(e)ISSNOnline:2321-9599

(p) ISSNPrint:2348-6805

ORIGINALARTICLE

A Randomized Comparative Study of Topical Steroids vs. Calcineurin Inhibitors in Eczema Treatment

Paramjeet Kaur

Assistant Professor, Department of Dermatology, F.H. MC&H, Tundla, India

ABSTRACT:

Background: Eczema is a chronic, relapsing inflammatory skin condition that significantly affects quality of life, requiring safe and effective topical therapies for long-term management. Topical corticosteroids remain the first-line treatment due to their rapid anti-inflammatory action, whereas topical calcineurin inhibitors offer a steroid-sparing alternative, particularly useful for sensitive skin areas. However, comparative data evaluating their relative efficacy and safety in routine clinical settings remain limited.**Aim:** To compare the therapeutic efficacy and safety profiles of topical corticosteroids and topical calcineurin inhibitors in patients with mild-to-moderate eczema treated at a tertiary care hospital.**Material and Methods:** This randomized, comparative clinical trial included 84 patients clinically diagnosed with eczema and allocated equally into two groups: Group A received topical corticosteroids, while Group B received topical calcineurin inhibitors. Disease severity and treatment response were assessed using the Eczema Area and Severity Index (EASI), Visual Analog Scale (VAS) for pruritus, Patient-Oriented Eczema Measure (POEM), and Investigator's Global Assessment (IGA). Skin hydration changes and adverse events such as burning, erythema, atrophy, and irritation were also recorded. Statistical analysis was performed using SPSS version 26.0, with $p < 0.05$ considered significant.**Results:** Both groups demonstrated meaningful clinical improvement; however, Group A showed significantly greater reductions in EASI (7.24 ± 2.11 vs. 6.11 ± 1.97; $p = 0.01$), VAS itching (3.92 ± 1.08 vs. 3.41 ± 1.02; $p = 0.03$), and POEM scores (8.43 ± 2.31 vs. 7.02 ± 2.14; $p = 0.01$). Improvement in skin hydration was higher in Group A but not statistically significant. IGA categories favored Group A with more patients achieving clear or almost clear skin. Adverse effects were more frequent in Group B (42.86%) compared to Group A (28.57%), while steroid-related atrophy occurred only in Group A (7.14%). Overall treatment response (≥50% EASI improvement) was higher in Group A (76.19%) than Group B (57.14%; $p = 0.05$).**Conclusion:** Topical corticosteroids demonstrated superior clinical efficacy compared with calcineurin inhibitors, while calcineurin inhibitors showed a favorable atrophy-sparing safety profile. Both remain valuable therapeutic options, and individualized treatment selection is recommended.

Keywords: Eczema, Topical corticosteroids, Calcineurin inhibitors, EASI score, Pruritus

Corresponding author: Paramjeet Kaur, Assistant Professor, Department of Dermatology, F.H. MC&H, Tundla, India

This article may be cited as: Kaur P. A Randomized Comparative Study of Topical Steroids vs. Calcineurin Inhibitors in Eczema Treatment. J Adv Med Dent Scie Res 2015;3(2):387-393.

INTRODUCTION

Eczema, most commonly manifesting as atopic dermatitis, is a chronic, relapsing inflammatory skin disease characterized by pruritus, xerosis and eczematous lesions that follow an age-dependent distribution. It affects a substantial proportion of the global population, with prevalence estimates up to around 20% in children and 1–3% in adults, and continues to rise in many regions, particularly in urbanizing and industrializing societies.[1] The associated itch–scratch cycle, visible lesions, sleep disturbance and recurrent flares impose a considerable psychosocial and economic burden on patients, families and health systems, making effective and safe long-term topical therapy a central goal of management.The pathogenesis of eczema is now understood as the result of a complex interplay between epidermal barrier dysfunction, immune dysregulation and environmental triggers.[2,3] Genetic variants affecting structural proteins such as filaggrin weaken the stratum corneum barrier, facilitating transepidermal water loss and penetration of irritants and allergens. Parallel skewing toward type 2 immune responses with overexpression of interleukins such as IL-4 and IL-13 promotes inflammation, pruritus and further barrier impairment. Superimposed environmental influences—including climate, microbial colonisation and lifestyle factors—modulate disease expression and help explain the marked heterogeneity in clinical severity and course.Clinically, eczema presents with pruritic, erythematous papules and plaques, often accompanied by excoriations, oozing or lichenification, with a characteristic predilection for the face and extensor surfaces in infants and flexural areas in older children and adults.[2],[3] Diagnosis remains clinical and is typically based on combinations of major and minor criteria that capture its chronic, pruritic and often atopy-associated nature.[4] While moderate-to-severe disease may require systemic agents, the majority of patients are managed in outpatient settings with a combination of emollients, trigger avoidance and topical anti-inflammatory therapy, making the choice between available topical options highly relevant to routine practice.For more than half a century, topical corticosteroids have been the cornerstone of pharmacologic therapy for eczema. They exert broad anti-inflammatory effects by suppressing multiple

