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Management of Mild-to-Moderate Atopic Dermatitis With Topical Treatments by Dermatologists: A Questionnaire-Based Study

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ABSTRACT

Needs edits as it misses the important point of specifying the non-corticosteroids and should not be in the past tense. “Atopic dermatitis (AD) is a skin disease that causes red, dry skin patches that may itch intensely, and may be persistent or intemittent. Most patients with mild-to-moderate AD use topical corticosteroids or topical non-steroids to help them get better. This study looked at how dermatologists treat AD in different parts of the world. Dermatologists in North America, the Middle East, Asia, South America and the UK were asked questions about how they treat AD with topical medications. Most dermatologists use a type of cream or ointment called topical corticosteroids (TCSs) as the first treatment for ≤ 4 weeks. Weaker TCSs are used for younger patients and sensitive parts of the body. After using TCSs for a few weeks, patients visit their dermatologist to check if the treatment is working. Dermatologists advise patients to continue with the same TCS, use less of the TCS or change to non-steroid topical creams or ointments such as calcineurin inhibitors, crisaborole or topical JAK inhibitors. Sometimes treatments are changed if the patient's skin becomes infected, reacts badly to the medication or there are concerns about side effects. Patients also change treatment if their AD worsens. Sometimes it is difficult for patients to access treatments where they live. This study gives important information about how dermatologists treat mild-to-moderate AD. Treatment depends on factors like the patient's age, how severe the disease is, and if the patient is worried about using some creams and ointments. This information should help dermatologists plan the best treatment for patients with AD.

Summary

- Atopic dermatitis (AD) is a skin disease that causes red, dry skin patches that may itch intensely, and can affect people for a long time. Most patients with mild-to-moderate AD use special creams and ointments to help them get better. This study looked at how dermatologists treat AD in different parts of the world. Dermatologists in North America, the Middle East, Asia, South America and the UK were asked questions about how they treat AD with creams and ointments.
- In this study, most dermatologists used a type of cream or ointment called topical corticosteroids (TCSs) as the first treatment for ≤ 4 weeks. Weaker TCSs were used for younger patients and sensitive parts of the body. After using TCSs for a few weeks, patients visited their dermatologist to check if the treatment was working. Dermatologists advised patients to continue with the same TCS, use less of the TCS or change to a different type of cream or ointment.
- Sometimes patients had to change treatment if their skin became infected or reacted badly to TCSs. Patients also changed treatment if their AD got worse or if they were afraid to use stronger creams and ointments. Sometimes it was difficult for patients to access treatments where they lived.
- This study gives important information about how dermatologists treat mild-to-moderate AD. Treatment depends on factors like the patient's age, how severe the disease is, and if the patient is worried about using some creams and ointments. This information should help dermatologists plan the best treatment for patients with AD.

1 | Introduction

Atopic dermatitis (AD) is a chronic, immune-mediated, inflammatory skin disease with a relapsing-remitting course [1]. Characterized by poorly demarcated eczematous lesions, pruritus and skin pain that is frequently accompanied by multiple comorbidities, AD has a negative impact on patient and caregiver quality of life [2–4].

The initial treatment of AD requires basic management with good skin care (including the use of moisturizers and warm baths with gentle non-soap cleansers) and the avoidance of triggers [5–11]. When the use of emollients and other good skin care practices fail to maintain disease control, a topical anti-inflammatory is often prescribed [5–11]. Topical corticosteroids (TCSs) are the mainstay topical anti-inflammatory treatment according to current guidelines [5–11]. However, topical calcineurin inhibitors (TCIs) [6–11] and phosphodiesterase 4 (PDE4) inhibitors (e.g., crisaborole) are alternatives [5, 6, 12, 13]. Although not included in some current guidelines, topical Janus kinase inhibitors (JAKis) (e.g., ruxolitinib and delgocitinib) are considered an emerging treatment option for AD [8, 10, 12]. Ruxolitinib, 1.5%, cream is included in the recent American Academy of Dermatology guideline as a treatment option for short-term and noncontinuous chronic treatment of mild-to-moderate AD in patients ≥ 12 years [6]. Traditionally, a reactive or 'use when necessary' approach has been used to treat AD, with topical anti-inflammatory therapies being reintroduced to treat active eczema and flares. However, guidance documents currently advise a more proactive approach for patients having recurrent flares. Proactive treatment consists of long-term intermittent application of topical anti-inflammatory agents to previously and newly affected areas as maintenance together with good skin care to achieve longer-lasting disease control and a reduction in the incidence of flares [5–7, 14].

Clinical guidelines provide general recommendations which are considered best practice in the treatment and management of mild-to-moderate AD; however, a more individualized approach is often required [15]. The regimen selected is often dependent on patient-specific factors such as age, disease severity, location of involvement, previous adverse effects, response to therapy and the frequency and severity of flares [6–11, 16–18]. Moreover, treatment regimens are often based on regional drug availability, cost, patient education and the training, speciality and clinical experience of the healthcare provider [16–18].

To assess the management of mild-to-moderate AD with topical therapies across various geographic regions, an expert panel of dermatologists was selected to provide insight into their clinical practice.

2 | Methods

2.1 | Study Design

Dermatologists from multiple global regions were invited to participate in the study. Those who accepted the invitation were sent an electronic questionnaire consisting of 43 questions, of which 21 were open-ended and 22 were closed-ended (Appendix S1). Participants were asked to share their knowledge and experience in the management of mild-to-moderate AD based on patient age (< 2, 2–12 and > 12 years) and disease severity (mild and moderate AD). The questionnaire was completed by all participants by November 2022. Questionnaire responses were anonymous and were transferred to Microsoft Excel for analysis. This study was conducted in compliance with the ethical principles originating in, or derived from, the Declaration of Helsinki and is in compliance with all International Conference on Harmonisation Good Clinical Practice Guidelines.

