be especially useful in sensitive skin acne patients.[59-63]

Pomade acne is a clinical variant that is primarily seen in individuals of African descent. This is due to the use of comedogenic hair care products that can affect the margins of the scalp and facial skin. This type of acne is characterized by closely packed, closed comedones, and small papules on the forehead and temples (Figure 3).

Additionally, over-the-counter skin lightening products used by specific subpopulations with SOC can cause occult steroid acne as some of these products contain class I corticosteroids.

Statement 6: *Special considerations when treating SOC individuals with acne:*

- *Dry skin and irritation commonly result from topical acne treatment or systemic retinoid therapy.*
- *Non-comedogenic cleansers and moisturizers can improve dryness and irritation resulting from acne treatment. Favor aqueous gels, lotion, or cream vehicles.*
- *Acne-affected skin has shown lower levels of ceramides, with profound reductions compared to healthy individuals of all ethnicities. Ceramide-containing moisturizers may enhance adherence and complement existing acne therapies.*

TABLE 3.

Acne Guidelines and Skincare Use		
Guideline/Consensus/Algorithm	**Skincare**	**Reference**
International consensus on acne management from the global alliance, 2018	Do not distinguish between skin phototypes or ethnic groups	40
American acne guidelines, 2016	Do not distinguish between skin phototypes or ethnic groups	41
Canadian clinical guideline, 2016	Considering skin type and tolerance and the use of creams and lotions for sensitive skin and use adjunctive skin care for patients that receive treatment causing dry skin or irritation.	42
European evidence-based (S3) guideline, 2016	Do not distinguish between skin phototypes or ethnic groups	43
Algorithm for acne treatment: Ibero-Latin American consensus, 2017	The algorithm incorporates skincare and sunscreens as an essential part of acne prevention, treatment, and maintenance and recommends daily use of low-irritant and non-comedogenic cleansers, moisturizers, and sunscreen to reduce adverse events such as dryness, erythema, photosensitivity, and PIH.	44
Japanese acne guidelines, 2018	Combining evidence-based skincare with topical drugs to reduce skin irritation from the drugs is recommended.	45
Chinese acne guidelines, 2019	The use of evidence-based skincare with topical drugs is recommended.	46
South African acne guidelines, 2017	Skincare is not recommended as it may cause acne exacerbation.	47

TABLE 4.

Features of Safe and Effective OTC Cleansers and Moisturizers for Acne in SOC	
Type of OTC Acne Treatment	**Action/Features of the Products**
Monotherapy: Mainly used for mild acne	Well tolerated, anti-inflammatory, easy and comfortable to use, cosmetically pleasant texture
Adjunctive therapy: Mainly used for moderate acne in combination with prescription treatment	Non-irritating, well tolerated, anti-inflammatory, repairs skin barrier, addresses hyperchromia post-acne, follicular occlusion, seboregulatory, and pleasant texture.
Maintenance therapy	Anti-inflammatory action, prevention of acne flares, oil control, and minimization of scars. Features include: pleasing texture, non-oily, and non-irritating.
BPO containing products	Available as creams, gels, lotions, and washes, can treat mild acne, or can be used as adjunctive treatment or as component of fixed combinations. Is effective but may cause irritation.
SA containing products	Salicylic acid, available in creams, lotions, and pads, helps resolve the irregular shedding of cells. For mild acne, it can unclog pores at it is fat soluble, but has no antimicrobial activity.
GA containing products	Available as creams, gels, lotions. There is a risk for increased UV-induced pigmentation when using these products.
Retinoid containing products	Topical retinods decrease the formation of acne. They are used to treat moderate-to-severe acne often in combination with other products, such as BPO and oral antibiotics. AEs include dryness, pruritus, and erythema.
Azaleic acid containing products	Azelaic acid helps normalizing follicular hyperkeratinization and decreases proliferation of *C. acnes.* Effective for mild to moderate papular-pustular acne, particularly in patients with sensitive and darker skin, as well as in adult acne in women.
Ceramides containing cleansers and moisturizers	Acne affected skin may have reduced ceramide levels resulting in skin barrier dysfunction which correlates with hyperkeratinization and comedone formation. A ceramides containing skincare regimen supports the removal of excess sebum and debris on the skin surface (cleansing) and improves skin barrier (moisturizing) function.
Cleansers and moisturizers containing TSW	May help restore the skin microbiome reducing inflammation.
AHA and BHA containing products	Available as creams, gels, serums and lotions, they are both exfoliants and moisturizers and may have antiaging properties. In OTC products low concentrations (4%–10%) are used.
Sunscreen with an SPF of at least 30	Sunscreens help prevent UV-induced inflammation and PIH.
HA containing products	HA encompasses a large volume of water giving solutions high viscosity, even at low concentrations. Used as a moisturizer to help improve skin hydration.