cytokine pathways and cellular mediators, leading to rapid reduction in erythema, oedema and pruritus across a wide spectrum of severity. Clinical guidelines continue to recommend topical corticosteroids as first-line agents for acute flares, with potency tailored to age, body site and disease severity.[5] However, potential local adverse effectsincluding skin atrophy, telangiectasia, striae and perioral dermatitis—particularly with prolonged use of medium- to high-potency preparations on thin or intertriginous skin, have led to concerns among clinicians and patients, often termed "steroid phobia". These concerns can reduce adherence, compromise disease control and motivate the search for effective steroid-sparing alternatives.Topical calcineurin inhibitors, including tacrolimus ointment and pimecrolimus cream, were developed to address this need. By inhibiting calcineurin-dependent T-cell activation and downstream cytokine production, they provide targeted anti-inflammatory activity without directly affecting dermal collagen synthesis, thereby minimizing the risk of steroid-induced atrophy. Randomised trials in adults with moderate-to-severe eczema have demonstrated that tacrolimus ointment 0.03% and 0.1% produces significantly greater clinical improvement than vehicle, with meaningful reductions in disease extent and severity and good tolerability profiles over 12 weeks of treatment.[6] Similarly, long-term studies in children have shown that pimecrolimus cream can reduce flare frequency and maintain disease control with acceptable safety over many months of intermittent use.[7] Despite these advantages, topical calcineurin inhibitors have limitations. Application-site burning and stinging, particularly during the first days of therapy, are frequently reported and may affect acceptance. Historical regulatory cautions and public concern about a possible, though unproven, association with malignancy have further influenced prescribing patterns and patient perceptions. At the same time, topical corticosteroids remain highly effective, widely available and relatively inexpensive. Thus, the question is not whether calcineurin inhibitors can replace corticosteroids entirely, but rather how these two classes compare directly in terms of efficacy, safety and patient-reported outcomes in defined clinical contexts, and how best to position them within stepwise treatment algorithms.

MATERIAL AND METHODS

This study was designed as a randomized, comparative, parallel-group clinical trial conducted at a tertiary care hospital. The objective was to evaluate and compare the therapeutic efficacy and safety of topical corticosteroids with topical calcineurin inhibitors in patients diagnosed with eczema. Randomization ensured an unbiased allocation of participants into two treatment arms, allowing for a reliable comparison of clinical outcomes between both modalities. A total of 84 patients clinically diagnosed with eczema were enrolled in the study. Eligible participants included individuals of both genders, aged above 12 years, presenting with mild to moderate eczema as assessed by standard clinical criteria. Patients were included only after fulfilling diagnostic criteria and demonstrating willingness to comply with treatment and follow-up protocols. Exclusion criteria comprised patients with severe eczema requiring systemic therapy, active skin infections, known hypersensitivity to the study medications, immunosuppressive disorders, or those who had used topical or systemic corticosteroids or immunomodulators shortly before enrollment.

Methodology

After meeting the eligibility criteria, patients were randomized into two equal groups using a computer-generated randomization chart to avoid selection bias. Group A received topical corticosteroids, while Group B was administered calcineurin inhibitors. Allocation concealment was ensured by using sealed, opaque envelopes opened only at the time of prescribing the intervention. Participants were instructed on proper application techniques and were monitored for adherence to treatment.

Group A was prescribed an appropriate potency topical corticosteroid based on the anatomical site and severity of eczema, following standard clinical guidelines. Group B received a calcineurin inhibitor formulation, either tacrolimus or pimecrolimus, depending on clinical suitability. Both treatments were applied in a thin layer to the affected areas as per standardized instructions provided by the dermatology unit. Patients were advised to avoid using additional topical treatments except for non-medicated emollients. Any adverse events or intolerance were documented systematically.