2.2 | Participants' Roles

Participants were all board-certified dermatologists selected based on their knowledge and expertise in the management of AD. In addition, participants had to be widely recognized within their field of practice in their respective countries. Participants provided insight into the management of mild-to-moderate AD with topical treatments based on their clinical practice by providing answers to a questionnaire.

2.3 | Nomenclature Relating to Topical Treatments

TCSs were classified according to the United States–based classification system comprising several groups of TCSs: high-potency (super-high potency [class I] and high potency [class II] TCSs), medium-potency (medium-to-high [class III] and medium potency [class IV and V] TCSs) and low-potency (low-[class VI] and least-potency [class VII]) [19]. TCIs, PDE4 inhibitors and JAKis are referred to as non-TCS treatments.

2.4 | Statistical Analysis

All information collected from the questionnaire was presented descriptively, with no formal statistical analysis performed. The answers to close-ended questions were summarized and reported, and the open-ended questions were reported according to trends. For some questions, not all participants provided a response.

3 | Results

3.1 | Participants

An expert panel of 17 dermatologists from North America ($n = 5$), the Middle East ($n = 4$), Asia ($n = 5$), South America ($n = 2$) and the UK ($n = 1$) participated. The majority (16 of 17) of participants reported that TCIs were approved for use in their region for use in patients aged > 2 years, while almost half (8 of 17) reported TCIs were not approved for use in patients < 2 years of age. Most participants reported that crisaborole was approved within their region of practice; 4 of 17 and 2 of 17 participants reported that crisaborole was not approved for use in patients < 2 years and patients > 2 years, respectively.

3.2 | Differentiation of Mild and Moderate AD

Most participants (14 of 16) indicated that they consider multiple factors when differentiating between mild and moderate AD. Some participants noted that compared to mild AD, moderate AD typically involves a larger body surface area, more severe pruritus or more extensive AD-related lesions, lichenification and excoriations, often requiring more potent topical treatment options to maintain control. Only 2 of 16 participants regularly use scoring systems in daily practice to determine the severity of disease.

3.3 | Daily Skin Care Regimens

Most participants (15 of 16) recommend daily skin care to their patients including the use of a moisturizer (12 of 16), a mild soap cleanser or gentle non-soap cleanser (9 of 16) and daily short baths or showers (9 of 16) and warm water baths (2 of 16) as part of their preferred daily skin care regimen.

3.4 | First-Line Pharmacologic Treatments for Initial Control

Nearly all participants indicated that they would use TCS as first-line treatment regardless of age. For a child aged < 2 years, 9 of 17 participants would select a low-to-medium–potency TCS, while higher-potency TCS were preferred for patients aged 2–12 and > 12 years (Figure 1). In addition, participants indicated that they would prescribe a TCS of a higher potency for patients with moderate AD versus mild AD (Figure 2).

The potency of TCS selected was dependent on patient age, disease severity and regions of the body affected. None of the participants selected TCIs, topical crisaborole or topical JAKis (non-TCS) as their preferred first-line topical treatment irrespective of age or disease severity; however, participants who selected 'other' in the questionnaire stated that they would prescribe either a TCS or a non-TCS depending on the patient case (Figures 1 and 2).

3.4.1 | Treatment Based on Body Region

All participants (16 of 16) indicated that their choice of topical treatment would depend on the body region being treated; lower-potency TCSs and/or non-TCSs for sensitive regions (e.g., face, groin and skin folds) and higher-potency TCSs for other body regions. For patients aged < 2 years, half of the participants (8 of 16) indicated that they would prescribe low-potency TCSs, while several other participants would prescribe a non-TCS as monotherapy as an alternative treatment option to a lower-potency TCS. The prescribing patterns for patients aged 2–12 and > 12 years were similar; however, more participants would prescribe non-TCSs as monotherapy as an alternative to a lower-potency TCS for mild-to-moderate AD in older patient groups. A non-TCS would be more likely prescribed among patients with moderate AD versus mild AD.

3.4.2 | Length of Initial Treatment

Most participants would prescribe treatment for < 2 or ≤ 4 weeks across all age groups and disease severity for initial control (Figures 3 and 4). The length of treatment selected was not specific to a particular topical treatment option. Some participants who selected 'other' indicated that the length of treatment would be dependent on the severity of disease.

3.4.3 | Time Until Re-Evaluation of Treatment

Most participants (11 of 16) indicated that the time until re-evaluation of treatment was guided by disease severity assessed during the initial consultation and subsequent follow-up visits. The greater the disease severity, the shorter the time until re-evaluation; for more severe cases, participants would advise periods of 1 to ≤ 4 weeks until re-evaluation, and for less severe cases, they recommended periods of 1–4 months.