Benzoyl peroxide (BPO); Alpha hydroxy acid (AHA); Beta hydroxy acid (BHA); Glycolic acid (GA); Salicylic acid (SA); Sun protection factor (SPF); Hyaluronic acid (HA); Adverse events (AEs); Thermal spring water (TSW), Post-inflammatory hyperpigmentation (PIH)

Patient education about skin irritation is an integral part of acne treatment to manage expectations and improve treatment adherence. Therefore, it is important to obtain a detailed history regarding personal care products being used by SOC acne patients as some products such as toners, scrubs, and astringents and devices can be irritating. In all patients, thoughtful selection of prescription therapies and adjuvant skincare should minimize irritation. Adjusting topical treatment regimens known to cause skin irritation during the first 2–4 weeks has been shown to improve tolerability without impacting overall efficacy.[64] Cleansers that do not contain soap with a near-physiological skin pH and moisturizers can be used to improve both topical treatment efficacy and tolerability.[10,65]

Preferred OTC products are cosmetically elegant (texture), non-irritating, well-tolerated, anti-inflammatory, and should help restore the skin barrier function. Hydrating cleansers may be the most appropriate type of cleanser for SOC acne-prone skin or those with acne as they are associated with a low risk of skin irritation. Effective moisturizers typically include ceramides, humectants, emollients, oil absorbers, or have anti-inflammatory and barrier replenishing properties.

A consensus paper stated that dryness and skin irritation resulting from acne treatment could be improved using ceramide-containing cleansers and moisturizers, enhancing treatment adherence.[63] The authors proposed that the skincare regimen should be an essential part of the acne prevention, treatment, and maintenance care regimen.[63] Skincare is a necessary part of acne treatment and is part of various acne guidelines.[42,44-46] A vast array of OTC skincare products are available and safe for SOC acne patients (Table 3).[62,63,66] The type of acne and individual patient characteristics can help determine the appropriate OTC skincare when used in conjunction with topical or systemic acne therapies.[62,63,66,67] These OTC products can be especially helpful in acne maintenance care. Examples are alpha hydroxy acid (AHA) and beta-hydroxy acid (BHA) containing serum, ceramides-containing foaming cleanser, a soap-free exfoliating cleanser, adapalene, and benzoyl peroxide (BPO) containing products (Table 4).[62,63,66,67] Some cleansers, scrubs, and topical medications such as retinoids and BPO may alter the skin barrier, causing irritation and dry skin.[62,63,66] Especially in individuals with skin prone to irritation, these products have the potential to reduce adherence to treatment and therapeutic outcomes.[62,63,66] Cleansers with gentle surfactants and hydrating ingredients and adjunctive non-comedogenic moisturizers are key to maximizing tolerability of acne regimens in acne patients, especially those with SOC, among whom irritation can result in undesirable pigmentary sequelae.

LIMITATIONS

Limitations in the number, size, and methodologies of studies do not allow for conclusive recommendations; however, the available data suggest that strategies to improve outcomes in acne patients should consider racial/ethnic differences.

CONCLUSION

Racial/ethnic differences in the clinical presentation, sequelae, and desired treatment outcomes for acne have been reported. Notwithstanding limitations in the number, size, and methodologies of studies to date, the available data suggest that strategies to improve outcomes in acne patients with SOC include:

I. Early initiation and maintenance of comprehensive treatment regimens that address multiple pathogenic factors of acne.
II. Careful consideration of the tolerability of active ingredients, vehicles, and dosing regimens.
III. Use of adjunctive fragrance-free, moisturizing, barrier preserving, pH balanced, non-irritating skincare to maximize tolerability and minimize the risk of irritation or dryness. Application of non-comedogenic moisturizers on top of topical prescription treatment if dryness, stinging, or burning is present.
IV. Establishing acne and PIH clearance as desired endpoints while designing regimens that address both of these concerns.
V. Consider cultural variations in skin and hair care that may contribute to acne or affect tolerability of prescribed regimens

DISCLOSURES

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