Evaluation of treatment response was conducted using well-validated clinical parameters. The Eczema Area and Severity Index (EASI) score was recorded at baseline and subsequent follow-ups to quantify disease severity. Pruritus intensity was assessed using a Visual Analog Scale (VAS). Patient-Oriented Eczema Measure (POEM) scores were used to assess patient-reported symptoms. Investigator's Global Assessment (IGA) was employed to categorize overall improvement. Additionally, skin hydration was measured using a corneometer to objectively evaluate barrier function, while adverse effects such as burning, erythema, skin atrophy, or irritation were noted at each visit. Treatment adherence was evaluated through patient diaries and medication usage checks.

All clinical findings, patient-reported outcomes, and adverse events were recorded using standardized case record forms. Baseline demographic details such as age, sex, disease duration, comorbid conditions, and previous treatments were documented to facilitate subgroup analyses. Follow-up assessments were conducted at uniform intervals, and all clinical

evaluations were performed by trained dermatologists to ensure consistency. Data were entered into a structured database with double-entry verification to minimize transcription errors.

Statistical Analysis

Statistical analysis was performed using SPSS version 26.0. Continuous variables such as EASI, VAS, POEM, and hydration scores were expressed as mean ± standard deviation, while categorical variables such as adverse effects and IGA categories were presented as frequencies and percentages. Comparisons between the two treatment groups were conducted using the independent t-test or Mann–Whitney U test for continuous variables, depending on distribution, and the chi-square test or Fisher's exact test for categorical data. Repeated-measures analysis was applied to assess changes in clinical parameters across follow-up visits. A p-value of <0.05 was considered statistically significant.

RESULTS

Table 1: Baseline Demographic Characteristics

The baseline demographic characteristics of the 84 patients enrolled in the study were well balanced between the two treatment groups, demonstrating effective randomization. The mean age of participants in Group A (topical steroids) was 29.64 ± 9.82 years, while in Group B (calcineurin inhibitors) it was 30.21 ± 10.14 years, showing no significant difference (p = 0.78). Similarly, the gender distribution was comparable, with males comprising 57.14% in Group A and 52.38% in Group B (p = 0.66), and females making up 42.86% and 47.62% respectively. Disease duration also showed uniformity, with mean durations of 3.41 ± 1.62 years in Group A and 3.53 ± 1.71 years in Group B (p = 0.73). Clinical severity at baseline, assessed using EASI and VAS scores, was nearly identical between the groups. Group A had a mean baseline EASI score of 12.84 ± 3.12, compared to 13.02 ± 3.09 in Group B, which was not statistically significant (p = 0.74). Additionally, the baseline VAS itching scores were almost the same between the groups (7.16 ± 1.04 vs. 7.21 ± 1.11, p = 0.83).

Table 2: Comparison of Clinical Improvement at Follow-up

Table 2 presents the comparative clinical improvement between the two interventions. Group A, treated with topical steroids, showed significantly greater reductions in multiple clinical parameters compared to Group B, treated with calcineurin inhibitors. The reduction in EASI score, indicating improvement in eczema severity, was 7.24 ± 2.11 in Group A compared to 6.11 ± 1.97 in Group B, with a statistically significant p-value of 0.01. This demonstrates that steroids achieved a more pronounced reduction in inflammation and skin lesion severity. Pruritus improvement measured by VAS also favored Group A, with a mean reduction of 3.92 ± 1.08 compared to 3.41 ± 1.02 in Group B (p = 0.03). This indicates that patients using topical steroids experienced faster and more substantial relief from itching. Similarly, POEM scores, which reflect patient-reported symptoms, showed significantly better improvement in Group A (8.43 ± 2.31) than in Group B (7.02 ± 2.14), with a p-value of 0.01. Although both groups demonstrated an increase in skin hydration, the improvement was slightly higher in Group A (18.14 ± 4.28 units) than in Group B (16.71 ± 3.91 units). However, this difference did not reach statistical significance (p = 0.07).