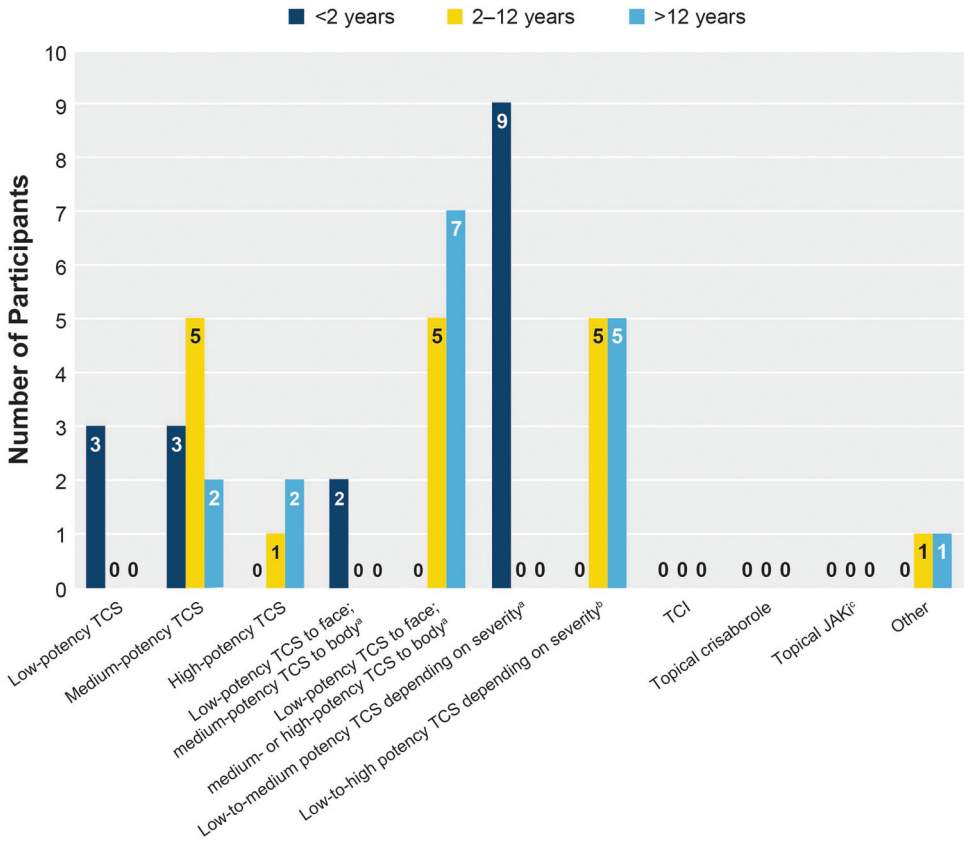

FIGURE 1 | First-line pharmacologic treatment(s) for initial control of AD in patients aged < 2, 2–12 and > 12 years with mild-to-moderate AD. [a]In the questionnaire, this option was only provided for patients aged < 2 years. [b]In the questionnaire, this option was only provided for patients aged 2–12 and > 12 years. [c]In the questionnaire, this option was only provided for patients aged > 12 years. JAKi, Janus kinase inhibitor; TCI, topical calcineurin inhibitor; TCS, topical corticosteroid.

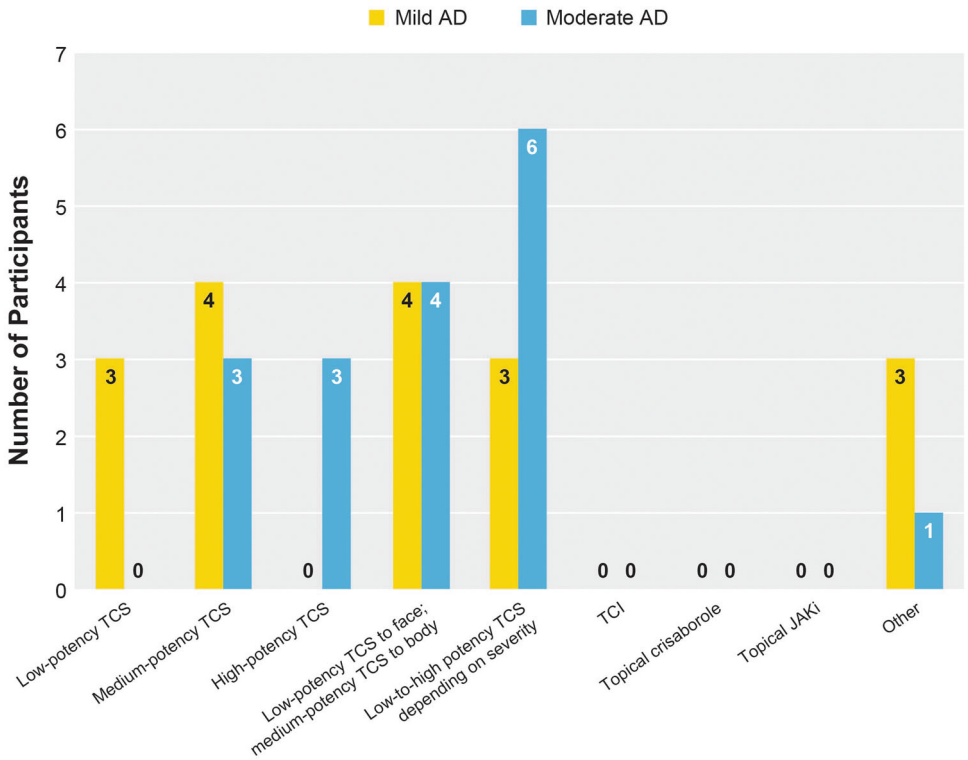

FIGURE 2 | First-line pharmacologic treatment(s) for initial control of AD in patients with mild and moderate AD. JAKi, Janus kinase inhibitor; TCI, topical calcineurin inhibitor; TCS, topical corticosteroid.

