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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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2-Hydroxyethyl methacrylate (HEMA) 1% versus 2%

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2-Hydroxyethyl methacrylate (HEMA) is currently an important contact allergen,[1,2] especially linked to the use of modern nail cosmetics in the female population.[3] HEMA for patch testing is available in concentrations of 2% (Chemotechnique, Allergeaze) and 1% (Allergeaze). Most centres use 2%, which is also the concentration advised by the European Society of Contact Dermatitis as part of the European baseline series.[4] However, in the standard series of the Deutschen Kontaktallergie-Gruppe (DKG), which is used in Germany, Austria and Switzerland, HEMA is present in the 1% concentration[5] and this concentration is (or was, at least up to July 2019) also used at the Herlev and Gentofte Hospital, University of Copenhagen, Hellerup, Denmark.[6] Comparative studies investigating whether one of these test concentrations performs better than the other appear not to have been done.

Between 17 October 2023 and 1 March 2024 we have patch tested 348 consecutive patients with HEMA 1% and HEMA 2% pet. reading the results on day (D)2 and D3 or D4, but not D7. There were 13 positive reactions to HEMA 2% (3.7%) and 9 to HEMA 1% (2.6%); of the latter group 8 also reacted to 2% pet. Of the 13 patients who tested positive for HEMA 2%, 5 (38%) would have been missed by only testing the lower concentration of 1% ($P < 0.001$ Fisher's exact test).

This appears to be the first indication that testing with HEMA 1% may fail to identify sensitization to this important methacrylate in a number of patients. Active sensitization to HEMA 2% is extremely rare,[2,4,7] the test preparation does not commonly result in unacceptably strong reactions and 2% is the generally advised concentration for testing methacrylates. Therefore, a lower concentration would appear to have no advantages and may theoretically give rise to false-negative reactions. Our results in this small group of patients suggest that false-negative reactions do indeed occur, at least at the D3/D4 readings. As reactions to HEMA and other (meth)acrylates first appearing after D4 are not uncommon, late readings might have affected the results in favour of HEMA 1% pet.; not having done this is an obvious weakness of our study. However, for practical reasons, most dermatologists do not routinely perform late readings and therefore results of D3 and D4 readings are important. We suggest that larger studies comparing HEMA 1% and 2% pet. be performed, which may be particularly interesting for those centres currently testing HEMA at 1% pet.

AUTHOR CONTRIBUTIONS

Gizem Kocabas: Data curation; investigation; visualization; writing – original draft. **Norbertus A. Ipenburg:** Formal analysis; writing – review and editing. **Anton C. de Groot:** Conceptualization; methodology; visualization; writing – original draft; writing – review and editing. **Thomas Rustemeyer:** Supervision; writing – review and editing.

CONFLICT OF INTEREST STATEMENT

The authors have no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author.

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Allergic contact dermatitis to phloretin, a luxury cosmetic ingredient, involving a woman with atopic dermatitis

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CASE REPORT

A 35-year-old woman with personal history of atopic dermatitis and asthma, consulted for outbreaks of pruritic facial and neck eczematous reactions lasting 5 months. Lesions predominantly involved the eyelid and lip areas where oedema was also present. The patient required medical attention at the emergency room and therapy with intramuscular corticosteroids on six different occasions. Additionally, the patient received oral corticosteroids for 2 months.

Patch tests with the Spanish Contact Dermatitis and Cutaneous Allergy Research Group baseline series (GEIDAC) were performed. Exposure times and scoring readings were conducted according to ESCD guidelines.[1]

Positive reactions were identified with a luxury antioxidant serum product (Skin Ceuticals Phloretin CF, New York) (Figure 1A). Additionally, we observed positive reactions to thiomersal of unknown relevance. After discontinuing the use of the cosmetic product, it took several weeks for the eczematous lesions to heal.

Subsequently, further patch tests with a cosmetic series (Chemotechnique Diagnostics, Vellinge, Sweden) as well as the individual ingredients of the cosmetic product kindly provided by the manufacturer were only positive for phloretin 2% 50 aqua/50 alcohol: doubtful reaction on day (D) D2 (Figure 1B); and, ++ on D4 (Figure 1C) and D7 (Figure 1D). The remaining ingredients (dipropylene glycol 20%, alcohol denat. 100%, ascorbic acid 5%, butylene glycol 10%, triethyl citrate 20%, ferulic acid 0.5%) were negative. Twenty controls with the same phloretin preparation were negative.