

Skin care interventions in infants for preventing eczema and food allergy

Anne-Catherine Vanhove, Trudy Bekkering, Filip Cools

Cochrane Belgium, Belgian Centre for Evidence-Based Medicine (Cebam)

ac.vanhove@cebam.be

Keywords

Skin care ; Eczema ; Food allergy.

Questions

What are the effects of skin care interventions such as emollients in infants for the primary prevention of eczema and food allergies?

Context

Eczema and food allergies are both common health issues that typically begin during the first year of life and they often co-occur. Eczema is a chronic inflammatory skin condition which results in dry, cracked and itchy skin. IgE-mediated food allergy have well-characterized symptoms ranging from minor oral and gastrointestinal symptoms, urticaria, angioedema to more severe symptoms such as anaphylaxis, which occasionally results in death. Symptoms usually occur within two hours of ingesting the food. Both eczema and IgE-mediated food allergy are associated with genetic variations that damage skin barrier functions. It is, however, unclear if trying to prevent or reverse an impaired skin barrier at an early age is effective for preventing eczema or food allergy.

Emollients, lipid based products that smooth the skin, are one of the staples in treatment of established eczema as dry skin is one the key symptoms. Moisturizers, which provide water and moisture to the skin, are also often used. Since skin barrier dysfunction is often seen before the development of eczema, using moisturizers or emollients could possibly offer a route to eczema and maybe even food allergy prevention. This review therefore assessed the effects of all skin care interventions aimed at preserving, or limiting damage to, the skin barrier and enhancing skin hydration (1).

Criteria for study selection

The review included studies that assessed skin care interventions that could potentially enhance skin barrier function, reduce redness, or reduce subclinical inflammation in healthy term (>37 weeks) infants (≤12 months) without pre-existing eczema, food allergy or other skin conditions. These included moisturizers and/or emollients; bathing products; advice regarding reducing soap exposure and bathing frequency; and using water softeners. The randomized controlled studies compared these skin care interventions with standard care or no treatment. The two main outcomes were an eczema diagnosis or Ig-E mediated food allergy by 1 to 3 years of age.

Summary of the results

In total, the authors identified 33 studies with 25827 participants of which 17 studies with 5823 infants reported on one of the relevant outcomes. Most studies randomized infants to age three weeks to receive a skin care intervention or the standard infants skin care. Intervention duration and follow-up ranged from 24 hours to three years. Of the 17 studies reporting on the prespecified outcomes, 13 used emollients.

Skin care interventions during infancy probably have little to no effect on the risk of eczema diagnosis by 1 to 3 years (standard care: 150 infants per 1000 vs skin care intervention: 155 infants per 1000 (95% CI : 122-197); 7 studies, 3075 infants, moderate-certainty evidence) or the time to onset of eczema (standard care: 24 months vs skin care intervention: 27.9

months (95% CI: 21.1-36.9); 9 studies, 3349 infants, moderate-certainty evidence. Skin care interventions may increase the risk of IgE-mediated food allergy (via oral food challenge) by 1 to 3 years (standard care: 50 infants per 1000 vs skin care intervention: 127 infants per 1000 (95% CI: 50-335); 1 study, 976 infants, low-certainty evidence), but may have little to no effect on the risk of allergic sensitization (via skin prick) by 1 to 3 years (standard care: 90 infants per 1000 vs skin care intervention: 95 infants per 1000 (95% CI: 58-154); 3 studies, 1794 infants, low-certainty evidence). Skin care interventions may slightly increase the parent report of an immediate reaction to a common food allergen at 2 years (low-certainty evidence), but this is only seen for cow's milk which is possibly unreliable due to the overreporting of milk allergy in infants. Skin care interventions in infancy probably increase the risk of skin infections over the intervention period (standard care: 50 infants per 1000 vs skin care intervention: 67 infants per 1000 (95% CI: 51-88); 6 studies; 2728 infants, moderate-certainty evidence). It may also increase the risk of infant slippage over the intervention period (low-certainty evidence) and stinging/allergic reactions to moisturizers (low-certainty evidence), however these effects vary and it is also possible that skin care interventions make little to no difference and even reduce slippages and sting/allergic reactions.

Subgroup analysis showed that age, hereditary risk, filaggrin (FLG) mutation, duration of intervention, and classification of intervention type did not affect the risk of developing eczema. These analyses could not be performed for food allergy risk. It is unclear whether adherence to treatment affects the relationship between skin care interventions and risk of developing eczema or food allergy.

Conclusion

Based on low- to moderate-certainty evidence, skin care interventions such as emollients during the first year of life in healthy infants probably do not influence the development or time to onset of eczema in healthy-term infants by age one to three; may increase risk of food allergy; and probably increase risk of skin infection.

Implications for practice

Regular use of emollients or other skin care interventions is most likely not beneficial in healthy infants to decrease risk of eczema or food allergy, however there could be other reasons for using these products. As the use of these products probably increases skin infections, it may be important for caregivers to practice appropriate hygiene measures when applying the products to the infants' skin.

CI: confidence interval

REFERENCES:

1. Kelleher MM, Phillips R, Brown SJ, Cro S, Cornelius V, Carlsen KCL, et al. Skin care interventions in infants for preventing eczema and food allergy. *Cochrane Database Syst Rev.* 2022;11(11):Cd013534.
2. van Zuuren EJ, Fedorowicz Z, Christensen R, Lavrijsen A, Arents BWM. Emollients and moisturisers for eczema. *Cochrane Database Syst Rev.* 2017;2(2):Cd012119.