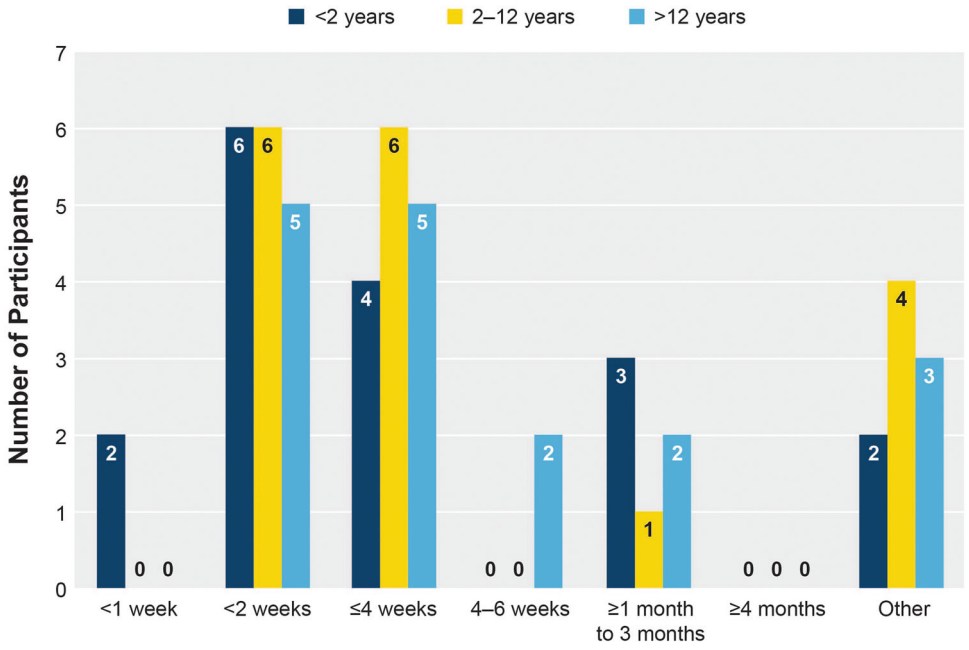

FIGURE 3 | Length of treatment for initial control of AD in patients aged < 2, 2–12 and > 12 years with mild-to-moderate AD. AD, atopic dermatitis.

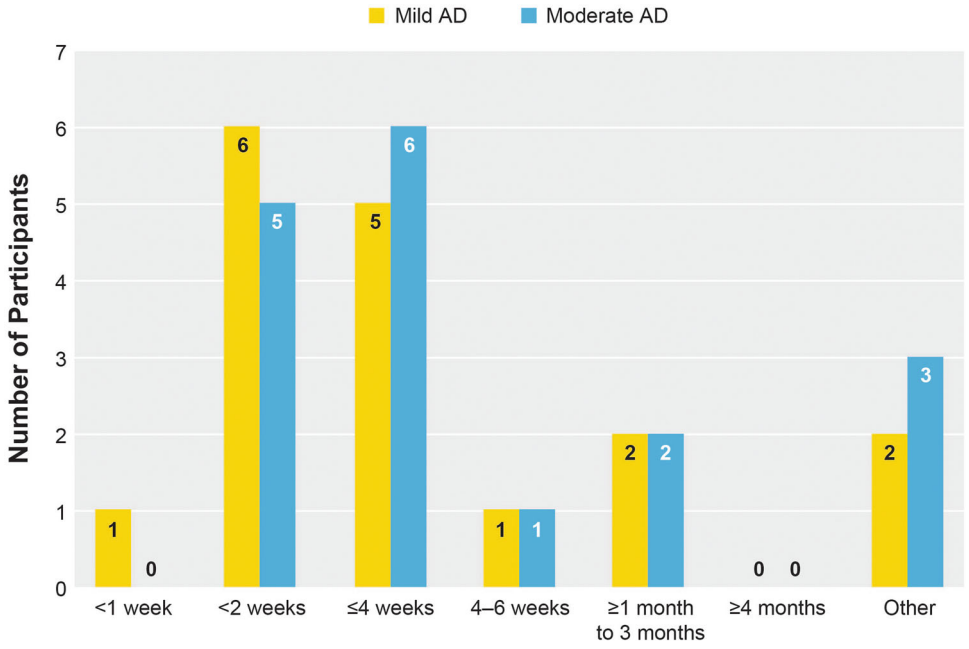

FIGURE 4 | Length of treatment for initial control of AD in patients with mild and moderate AD. AD, atopic dermatitis.

3.5 | Recommendations for Maintenance Treatment

After initial treatment, most participants indicated they would continue the regimen previously prescribed with a scheduled follow-up or switch to a non-TCS (Figures 5 and 6).

When asked whether participants generally reduced the dose or switched to a different treatment option for maintenance treatment, most participants reported that their choice was dependent on the patient's case, regardless of the patient's age or disease severity.

When asked to describe their approach to maintenance treatment, most participants indicated that their approach was dependent on the patient case; however, some participants favoured a proactive approach (i.e., long-term intermittent application of topical anti-inflammatory therapies