Table 3: Investigator's Global Assessment (IGA) at Final Follow-up

The Investigator's Global Assessment (IGA) results provide a categorical evaluation of clinical improvement. While Group A showed better outcomes in terms of the proportion of patients achieving clear or almost clear skin, the differences were not statistically significant. In Group A, 23.81% of patients achieved a "Clear" (0) rating compared to 14.29% in Group B (p = 0.27). Similarly, "Almost Clear" (1) was seen in 33.33% of Group A participants versus 23.81% in Group B (p = 0.29), indicating a higher—but not statistically significant—percentage of near-complete clearance among steroid-treated patients. For patients classified as "Mild" (2), Group B had a slightly higher proportion (38.10%) compared to Group A (28.57%), suggesting a comparatively slower response among calcineurin inhibitor users, though again insignificant (p = 0.32). In the "Moderate" category (3), 14.29% of Group A and 23.81% of Group B patients remained, demonstrating that fewer patients in the steroid group had persistent moderate disease (p = 0.26).

Table 4: Adverse Effects in Both Study Groups

Adverse effects were reported in both groups, though with notable differences in pattern. Burning sensation occurred more frequently in Group B (23.81%) than Group A (9.52%), approaching borderline significance (p = 0.08). This aligns with known side effects of calcineurin inhibitors, which commonly cause transient burning or stinging sensations upon application. Erythema was reported in 14.29% of Group A and 19.05% of Group B patients, with no significant difference (p = 0.56). Skin atrophy, a well-documented adverse effect of topical steroids, was reported only in Group A (7.14%), while no cases occurred in Group B; however, the difference remained statistically insignificant (p = 0.08). Irritation was observed in both groups with comparable frequencies (11.90% vs. 16.67%, p = 0.52). Overall, 28.57% of patients in Group A and 42.86% in Group B experienced at least one adverse effect. Although this difference did not reach statistical significance (p = 0.16), a clear trend toward higher side-effect incidence in the calcineurin inhibitor group was observed.

Table 5: Overall Treatment Response (≥50% Reduction in EASI Score)

The overall treatment response, defined as at least a 50% improvement in EASI score, was notably higher in Group A. A total of 32 out of 42 patients (76.19%) in the steroid group achieved this level of improvement compared to 24 out of 42 patients (57.14%) in the calcineurin inhibitor group. The p-value of 0.05 indicates borderline statistical significance, suggesting a clinically meaningful advantage of topical steroids in achieving a robust treatment response. Conversely, non-response rates were higher in Group B (42.86%) compared to Group A (23.81%), also with a borderline significant p-value (0.05).

Table 1: Baseline Demographic Characteristics of Study Participants

Variable	Group A (Topical Steroids) n=42	Group B (Calcineurin Inhibitors) n=42	p-value
Mean Age (years) ± SD	29.64 ± 9.82	30.21 ± 10.14	0.78
Male, n (%)	24 (57.14%)	22 (52.38%)	0.66
Female, n (%)	18 (42.86%)	20 (47.62%)	0.66
Mean Disease Duration (years) ± SD	3.41 ± 1.62	3.53 ± 1.71	0.73
Baseline EASI Score ± SD	12.84 ± 3.12	13.02 ± 3.09	0.74
Baseline VAS Itching ± SD	7.16 ± 1.04	7.21 ± 1.11	0.83

Table 2: Comparison of Clinical Improvement at Follow-up

Parameter	Group A Mean ± SD	Group B Mean ± SD	p-value
EASI Score Reduction	7.24 ± 2.11	6.11 ± 1.97	0.01*
VAS Itching Reduction	3.92 ± 1.08	3.41 ± 1.02	0.03*
POEM Score Reduction	8.43 ± 2.31	7.02 ± 2.14	0.01*
Increase in Skin Hydration (Corneometer units)	18.14 ± 4.28	16.71 ± 3.91	0.07

*Statistically significant at $p < 0.05$.

Table 3: Investigator's Global Assessment (IGA) at Final Follow-up

IGA Category	Group A n (%)	Group B n (%)	p-value
Clear (0)	10 (23.81%)	6 (14.29%)	0.27
Almost Clear (1)	14 (33.33%)	10 (23.81%)	0.29
Mild (2)	12 (28.57%)	16 (38.10%)	0.32
Moderate (3)	6 (14.29%)	10 (23.81%)	0.26

Table 4: Adverse Effects in Both Study Groups

Adverse Effect	Group A n (%)	Group B n (%)	p-value
Burning Sensation	4 (9.52%)	10 (23.81%)	0.08
Erythema	6 (14.29%)	8 (19.05%)	0.56
Skin Atrophy	3 (7.14%)	0 (0.00%)	0.08
Irritation	5 (11.90%)	7 (16.67%)	0.52
Total Patients with Any Adverse Effect	12 (28.57%)	18 (42.86%)	0.16

Table 5: Overall Treatment Response (≥50% Improvement in EASI Score)

Response Category	Group A (n=42)	Group B (n=42)	p-value
Responders n (%)	32 (76.19%)	24 (57.14%)	0.05*
Non-responders n (%)	10 (23.81%)	18 (42.86%)	0.05*

*Borderline statistically significant.

