

Correspondence

Potentially harmful substances in moisturizers

To the Editor:

Despite the promising results of preliminary studies and hope for preventing atopic dermatitis (AD) and food allergy (FA) in high-risk infants by emollient application from their first days of life, further analyses failed to confirm the validity of such an approach. In their recent analysis in the March 2021 issue of the *Journal of Allergy and Clinical Immunology*, Perkin et al¹ confirm a positive association between early moisturization and the development of FA and sensitization, and they hypothesize that frequent moisturizer application could promote transepidermal sensitization. They further speculate that vegetable oils or detergents present in moisturizers may facilitate the passage of allergens through the skin. Furthermore, a recent systematic review with meta-analysis conducted by Cochrane showed that according to the available data, emollient therapy does not prevent eczema or FA.² Because detergents are very rarely present in moisturizers, we would like to draw attention to other detrimental ingredients frequently occurring in skin care products.³

Haptens are low-molecular-weight chemicals that may cause irritant or allergic contact dermatitis or subclinical skin barrier function changes. They constitute a heterogeneous group of chemicals that differ in their sensitizing and irritating strength, possibly inducing an inflammatory response, and they have been found in up to 87% of moisturizing products for infants.³

In fact, we have systematically reviewed all available studies on AD or FA prevention, paying special attention to the presence of haptens in emollients used to prevent AD and FA (Ryczaj et al, submitted in 2021). For the final analysis we have included 12 clinical trials, with a total of 17 different emollients applied as an intervention. In 13 of the 17 emollients, at least 1 hapten was identified. The haptens found in the preparations were as follows: lanolin, isopropyl myristate, phenoxyethanol, benzyl alcohol, sorbitan oleate, sorbitan sesquioleate, tocopheryl acetate, tocopherol, sorbic acid, propylene glycol, panthenol, ethylhexyl glycerin, cetearyl alcohol, cetyl alcohol, and stearyl alcohol.

The safety and sensitizing potential of moisturizers, especially those used over a long-term, have not been widely studied so far. However, because of the potential side effects of cosmetic products, such as irritant or allergic contact dermatitis, increasing attention has been paid to the necessity of assessment of the safety of such products, especially those intended to be used in the pediatric population, in which skin barrier function is immature.⁴ Thus, it is possible that chronic use of moisturizers containing haptens may lead to a vicious cycle of inflammation and skin barrier disruption that requires repeated applications of products. This in turn may play a role in increasing skin permeability and, subsequently, FA.

However, further research is warranted to assess the impact of hapten-containing skin care products on the role of skin damage and the development of FA.

Klaudia Ryczaj, MD^a

Karolina Dumycz, MD^{a,b}

Wojciech Feleszko, MD, PhD^a

From ^athe Department of Pediatric Pneumology and Allergy, Medical University of Warsaw, and ^bthe Doctoral School, Medical University of Warsaw, Warsaw, Poland. E-mail: wojciech.feleszko@wum.edu.pl.

Disclosure of potential conflict of interest: The authors declare that they have no relevant conflicts of interest.

REFERENCES

1. Perkin MR, Logan K, Marrs T, Radulovic S, Craven J, Boyle RJ, et al. Association of frequent moisturizer use in early infancy with the development of food allergy. *J Allergy Clin Immunol* 2021;147:967-76.e1.
2. Kelleher MM, Cro S, Van Vogt E, Cornelius V, Lodrup Carlsen KC, Ove Skjerven H, et al. Skincare interventions in infants for preventing eczema and food allergy: a Cochrane systematic review and individual participant data meta-analysis. *Clin Exp Allergy* 2021;51:402-18.
3. Dumycz K, Kunkiel K, Feleszko W. Cosmetics for neonates and infants: haptens in products' composition. *Clin Transl Allergy* 2019;9:15.
4. Ribet V, Gurdak M, Ferret PJ, Brinio E, Giordano Labadie F, Rossi AB. Stepwise approach of development of dermo-cosmetic products in healthy and atopic dermatitis paediatric population: safety evaluation, clinical development and postmarket surveillance. *J Eur Acad Dermatol Venereol* 2019;33: 2319-26.

<https://doi.org/10.1016/j.jaci.2021.05.011>