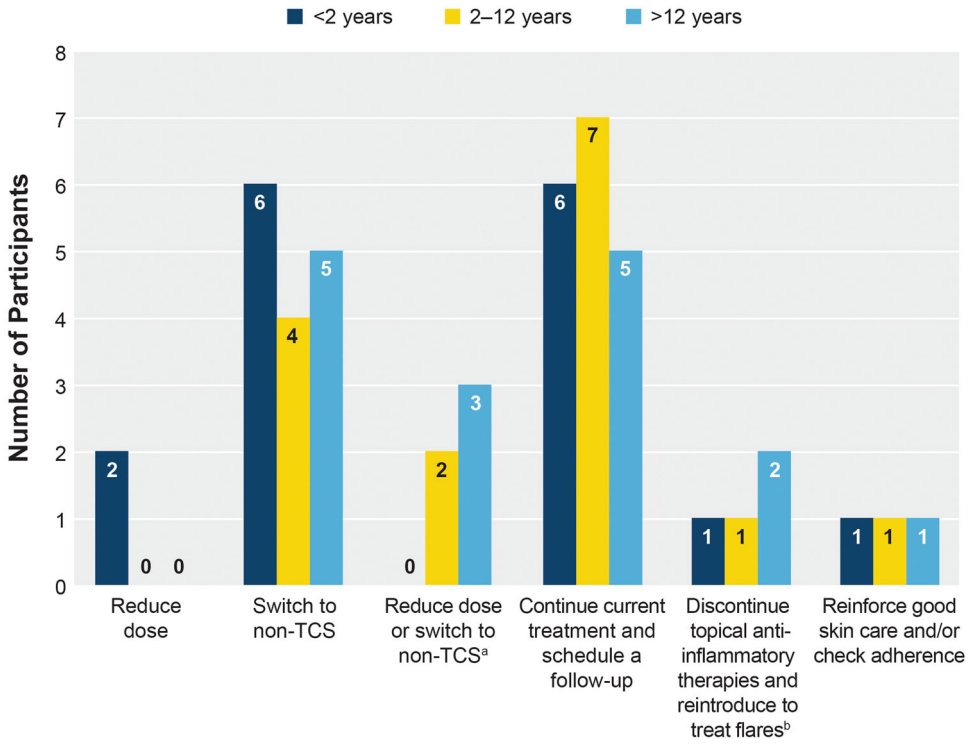

FIGURE 5 | Recommendation for maintenance treatment of AD in patients aged < 2, 2–12 and > 12 years with mild-to-moderate AD. [a]Participants indicated that depending on the patient case they would either reduce the dose or switch to a non-TCS. [b]Participants indicated that depending on the frequency of the flares they would consider the use of a topical anti-inflammatory as maintenance. AD, atopic dermatitis; TCS, topical corticosteroid.

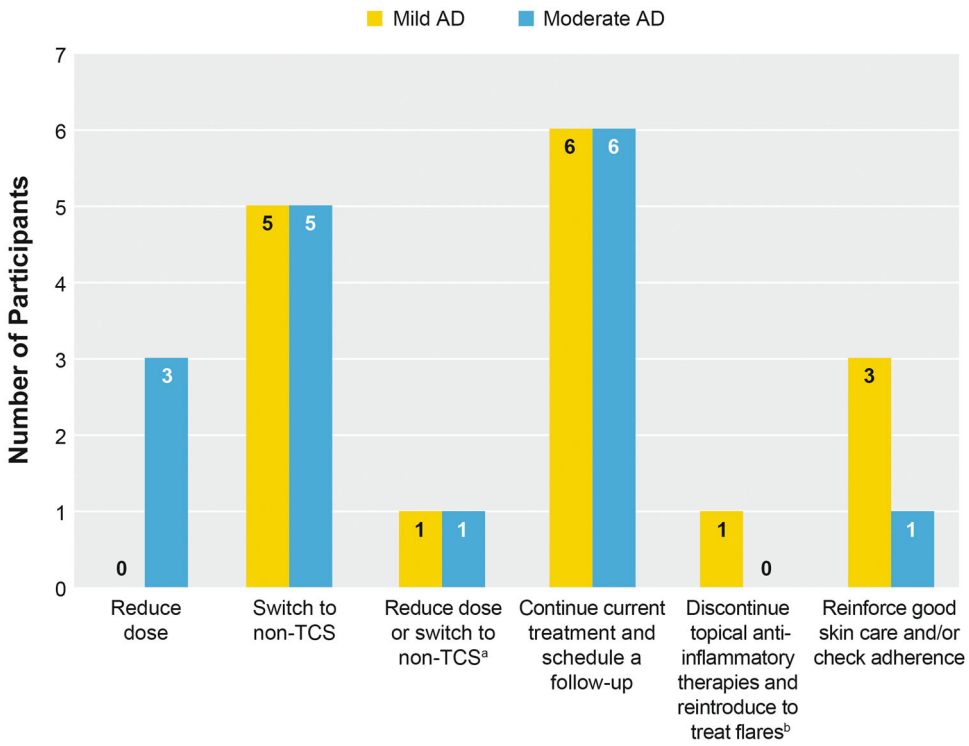

FIGURE 6 | Recommendation for maintenance treatment of AD in patients with mild and moderate AD. [a]Participants indicated that depending on the patient's case, they would either reduce the dose or switch to a non-TCS. [b]Participants indicated that depending on the frequency of the flares, they would consider the use of a topical anti-inflammatory as maintenance. AD, atopic dermatitis; TCS, topical corticosteroids.

as maintenance). Few participants favoured a reactive approach.

During follow-up, participants indicated they would prescribe a non-TCS plus a TCS across all age groups (16 of 16) depending on the patient case and disease severity (15 of 16 for mild AD and 16 of 17 for moderate AD).

3.6 | Treatment of Flares

All participants indicated that they would utilize TCSs for the treatment of flares, with or without a non-TCS (often dependent on patient age, the body region/s affected and/or the overall disease severity). Medium- or high-potency TCSs were more often prescribed for flares versus low-potency TCSs, except when treating more sensitive areas of the skin. Overall, periods of treatment between 1 and 2 weeks were preferred; however, longer periods of up to 6 weeks were indicated in the absence of flare resolution.