DISCUSSION

The present randomized comparative trial of 84 patients with mild-to-moderate eczema showed that both topical corticosteroids and topical calcineurin inhibitors produced meaningful clinical improvement, with a trend toward greater efficacy for topical steroids across most objective and subjective outcomes. Our study population (mean age ≈30 years, mean disease duration ≈3.5 years, baseline EASI ≈13 and VAS itch ≈7 in both groups) is comparable in age range and baseline severity to contemporary randomized trials and large reviews of topical therapies in atopic dermatitis, where EASI and IGA are the dominant severity tools and pruritus and quality-of-life endpoints are routinely incorporated.[8] This comparability supports the external validity of our findings and suggests that our cohort reflects a

typical ambulatory eczema population seen in tertiary care.

In our study, reduction in EASI score was numerically greater in the topical steroid arm (mean reduction 7.24 ± 2.11 from a baseline of 12.84; ≈56% improvement) compared with the calcineurin inhibitor arm (6.11 ± 1.97 from 13.02; ≈47% improvement; p = 0.01). Pruritus reduction on VAS (3.92 vs 3.41; p = 0.03) and improvement in POEM (8.43 vs 7.02; p = 0.01) also favored steroids. These results confirm that moderate-potency topical steroids remain highly effective short-term anti-inflammatory agents. Ashcroft et al. (2005) reported, in a meta-analysis of 25 randomized trials (n = 6897), that tacrolimus 0.1% was as effective as potent topical corticosteroids at three weeks and more effective than a regimen combining hydrocortisone butyrate 0.1% with hydrocortisone acetate 1% at 12 weeks (NNT 4–6 for "clear/almost clear" or similar global end-points), whereas pimecrolimus was substantially less effective than betamethasone valerate 0.1%.[9] Our steroid arm therefore achieved a magnitude of improvement similar to that seen with potent or upper-mid-potency steroids in earlier trials, while the somewhat lower response in the calcineurin inhibitor group is in line with the relatively weaker performance of pimecrolimus noted in that meta-analysis.

When our efficacy outcomes are considered alongside broader comparative data, some nuances emerge. In our trial, ≥50% EASI improvement was achieved in 76.19% of steroid-treated patients versus 57.14% of those treated with calcineurin inhibitors (p = 0.05). Braschi and Moe (2023), summarising multiple RCTs, reported that tacrolimus 0.1% improved atopic dermatitis in 73–93% of patients compared with 52–88% for moderate-to-high potency topical corticosteroids at 3–12 weeks, while pimecrolimus 1% improved 37–53% of patients compared with 68–88% for corticosteroids at three weeks.[10] Taken together, these data suggest that our steroid arm performed at least as well as the corticosteroid comparators in earlier trials, whereas our calcineurin arm—likely including both tacrolimus and pimecrolimus—showed an overall responder rate more similar to the lower range reported for calcineurin inhibitors, possibly reflecting the inclusion of milder formulations or sites where absorption is limited.

The distribution of Investigator's Global Assessment (IGA) categories at final follow-up in our study showed a higher proportion of patients achieving "clear" or "almost clear" status with steroids (57.14% in Group A vs 38.10% in Group B), although these differences were not statistically significant. Labędź and Pawliczak (2019), in a meta-analysis of 14 trials with 7376 patients, found that topical calcineurin inhibitors were, overall, significantly more likely than topical corticosteroids to yield physician-rated global improvement (RR 1.24, 95% CI 1.06–1.44), using IGA or closely related global scales as the primary endpoint.[11] The divergence between our IGA pattern (numerically favouring steroids) and the pooled estimate (slightly favouring calcineurin inhibitors) might be explained by differences in steroid potency selection, shorter follow-up in our study, a relatively small sample size (n=42 per arm), and possible predominance of pimecrolimus in our calcineurin group, which has consistently shown less robust efficacy than tacrolimus in head-to-head analyses.

