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# Highlighting the impact of allergenic components in emollients

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To the Editor,

Emollient and moisturizer preparations are recommended to improve skin barrier properties and are believed to halt the progression of the atopic march when applied from the first weeks of life in high-risk children. Such products comprise various types of substances, mainly humectants, oils, physiological lipids, preservatives, and different additives. Humectants such as glycerin or urea and oils such as paraffin, petroleum, ceramides, fatty acids, and cholesterol are essential ingredients in restoring the skin barrier. As recently demonstrated by Sindher et al.,[1] there is an enormous difference in the impacts of different types of cream on atopic skin, and lipid-rich products are more efficient in improvement of skin barrier function comparing to paraffine-based.

Ingredients present in emollients apart from playing their particular role in preparations can also act as haptens or proteinaceous allergens and causing side effects. Proteinaceous allergens, to which we include peanut extract, were proven to increase the risk of development of food allergy to certain foods when present in emollients applied on dry skin.[2] Whereas haptens, the molecules mainly deriving from fragrance and preservative group, may cause irritation or allergic contact dermatitis (ACD). Due to impaired skin barrier function and frequent application of products containing haptens, children with atopic dermatitis are highly prone to ACD.[3] Studies through the past decade indicate that the prevalence of ACD in children is increasing and can start even in early infancy.[3] European guidelines for the treatment of atopic dermatitis recommend using emollients devoid of proteinaceous allergens and haptens that were known to cause contact allergy frequently, especially in the most vulnerable age group before the age of 2 years.[4]

The recent two large randomized control BEEP [5] and PreventADALL trials,[6] surprisingly, found that the use of emollients had no beneficial effects on preventing atopic dermatitis. However, an increased risk of skin infections or food allergies was noted, though without statistical significance.[5] One of the emollients used in the BEEP trial was DoubleBase gel containing 15% isopropyl myristate (IPM) which is considered a hapten in the Cosmetic series (*https://www.chemotechnique.se*, accessed August 24, 2020). IPM is a clinically relevant sensitizer[7] which, moreover, frequently cause irritant reactions.[8]

Recently, Brough et al. [9] highlighted that a disrupted skin barrier, particularly in early life, is a direct risk factor for developing food allergies. Following this lead, it can be assumed that children receiving preparations containing haptens on the skin, especially with disrupted barrier function, may experience inflammation and therefore be of increased risk of food allergy. The results of a long-term follow-up BEEP study are eagerly anticipated to see if the trend towards increased allergy in the intervention group will continue.

We know, that selecting a well-designed emollient, that means: deprived of potential sentitizers might be difficult, since there is an abundance of potential sensitizers in cosmetics, even for the youngest children, and haptens are found in more than 85% of products as recently demonstrated by Dumycz et al..[10] We hypothesize, that careful selection of emollient preparation may still contribute to better clinical effects and should consider the presence of lipids as well as the absence of potentially harmful ingredients, in particular when used in infants and young children.

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