

Contact allergy to tetrasodium EDTA in a sunscreen

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Case Report

A 75-year-old man being treated for several malignant epithelial tumours was prescribed a sunscreen UriageTM SPF50+ cream. After 10 months of using the product, the patient presented with eczematous areas where the sunscreen had been applied (face, neck and back of hands).

Patch testing was performed with standard series of GEIDAC (Spanish Contact Dermatitis and Cutaneous Allergy Research Group), sunscreen series (Chemotechnique DiagnosticsTM, Malmo, Sweden) and the UriageTM SPF50+ cream. After 4D, a positive reaction was observed to the cream (++). The manufacturer supplied the individual ingredients of their product. Out of the 24 components provided, only tetrasodium ethylenediaminetetraacetic acid (EDTA) 0.2% aqua was positive and it was negative in five controls subjects.

Discussion

EDTA and its salts are used as preservatives and antioxidant agents in eye, nose and ear drops, and in cosmetic creams. Although its antibacterial activity is low, EDTA increases the antibacterial properties of benzalkonium chloride, chlorobutanol and thiomersal in ophthalmic solutions. As a chelating agent, it shows strong affinity for metallic ions, such as nickel, calcium, magnesium and lead, and has been used in the treatment of urinary calculi, corneal deposits, hypercalcaemia and lead poisoning. EDTA

is also a stabilizer of certain solutions (ascorbic acid, hydrogen peroxide, formaldehyde, folic acid and hyaluronidase) (1).

Although it is widely used, EDTA is a rare sensitizer. The first case was published by Raymond and Gross in 1969 (2), whereas de Groot described a patient showing contact allergy to EDTA after the application of a steroid cream (3). In more recent reports, EDTA was an allergen in a local anaesthetic (4), in cosmetic lotions and in a shampoo (5, 6). Kimura et al. (5) demonstrated a cross-reaction between different EDTA salts (trisodium, disodium and tetrasodium). The higher solubility of EDTA salts explains enhanced allergenic capacity.

Although EDTA shows structural similarities with ethylenediamine hydrochloride, few authors have observed cross-reactions between these compounds (7, 8).

In our patient, there was a close relation between the application of the sunscreen and the appearance of eczema. Positive patch test was only obtained with 0.2% aqua tetrasodium EDTA (CAS 64-02-8) as a component of the sunscreen, whereas ethylenediamine was negative. His eczema resolved once the sunscreen ceased to be used. He is now using a mineral-based product without EDTA.

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