Comparative Efficacy of Topical Therapies for Pruritus in Seborrheic Dermatitis: A Systematic Review and Network Meta-Analysis

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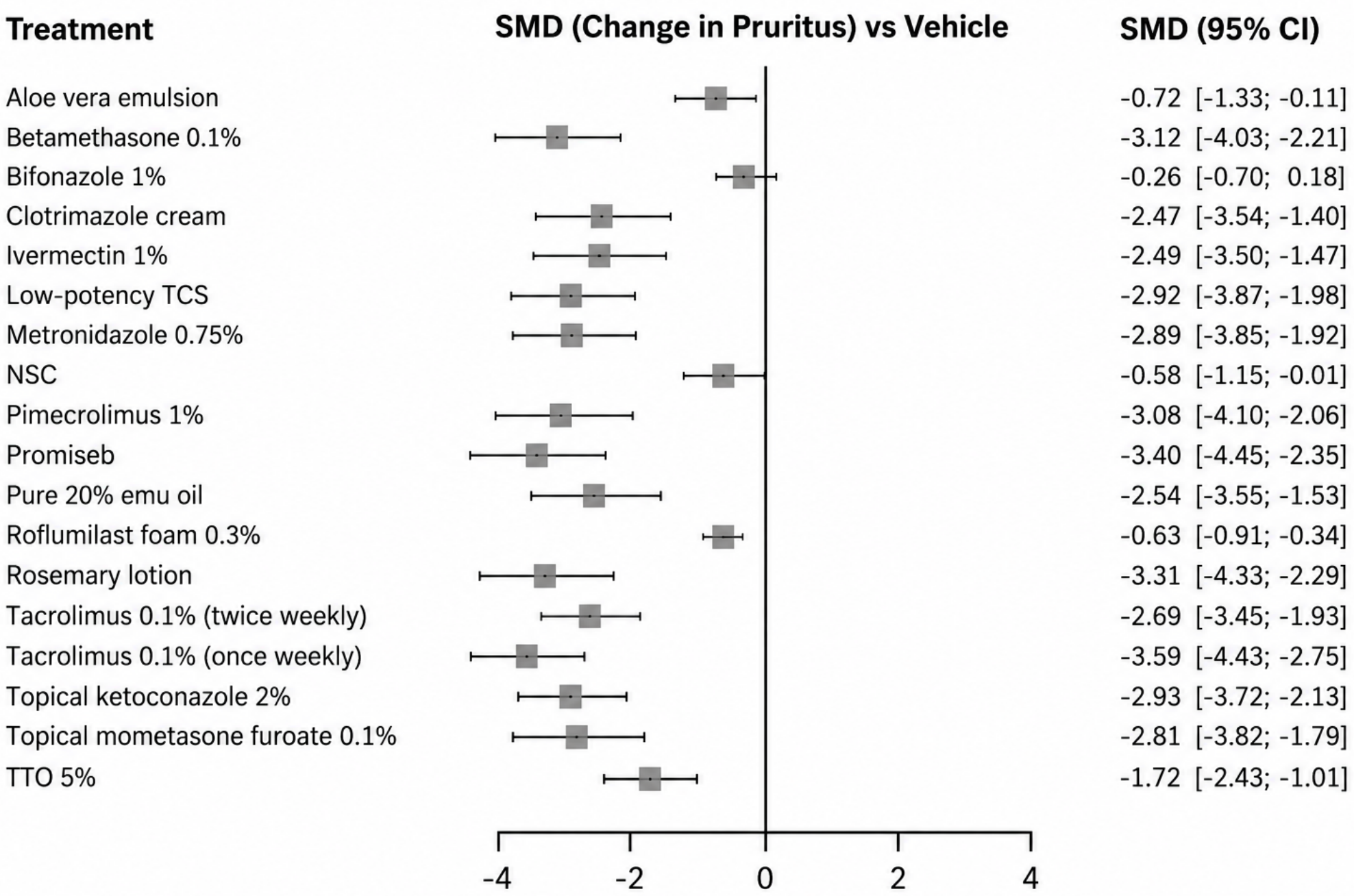
Introduction: Seborrheic dermatitis (SD) is a common chronic inflammatory skin condition affecting the scalp, face, and trunk, and pruritus is among its most bothersome symptoms. Although many topical agents are used to treat SD, most trials focus on overall lesion scores, and no study has directly compared their effects on itch. We therefore conducted a systematic review and network meta-analysis (NMA) of randomized controlled trials to compare and rank topical interventions for reducing pruritus in patients with scalp, facial, and/or body SD.

