CONTACT ALLERGY AND "ATOPY PATCH TESTS" IN ATOpic DERMATITIS

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ABSTRACT

The prevalence of contact sensitization in atopic dermatitis (AD) patients varies considerably, in dependence of sex, age, occupation, the population tested, i.e. patients with a long history of the disease, the allergens used and the country. Because of the highly irritable atopic skin unspecific irritant reactions were seen in 24% to 40% of the AD patients. The chemicals most frequently involved in contact sensitization are nickel sulfate, potassium dichromate, cobalt chloride, neomycin and benzoyl peroxide.

The prevalence of atopic patch tests with aeroallergens (house dust mites, pollens, animal danders and moulds) also vary from few to 70% of the various tested allergens and the different authors. These findings support the hypothesis that direct epidermal contact with aeroallergens may play a pathogenetic role in some patients with AD.

Positive atopic patch tests to aeroallergens are not only present in patients with AD and positive specific prick tests or serum IgE (RAST) but they can also occur in presence of negative prick test reactions or negative specific IgE levels. International recommendations for standardization and evaluation of atopy patch tests are urgently needed.

KEY WORDS

atopic dermatitis, contact allergy, atopy patch tests, aeroallergens

PREVALENCE OF CONTACT ALLERGY

Reports on the prevalence rate of contact sensitization in atopic dermatitis (AD) patients are contradictory. The International Contact Dermatitis Research Group (ICDRG) demonstrated that the incidence of contact allergy is similar in atopic, seborrheic and nummular eczema (2). However,
Fig. 1 An irritant, follicular reaction to tocopheryl linoleate (an ingredient in cosmetics) in atopic dermatitis.

Fig. 2 Positive atopy patch test reactions to house dust mites Dermatophagoides pteronyssinus (1) and farinae (2) at the lecture on 48 hrs only on stripped (12x) skin, but not on intact skin. Negative reactions to birch (3), grass pollen (4) and saline control (5).
the rate of sensitization is much less pronounced than in the group of patients with stasis dermatitis. There are many articles which show that patients with severe AD and with high IgE values (>100 U/ml) display a decreased capacity to develop contact sensitivity as a consequence of an altered function of the cellular immunity (8, 11, 15). On the other hand, the irritant properties of the tested substances should not be underestimated, especially when testing young children and patients with a widespread and long-lasting dermatitis with a high irritable skin. Irritant reactions were seen in 24% to 40% of the AD patients and the list of substances eliciting irritant or follicular reactions (Fig. 1) is very wide and contains pharmaceutical substances, vehicles and cosmetics, such as formaldehyde, fragrance-mix, carba-mix and propyleneglycol, and environmental and professional hapten's, such as rubber products and metals (5, 9, 10, 14).

The distribution of the hapten's that are most frequently involved in eliciting true positive patch test (PT) reactions in AD can also vary considerably, in dependence of sex, age, occupation, the population tested (i.e. patients with a long history of the disease), the allergens used, and the country. Nevertheless, the chemicals most frequently involved are nickel sulfate, especially among women and younger atopics, potassium dichromate, cobalt chloride, neomycin and benzoyl peroxide (2, 3, 6, 9, 10, 12).

On the other hand, the clinical relevance of such positive PT is often hard to verify. In a recent study it was shown that no differences concerning the occurrence of positive responses existed in atopics with and without hand manifestation and that in only 3/136 patients the result of PTs did explain the occurrence of hand eczema (4).

In conclusion, despite standardization of PT methods and development of test materials and devices, i.e. with the TRUE test system, it remains difficult to distinguish between true allergic and irritant reactions in patients with irritable skin and to judge about the clinical relevance of such positive PTs. Therefore, epicutaneous patch testing in atopic dermatitis should only be performed by well trained and experienced physicians.

"ATOXY PATCH TEST" WITH AEROALLERGENS

Patients with AD, also without concomitant respiratory allergies, frequently show sensitization to aeroallergens of the immediate type in skin tests and/or in RAST (27, 28). The skin lesions, however, are clinically and histologically those of a subacute or chronic eczema with the features of a delayed type hypersensitivity reaction (1). Therefore, the immediate type reactions to inhalant were often regarded as an
recommendations for standardization and evaluation of APT (18). In fact, there exist important differences between the different authors concerning the carrying-out of these APT:

- conditions of application on the skin (intact, slightly abraded, stripped or scratched skin (Fig. 2).
- site and size of the test area,
- application period (24 or 48 hrs),
- nature, origin and concentration of allergen extracts

(Der pI/II, Der pII/III, body antigens, fecales, whole mite cultures a.o.; same or stronger concentration than prick test solutions etc).

- nature of vehicles used (glycerol, saline, vaseline),
- patient selection,
- classification of test reactions (grading, allergic or irritative reaction?).

The editing of such recommendations could be the task of the European Society of Dermatology.

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