

It is a popular ingredient in 'anti-ageing' cosmetic products. We report a case of allergic contact dermatitis to hydroxydecyl ubiquinone. There have been other reported cases. Allergy to this compound may, however, be more widespread but undetected as it is not routinely tested for in standard patch test series.

Case Report

A 38-year-old actress presented with a sudden onset of a red, itchy, burning, swollen face. She related the onset of the facial eruption to a recent application of Prevage MD[®], an anti-ageing facial cream manufactured by Elizabeth Arden, Inc. (New York, NY, USA). The facial eruption developed after the second application. She had a history of guttate psoriasis controlled with narrow band (TL-01) phototherapy but no background of atopic eczema or contact allergy. On examination, she had severe facial erythema and scaling. The eruption was accentuated periorbitally, and there was infraorbital oedema. The clinical diagnosis was allergic contact dermatitis. Treatment with 1% hydrocortisone ointment topically twice daily and aqueous cream BP (Ovelle Pharmaceuticals, Dundalk, Ireland) was commenced. The eruption cleared with desquamation as it resolved. After 4 weeks of treatment, complete resolution was observed.

Patch testing was initially carried out to the following allergens: British Contact Dermatitis Society baseline series, cosmetic and facial series, fragrances, and the patient's own products. Allergens were purchased from Crawford Pharmaceuticals (Bedford, Cheshire, UK) and applied using IQ Ultra[®] chambers (Chemotechnique Diagnostics, Mölndegatan, Sweden). Patches remained in place for 2 days, and readings were carried out at D2, D4, and D7. Positive reactions were observed at D4 and D7 with nickel sulfate 0.5% (++) , propolis 10% (++) , and Prevage MD (+++). The components of Prevage MD did not include propolis, so further patch testing was carried out using the individual constituents of the product provided by the manufacturer (Pharma Cosmetix Research, LLC, Richmond, VA, USA). Agents were applied for 2 days using IQ Ultra chambers (Chemotechnique Diagnostics), and readings were carried out at D2, D4, and D7. A positive

Allergic contact dermatitis to hydroxydecyl ubiquinone (idebenone) following application of anti-ageing cosmetic cream

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Key words: allergic contact dermatitis; 'anti-ageing'; coenzyme Q10 analogue; cosmetics; hydroxydecyl ubiquinone; idebenone.

Hydroxydecyl ubiquinone (idebenone) is promoted as a synthetic analogue of coenzyme Q10 that may have an impact on the signs of skin ageing.

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reaction (++++) to hydroxydecyl ubiquinone (idebenone) 1%, in a pet. vehicle, was observed at D4 and D7 readings. All other constituents were negative. Twenty control individuals were subsequently patch tested to hydroxydecyl ubiquinone (idebenone) 1% with no reactions.

Discussion

The process of ageing and photoageing is associated with an increase in cellular oxidation (1). A decrease in the endogenous cellular antioxidant coenzyme Q10 (ubiquinone) may play a role in skin ageing (1). Hydroxydecyl ubiquinone ($C_{19}H_{30}O_5$) or idebenone is a compound of the quinine family (1). It is promoted as a synthetic analogue of coenzyme Q10 that may influence the signs of skin ageing. It is frequently found in anti-ageing cosmetic products.

There have been 3 previous cases of allergic contact dermatitis to hydroxydecyl ubiquinone reported. (2, 3, 4) Two of these patients had applied Prevage facial cream (Elizabeth Arden, Inc., New York, NY, USA), a similar preparation to Prevage MD but containing 0.5% hydroxydecyl ubiquinone.

Our case is the fourth documented case of allergic contact dermatitis to hydroxydecyl ubiquinone. This substance is not routinely tested for in the British Contact Dermatitis Society standard series or cosmetic and facial series, and therefore, allergic contact dermatitis to this substance may be more common than we think. Anti-ageing products are popular, and cosmeticeuticals are a growing commercial market. Contact allergic reactions to hydroxydecyl ubiquinone are likely to increase. In a case of contact allergic dermatitis to an anti-ageing cosmetic product, allergy to hydroxydecyl ubiquinone (idebenone) should be considered and tested for.

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