3.7 | Deviation From Standard Treatment

Infection was the most common reason for deviating from standard treatment. Other reasons included misconceptions and fears regarding the use of corticosteroids (corticophobia), lack of improvement in disease severity and worsening of AD. In addition, all participants considered the patient or caregiver's opinion or preference when determining treatment choice.

3.8 | Limitations and Safety Considerations for Topical Treatment Options

Several participants listed more than one safety concern and/or limitation for each topical treatment option. The main limitations of TCS were adverse effects associated with its use and corticophobia. The most common adverse effect listed was skin atrophy. Limitations associated with the use of TCIs included adverse effects and cost. A burning sensation was the most common adverse effect of concern. The boxed warning associated with TCI use in some countries was also a safety consideration. The most common safety concern for PDE4 inhibitors was application site pain. Cost or lack of coverage of PDE4 inhibitors by insurance and lack of experience with this drug class also limited use. Half of the participants (8 of 16) had no experience with JAKis (two participants indicated that JAKis were not available within their region). Some participants listed the cost and/or a lack of coverage by insurance of JAKis as a limitation and others indicated that the cardiovascular or thrombotic events seen with systemic JAKis were a potential concern.

When asked how application site reactions might be managed or avoided, answers included patient education and prescribing TCSs to calm or heal skin followed by non-TCSs. Other methods included refrigeration of the topical agent and/or moisturizer or the application of a thin layer of the topical treatment prescribed as a test dose on a non-lesional area.

4 | Discussion

Clinical guidelines assist healthcare professionals in making treatment decisions; however, treatment-related decisions are often based on patient-specific factors, access to certain treatment options, as well as the patient's medical history and response to previous AD treatment options [6–11, 16–18].

Our assessment of the clinical practice of 17 expert dermatologists showed that initial pharmacologic treatment of mild-to-moderate AD is consistent with current national and international guidelines [6–11] in that most participants recommended the use of TCSs and good skin care practices. The overall level of agreement observed may be attributed to the fact that these survey participants are experts who have been involved in the development of these guidelines. Patient age, affected body regions and disease severity were identified as factors that influenced the potency of the TCS prescribed. Higher-potency TCSs were considered for older patients and those with more severe signs and symptoms related to AD. Lower-potency TCSs or non-TCSs were commonly considered for patients whose AD involved sensitive areas of the body. Lengths of initial treatment of ≤ 4 weeks was recommended consistent with clinical guidelines [6, 7]; however, a longer length of treatment would be considered for patients with greater disease severity.

A proactive approach to treatment consisting of maintenance with topical treatment to reduce relapse of AD is currently recommended, especially in more severe cases or resistant forms of AD in which relapse occurs quickly after discontinuation of topical therapy [6, 7, 14, 20]. The results of our questionnaire show that this approach is often used in clinical practice but is dependent on the patient's case.

Although TCSs are regarded as the mainstay of treatment of AD, there are certain limitations which may result in a different topical anti-inflammatory being prescribed [6, 7, 21]. Corticophobia and the potential adverse effects secondary to TCS use were indicated as the main reasons for deviating from standard treatment guidelines. Adequate patient education and improved health literacy may be used to minimize a patient's corticophobia [22].

Potential cutaneous adverse effects associated with the use of TCSs include skin atrophy, purpura, telangiectasia and striae [6]. The results of the questionnaire showed that the most common adverse effect listed as a safety concern was skin atrophy. This is especially relevant with the use of high-potency TCSs; long-term use; use of excessive quantities; occlusion; application to sensitive areas; and/or use by patients with thinner skin including infants, younger children and elderly patients who are generally more susceptible to skin atrophy [6, 23, 24].

Solutions to minimizing or avoiding the adverse effects associated with TCSs include limiting long-term continuous use and the use of lower-potency TCSs [6, 23]. In addition, a non-TCS can be used in an alternating dosing regimen with a TCS as a steroid-sparing agent or as monotherapy [25, 26]. A non-TCS also can be used in the management of flares to decrease the need for TCSs as rescue therapy [27]. Studies have shown

TABLE 1 | Summary of management of mild-to-moderate AD.

Treatment period	Treatment	Special reasons for deviation from standard current guidelines
First-line pharmacologic treatment(s) for initial control	• < 2 years: Low-to-medium potency TCS • 2–12 and > 12 years of age: Low-to-high potency TCS ○ < 1 week to ≤ 4 weeks if mild ○ > 4 weeks if severe Note: If a sensitive region of the body is affected, use a lower potency TCS or a non-TCS The higher the AD-related disease severity, the higher the potency of the TCS prescribed	Infection, corticophobia, lack of improvement in disease severity, worsening of AD, cost, access, adverse effects secondary to pharmacologic treatment options
Time to re-evaluation	• Time until re-evaluation of treatment is guided by severity; the greater the disease severity, the shorter the time until re-evaluation ○ 1 to ≤ 4 weeks for more severe cases ○ 1 to 4 months for milder cases	
Treatment(s) during follow-up period	Reactive versus proactive treatment depending on the patient's case Discontinue topical anti-inflammatory therapies, reinforce good skin care and check adherence; reintroduce topical anti-inflammatory treatments to treat flares (reactive)[a] / Continue current treatment and schedule a follow-up (proactive) / Reduce dose or switch to non-TCS depending on patient case (proactive) / Switch to non-TCS (proactive) / Reduce dose (proactive)	
Treatment(s) in the case of a flare	If flare occurs treat with 1–2 weeks of a higher potency TCS followed by a non-TCS (pending improvement)[a]	

Abbreviations: AD, atopic dermatitis; TCS, topical corticosteroid.
[a]Participants indicated that depending on the frequency of the flares they would consider the use of a topical anti-inflammatory as maintenance.

significant steroid-sparing effects with the use of TCIs (e.g., pimecrolimus) and emollients [25, 26, 28]. Currently, there is a Phase 3 proof-of-concept trial evaluating the steroid-sparing effect of crisaborole in children (NCT 03832010) [29]. According to the results of the questionnaire, non-TCSs were not selected as first-line treatment options for AD; however, several participants stated that they would prescribe lower-potency TCSs or non-TCSs for sensitive regions of the body and for younger patients who had thinner skin versus older patients. Moreover, following the initial phase of treatment, most participants indicated that they would utilize non-TCSs plus TCSs in the management of AD, often using the non-TCS for maintenance and treatment of flares depending on the patient's case.