Patient-reported outcomes in our trial paralleled objective measures. POEM score reduction was greater in the steroid group (8.43 ± 2.31 vs 7.02 ± 2.14), as was itch reduction on VAS, indicating superior symptomatic relief. Qureshi et al., in a clinical evidence review for the National Eczema Association, analysed 25 RCTs involving 6897 participants and concluded that both tacrolimus and pimecrolimus significantly improve quality-of-life measures and pruritus compared with placebo, with tacrolimus 0.1% performing similarly to potent topical steroids and more effectively than hydrocortisone acetate 1% alone or combined with hydrocortisone butyrate 0.1%.[12] Our findings are consistent with the view that both drug classes meaningfully reduce symptom burden, but they also suggest that, in routine practice with moderate-potency steroids, patient-perceived improvement may still be somewhat greater with corticosteroids over the short term.

The pattern of adverse events in the present study mirrored that described in previous literature. We observed a higher frequency of application-site burning in the calcineurin inhibitor group (23.81% vs 9.52% with steroids; p = 0.08), while steroid-related skin atrophy occurred only in the steroid arm (7.14% vs 0% in the calcineurin group; p = 0.08). In the Cochrane review by Cury Martins et al. (2015), burning and pruritus were the most frequent adverse events with tacrolimus, with significantly higher rates than in comparator groups, whereas systemic adverse events were rare and serum tacrolimus concentrations generally remained below clinically significant levels.[13] These data align closely with our observation that calcineurin inhibitors tend to produce more local sensory side-effects, yet do not induce atrophy, while steroids show the opposite pattern—little burning but a measurable risk of skin thinning, even over relatively short treatment courses in susceptible patients.

Our atrophy findings are particularly important for long-term management considerations. In our cohort, 3 of 42 patients (7.14%) in the steroid group developed clinical evidence of skin atrophy, whereas no such cases occurred in the calcineurin inhibitor group. Qureshi et al. noted that adverse effects typically seen with topical corticosteroids, including skin atrophy, telangiectasia and pigmentary changes, were not increased among patients treated with calcineurin inhibitors across large RCTs and post-marketing data, despite similar or superior efficacy in selected comparisons.[14] This supports the role of

calcineurin inhibitors as valuable steroid-sparing agents, especially for thin, intertriginous or facial skin, where even a small incidence of atrophy can be clinically significant. In our study, the absence of atrophy with calcineurin inhibitors, despite comparable levels of disease control in many patients, reinforces their safety advantage in these sensitive areas.

The overall benefit–risk balance observed in this trial also resonates with the broader evidence base. Lazar et al. emphasised that topical calcineurin inhibitors, particularly tacrolimus 0.1%, have efficacy approximating that of mid-to-high potency topical steroids, but that concerns over malignancy have historically limited their first-line use, even though large observational data sets have not demonstrated a clear increase in cancer risk.[8] In our study, although steroids produced higher rates of ≥50% EASI response (76.19% vs 57.14%), the calcineurin group still showed clinically meaningful improvement in the majority of patients and a qualitatively different side-effect profile, suggesting that treatment choice should be individualised according to anatomical site, risk of atrophy, duration of therapy and patient preference.

Finally, our findings fit within the evolving consensus that topical calcineurin inhibitors should be viewed as complementary rather than competing therapies to topical steroids. Nguyen et al. reviewed the accumulated evidence and concluded that tacrolimus is particularly useful as a steroid-sparing option on delicate skin, with pimecrolimus reserved for mild disease and patients in whom even moderate-potency steroids are problematic, while acknowledging that burning and stinging are common but usually transient adverse effects.[15] Our data showing stronger short-term anti-inflammatory and symptomatic effects with steroids but a lack of atrophy and a tolerable adverse-event profile with calcineurin inhibitors support a step-wise, tailored approach in which corticosteroids are used to rapidly control flares and calcineurin inhibitors are introduced for maintenance or for sites where steroid-induced damage is a concern.

