

Key words: allergic contact dermatitis; epoxy resins; hardeners; reactive diluents.

Epoxy resins, widely used as adhesives or coatings in construction, boat and aeroplane building, plastic and other industries and trades (1–3), are a frequent cause of occupational allergic contact dermatitis (1–6). Epoxy resin based on diglycidylether of bisphenol A is the main allergen responsible but sensitization can also develop to other components, including the hardeners and reactive diluents (1–3).

Methods

We reviewed our patch test database between 1999 and 2008 to identify patients with positive reactions to epoxy resin 1% pet. in the European baseline series and other epoxy resin patch test substances (Chemotechnique® Diagnostics) tested in patients with suspected allergic contact dermatitis due to epoxy resins. Patch tests were applied using Finn Chambers® for 2 days and results were read on D2 and D4.

Results

Twenty-four (18 males and 6 females) of 2440 patients (0.9%) had positive patch tests to epoxy resin. No relevance of the reaction was found in seven patients. Relevance was definitive in 17 patients (13 males and 4 females, mean age 39.4 years). Four of these 17 (24%) also had positive reactions to the hardener isophoronediamine. No patient reacted exclusively to allergens in the epoxy series. Airborne dermatitis was found in nine patients and predominant hand involvement in eight. Allergic contact dermatitis always occurred in the occupational setting, with a history of work-related skin disease. The job categories included construction workers (10 patients, mainly resins used for floor finishing), factory workers (2 patients in chemical factories, 1 patient in bicycle factory), pathology laboratory workers (2 patients, exposed to an immersion oil for microscopy), naval painting workers (1 patient), and handicraft jewellery workers (1 patient). The patients who ceased working with epoxy resins reported complete healing, but four patients still exposed to the same work had ongoing symptoms.

Discussion

A range of frequencies of occupational allergic contact dermatitis from epoxy resins has been reported from 1% to 12.1% (1–3, 5), and in our study it was 0.9%. The predominance of occupational dermatitis in male patients and floor finisher employers, the airborne dermatitis, and the favourable prognosis once ceased exposure are in accord with previous studies (1–6). Although the resins themselves are the most important sensitizers, several other curing agents and reactive diluents have been described as contact allergens (1, 2, 4). In our cohort we found reactivity also to the hardener isophoronediamine. We emphasize the need to patch test with components currently in use in epoxy resins to improve the diagnosis of contact allergy due to epoxy resins (1, 2, 6).

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