TCIs are approved for short-term and noncontinuous treatment in recalcitrant AD and use in sensitive skin areas [6, 7, 21, 30–32]. In addition, tacrolimus is approved for the maintenance treatment of moderate-to-severe AD for the prevention of flares and the prolongation of flare-free intervals in certain countries, including Canada [6, 7, 30, 31]. Most participants reported that TCIs had been approved in their region for use in patients aged >2 years, while almost half of participants reported that TCIs had not been approved for use in patients aged <2 years. Although TCIs do not cause skin atrophy, more than half of the participants listed adverse effects including having a burning sensation as a concern, while others listed cost. In some countries, the boxed warning associated with TCI use was also a safety consideration for patients, although no causal relationship between malignancy and TCIs has been established [6, 32–34].

Crisaborole ointment, 2%, is a nonsteroidal PDE4 inhibitor for the treatment of mild-to-moderate AD. Countries including the United States and Canada have approved crisaborole for use in patients aged ≥ 3 months [35, 36]; however, in other countries, including Australia, crisaborole has only been approved for use in patients aged ≥ 2 years. Only 4 of 17 and 2 of 17 participants reported that crisaborole had not been approved for use in their region of practice in patients aged <2 and >2 years, respectively. Crisaborole has a favourable safety profile, with minimal adverse effects and no boxed warnings or limitations on the duration of use [5]; however, several participants listed adverse effects including application site pain as a limitation and others listed cost. In Phase 3 clinical studies, 4.4% of patients experienced application site pain (described as a burning or stinging sensation) which was considered to be treatment-related [37]; application site pain was the most common safety concern among participants.

Two topical JAKis, ruxolitinib and delgocitinib, are approved for use in some countries, both having promising efficacy and safety profiles [38, 39]. Ruxolitinib cream is approved in the United States for short-term AD and noncontinuous chronic treatment of mild-to-moderate AD in non-immunocompromised patients aged >12 years [39]. Delgocitinib is approved in Japan to treat children and adults with AD [38, 39]. More than half of the participants had no experience with topical JAKis, and some stated that these agents are not available within their regions. A few participants indicated cost as a limitation. Cardiovascular or thrombotic events were also listed.

Mitigating adverse effects improves adherence which should enhance patient outcomes [40]. Application site reactions are often the most common adverse effects noted with TCS (e.g., skin atrophy) and non-TCSs [40]. The non-TCSs, TCIs, and crisaborole are more likely to cause application site pain when applied to broken, infected or severely inflamed skin; thus, application to these areas should be avoided [40]. To mitigate application site reactions, participants also advised patient education, using a TCS to calm/heal skin followed by a non-TCS, treatment refrigeration, use of a moisturizer, application of a thin layer and a test dose of the treatment [40].

This study has several limitations. First, these results are limited to the practice patterns of the 17 chosen participants and, although they are geographically diverse, several countries and regions were not represented in this study, which further limits the generalizability of the findings. Additionally, all participants are from large academic/research centres, and their approaches to the management of AD may not be universally applicable to the practices of general physicians in smaller or more rural settings. Finally, although the results represent practice patterns of many countries and regions, the availability of products may differ among countries. Moreover, despite the approval of a topical treatment, use is often limited by patient age according to restrictions stated in the product label for a specific country Table 1.

5 | Conclusions

The management of mild-to-moderate AD in clinical practice is influenced by several patient-specific factors, access to treatment and practical experience with the available treatment options. A care plan tailored to patient needs and preferences with adequate patient education and cognizance of patient-specific factors is needed to achieve optimized patient outcomes. It is important that the knowledge and experience gained from the day-to-day practices of specialists be evaluated so that current guidelines might be adapted to optimally treat AD in the future.

Author Contributions

Lawrence F. Eichenfield, Linda F. Stein Gold, Adelaide A. Hebert, Lyn Guenther, Yuliya Valdman-Grinshpoun, Dan Ben-Amitai, Roni P. Dodiuk-Gad, Michael J. Cork, Valeria Aoki, Chia-Yu Chu, Jianzhong Zhang, Lin Ma, Hidehisa Saeki, Paula C. Luna, and Mark Jean-Aan Koh contributed equally to drafting and revising the article critically for important intellectual content and approved the final version to be published. All named authors meet the International Committee of Medical Journal Editors (ICMJE) criteria for authorship for this article, take responsibility for the integrity of the work as a whole, and have given their approval for this version to be published.

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Ethics Statement

The authors have nothing to report. This article does not contain any studies with human participants by any of the authors. Dr. Astraf M. Reda and Dr. James Bergman provided written informed consent to participate in this study.