Methods:A systematic review identified randomized controlled trials evaluating topical treatments for SD that reported continuous pruritus outcomes (mean change from baseline). To maintain network connectivity while respecting clinical pharmacology, low-potency topical corticosteroids (TCS; hydrocortisone 1% and desonide 0.05%) were grouped into a single node, while mid/high-potency TCS, calcineurin inhibitors, antifungals, and specific alternative therapies were analyzed independently. Because trials utilized varying itch measurement scales, efficacy was pooled using Standardized Mean Differences (SMD). Frequentist and Bayesian NMAs were conducted, calculating P-scores to rank treatments against a shared vehicle control.

Results: The final network comprised 18 studies with 20 pairwise comparisons across 19 treatment nodes. The network demonstrated no statistical heterogeneity (I^2 = 0%). Compared to the vehicle, nearly all active treatments significantly reduced pruritus ($p < 0.05$), with the exception of bifonazole 1% (SMD -0.26, 95% CI [-0.70 to 0.18], p=0.24). Based on frequentist P-scores, the most highly ranked treatments for pruritus reduction were the non-steroidal cream Promiseb (P-score 0.90; SMD -3.40, 95% CI [-4.45 to -2.35]) and Tacrolimus 0.1% applied once weekly (P-score 0.89; SMD -3.59, 95% CI [-4.43 to -2.75]). Botanical therapies also showed robust relative efficacy, notably Rosemary lotion (P-score 0.85; SMD -3.31, 95% CI [-4.33 to -2.29]). Among corticosteroids, Betamethasone 0.1% (P-score 0.78; SMD -3.12, 95% CI [-4.03 to -2.21]) ranked higher than the grouped Low-Potency TCS node (P-score 0.67; SMD -2.92, 95% CI [-3.87 to -1.98]). Ketoconazole 2% performed moderately well (P-score 0.66; SMD -2.93, 95% CI [-3.72 to -2.13]).

Conclusions: Multiple topical modalities effectively reduce pruritus in SD. Our model suggests that specific non-steroidal barrier creams, topical calcineurin inhibitors, and botanical lotions may offer comparable or superior itch relief to standard low-potency corticosteroids and antifungals in the short term.

Limitations: These findings must be interpreted within the constraints of the data. The observed heterogeneity is likely a mathematical artifact of a "star-shaped" network dominated by active-versus-vehicle trials, meaning head-to-head indirect comparisons lack the robustness of closed-loop direct evidence. Furthermore, the use of SMD limits the interpretability of absolute point reductions on standard clinical scales, and the data reflects short-term trial endpoints rather than long-term pruritus management.


Treatment
SMD (Change in Pruritus) vs Vehicle
SMD (95% CI)
Aloe vera emulsion
Betamethasone 0.1%
Bifonazole 1%
Clotrimazole cream
Ivermectin 1%
Low-potency TCS
Metronidazole 0.75%
NSC
Pimecrolimus 1%
Promiseb
Pure 20% emu oil
Roflumilast foam 0.3%
Rosemary lotion
Tacrolimus 0.1% (twice weekly)
Tacrolimus 0.1% (once weekly)
Topical ketoconazole 2%
Topical mometasone furoate 0.1%
TTO 5%
-0.72 [-1.33; -0.11]
-3.12 [-4.03; -2.21]
-0.26 [-0.70; 0.18]
-2.47 [-3.54; -1.40]
-2.49 [-3.50; -1.47]
-2.92 [-3.87; -1.98]
-2.89 [-3.85; -1.92]
-0.58 [-1.15; -0.01]
-3.08 [-4.10; -2.06]
-3.40 [-4.45; -2.35]
-2.54 [-3.55; -1.53]
-0.63 [-0.91; -0.34]
-3.31 [-4.33; -2.29]
-2.69 [-3.45; -1.93]
-3.59 [-4.43; -2.75]
-2.93 [-3.72; -2.13]
-2.81 [-3.82; -1.79]
-1.72 [-2.43; -1.01]
-4
-2
0
2
4