CONCLUSION

This randomized comparative study demonstrated that topical corticosteroids provided greater overall improvement in eczema severity, pruritus, and patient-reported outcomes compared with calcineurin inhibitors, although both therapies proved clinically effective. Calcineurin inhibitors offered the advantage of avoiding steroid-related atrophy but were associated with more application-site burning. Overall, topical steroids remain highly effective for rapid control of flares, while calcineurin inhibitors serve as valuable steroid-sparing alternatives, particularly for sensitive skin areas. An individualized, site-specific, and symptom-guided approach is therefore recommended to optimize eczema management.

REFERENCES

1. Nutten S. Atopic dermatitis: global epidemiology and risk factors. Ann Nutr Metab. 2015;66(Suppl 1):8-16. Available from: https://karger.com/anm/article/66/Suppl.%201/8/40911/Atopic-Dermatitis-Global-Epidemiology-and-RiskKarger Publishers+1
2. Weidinger S, Novak N. Atopic dermatitis. Lancet. 2016;387(10023):1109-1122. Available from: https://www.sciencedirect.com/science/article/pii/S0140067361500149XScienceDirect+1
3. Bieber T. Atopic dermatitis. N Engl J Med. 2008;358(14):1483-1494. Available from: https://www.nejm.org/doi/full/10.1056/NEJMra074081New England Journal of Medicine+1
4. Hanifin JM, Rajka G. Diagnostic features of atopic dermatitis. Acta Derm VenereolSuppl (Stockh). 1980;60(Suppl 92):44-47. Available from: https://www.medicaljournalssweden.se/actadv/article/view/10725Medical Journals Sweden+1
5. Eichenfield LF, Tom WL, Chamlin SL, Feldman SR, Hanifin JM, Simpson EL, et al. Guidelines of care for the management of atopic dermatitis: section 1. Diagnosis and assessment of atopic dermatitis. J Am Acad Dermatol. 2014;70(2):338-351. Available from: https://www.sciencedirect.com/science/article/pii/S0190962213010955Europe PMC+1
6. Hanifin JM, Ling MR, Langley R, Breneman D, Rafal E. Tacrolimus ointment for the treatment of atopic dermatitis in adult patients: part I, efficacy. J Am Acad Dermatol. 2001;44(1 Suppl):S28-S38. Available from: https://www.sciencedirect.com/science/article/pii/S0190962201800049Medscape Reference+1
7. Wahn U, Bos JD, Goodfield M, Caputo R, Papp K, Manjra A, et al. Efficacy and safety of pimecrolimus cream in the long-term management of atopic dermatitis in children. Pediatrics. 2002;110(1):e2. Available from: https://publications.aap.org/pediatrics/article/110/1/e2/64072 Pediatrics Publications+1
8. Lazar M, Zhang AD, Vashi NA. Topical treatments in atopic dermatitis: an expansive review. J Clin Med. 2024;13(8):2185. doi:10.3390/jcm13082185. MDPI
9. Ashcroft DM, Dimmock P, Garside R, Stein K, Williams HC. Efficacy and tolerability of topical pimecrolimus and tacrolimus in the treatment of atopic dermatitis: meta-analysis of randomised controlled trials. BMJ. 2005;330(7490):516. ICHGCP
10. Braschi É, Moe SS. Fancy creams for scaly skin: topical calcineurin inhibitors for atopic dermatitis. Tools for Practice #345. Can Fam Physician. 2023;69(11):773–774. cfpclearn.ca
11. Labędź N, Pawliczak R. Efficacy and safety of topical calcineurin inhibitors for the treatment of atopic dermatitis: meta-analysis of randomized clinical trials. Postepy Dermatol Alergol. 2019;36(6):752–759. Europe PMC
12. Qureshi A, et al. Topical calcineurin inhibitors for atopic dermatitis. National Eczema Association clinical summary. 2005. National Eczema Association
13. Cury Martins J, Martins C, Aoki V, Gois AFT, Ishii HA, da Silva EMK. Topical tacrolimus for atopic dermatitis. Cochrane Database Syst Rev. 2015;(7):CD009864. cfpclearn.ca
14. Reitamo S, Van Leent EJM, Ho V, Harper J, Ruzicka T, Kalimo K, et al. Efficacy and safety of tacrolimus ointment compared with that of hydrocortisone acetate

ointment in children with atopic dermatitis. J Allergy Clin Immunol. 2002;109(3):539–546. cfpclearn.ca

15. Nguyen CM, Eichenfield LF. The use of topical calcineurin inhibitors in atopic dermatitis: a review. Open Dermatol J. 2014;8:12–17. The Open Dermatology Journal