Conflicts of Interest

Lawrence F. Eichenfield has served as a consultant, speaker, advisory board member or investigator for AbbVie, Amgen, Apogee, Arcutis, Aslan, Attovia, Bristol Myers Squibb, Castle Biosciences, Dermavant, Eli Lilly, Forte, Galderma, Incyte, Janssen, Johnson & Johnson, LEO Pharma, Novartis, Ortho Dermatologics, Pfizer, Regeneron, Sanofi Genzyme, Target RWE and UCB. Linda F. Stein Gold has received grants from Pfizer Inc., Incyte and LEO Pharma and has received payment for lectures from Pfizer Inc. and LEO Pharma. Adelaide A. Hebert has received research grants from Pfizer Inc., AbbVie, Amgen and Arcutis paid to UTHealth McGovern Medical School. She received honoraria from Pfizer Inc., Almirall, Arcutis, Beiersdorf, Galderma, Incyte, Novan, Ortho Dermatologics and Verrica and served on a DSMB for Alphyn, Ortho Dermatologics and Sanofi Regeneron. Lyn Guenther has received honoraria and/or research and/or consulting support from Pfizer Inc., AbbVie, Actilion, Amgen, Aralez, Bausch Health, BMS, Boehringer Ingelheim, Celgene, Cipher, Eli Lilly and Company, Galderma, GSK, Incyte, Innovaderm, Janssen, Johnson & Johnson, La Roche-Posay, LEO Pharma, Merck, Miravo, Novartis and UCB. She has served as a member of a speaker's bureau/advisory board for Pfizer Inc., AbbVie, Actilion, Amgen, Altana, Aralez, ASLAN Pharmaceuticals, Bausch Health, Eli Lilly and Company, Galderma, Janssen, Johnson & Johnson, La Roche-Posay, LEO Pharma, Novartis, Sanofi Aventis and UCB. Yuliya Valdman-Grinshpoun has served as an advisor and/or paid speaker and/or participated in clinical trials sponsored by AbbVie, Amgen, Boehringer Ingelheim, Celgene, Dexcel, Eli Lilly and Company, Kamada, Janssen, Neopharm, Novartis, Perrigo, Pierre Fabre, Rafa, Sanofi and Teva. Roni P. Dodiuk-Gad has served as an advisor and/or paid speaker and/or participated in clinical trials sponsored by Pfizer Inc., AbbVie, Dexcel, Eli Lilly and Company, Janssen, Novartis, Sanofi and La Roche-Posay. Michael J. Cork has served as a clinical trial investigator for Pfizer Inc., Atopix, Galapagos, Hyphens, Johnson & Johnson, Kymab, LEO Pharma, L'Oreal/La Roche-Posay, Novartis, Regeneron and Sanofi Genzyme. He has served as an advisory board member, consultant and/or invited lecturer for Pfizer Inc., AbbVie, Amlar, Astellas, Atopix, Boots, Dermavant, Galapagos, Galderma, Hyphens, Johnson & Johnson, Kymab, Leo, L'Oreal/La Roche-Posay, Menlo, Novartis, Oxagen, Procter & Gamble, Reckitt Benckiser, Regeneron and Sanofi Genzyme. Valeria Aoki has served as a clinical trial investigator for Eli Lilly and Company and Sanofi Genzyme and has served as an advisory board member, consultant and/or invited lecturer for Pfizer Inc., AbbVie, Galderma and LEO Pharma. Chia-Yu Chu has served as a clinical trial investigator and/or consultant and/or speaker for Pfizer Inc., AbbVie, Amgen, Dermira, Eli Lilly and Company, GSK, Kymab, Mylan, Novartis, Oneness Biotech, Regeneron, Roche, Sanofi and Viatris. He has served on the advisory boards of Pfizer Inc., AbbVie, Eli Lilly and Company, Mylan, Roche and Sanofi. Jianzhong Zhang and Lin Ma have received speaking and consulting support from Pfizer Inc. Hidehisa Saeki has received lecturing support from AbbVie GK, Eli Lilly Japan K.K., Japan Tobacco Inc., Kyowa Kirin Co. Ltd., LEO Pharma K.K., Maruho Co. Ltd., Mitsubishi Tanabe Pharma Corporation, Novartis Pharma K.K., Otsuka Pharmaceutical Co. Ltd., Sanofi K.K., Taiho Pharmaceutical Co. and Torii Pharmaceutical Co. Ltd. and has received clinical research and/or grant support from AbbVie GK, Esai Co. Ltd., LEO Pharma K.K. and Maruho Co. Ltd., Taiho Pharmaceutical Co. and Tokiwa Pharmaceutical Co. Ltd. Paula C. Luna has received lecturing and/or consulting and/or honoraria and/or grant support from Pfizer Inc., AbbVie, Amgen, Beiersdorf, Boehringer Ingelheim, Bristol Myers Squibb, Elli Lilly and Company, GlaxoSmithKline, Janssen, Laboratoire La Roche-Posay, Novartis, Pierre Fabre Laboratory, Sanofi Genzyme and Takeda. Mark Jean-Aan Koh has served as a speaker and/or received research support from Pfizer Inc., AbbVie, Amryt, ASLAN Pharmaceuticals, Bioderma/Naos, DKSH, Ego, Eli Lilly and Company, Galderma, Good Pharma, GSK, Hyphens, LEO Pharma, Lion, L'Oréal/La Roche-Posay, Menarini, Novartis, Quoin and Sanofi. Dan Ben-Amitai declares no conflicts of interest.

Data Availability Statement

Upon request, and subject to review, Pfizer will provide the data that support the findings of this study. Subject to certain criteria, conditions and exceptions, Pfizer may also provide access to the related individual deidentified participant data. See https://www.pfizer.com/science/clinical-trials/trial-data-and-results for more information.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section.