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Keywords: atopy patch test; children; food allergens; side effects

Atopy patch test (APT) has recently left experimental grounds and is increasingly used as a standard diagnostic tool for characterizing patients with aeroallergen-triggered disorders and food-triggered disorders (especially atopic dermatitis). There are only a few reports on the side effects of APT, and no results are available for the potential sensitizing risk of this test. According to the position paper of European Academy of Allergology and Clinical Immunology, aluminium cups of 12-mm diameter placed on hypoallergenic tape are recommended.[1] There are no reports on the suitability of alternative materials such as rectangular plastic cups.

Materials and Results

To investigate the frequency of side effects of APT and the utility of 2 commercially available APT sets, we performed APT with fresh-food allergens in an unselected child population divided into 2 groups according to the APT set used. In group A (275 children, aged 8.71 ± 1.43 years, 54.1% boys), we applied food allergens with plastic quadratic cups placed on hypoallergenic textile tape of 10-mm diameter (Finn Chambers, Haye's, Alphen, the Netherlands). In group B (228 children, 8.16 ± 1.74 years, 47.2% boys), we used fine blotting paper circles on transparent adhesive tape (Curatest, Lohmann & Rauscher SRL, Padova, Italy) for allergen's application. We tested 4 fresh-food allergens in their native form (1 drop, 50 μL): cow's milk (containing 3.5% fat), whisked hen's egg (white and yolk), tomato, and wheat flour (dissolved in saline, 1 g/10 mL). The APTs were attached to an area of unaffected skin on the children's upper backs. The occlusion time was 48 hours. The results were read at 20 minutes after the chambers were removed and at 72 hours for the final test evaluation. Reading was performed according to the European Task Force on Atopic Dermatitis guidelines. All the test results were read by a well-trained operator. Data were analyzed with the software package SPSS version 9.0 (SPSS Inc, Chicago, Illinois). Chi-square (χ^2) test and Fisher exact test were used for statistical comparison. *P* values less than or equal to .05 were considered to indicate statistical significance.

The most common side effects were contact urticaria and itching, which were observed in 2.2% of the children in group A and in 3.5% of the children in group B ($P = .530$). In one child from group A suffering from bronchial asthma, we noticed respiratory problems that disappeared after the removal of the APT set from the back. Although we observed irritative reaction due to adhesive tape of the set only in 1.1% of the children in group A, we noted progressive irritation in 6.6% of the children studied ($P = .002$) in group B.

Discussion

There are only a few reports on the side effects of APTs in the literature. The most common are contact urticaria with itching, local eczema flares, persistent infiltration and redness, exacerbation of the

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bronchial asthma, or irritation due to adhesive tape.[2-5] There is also a possibility of the systemic reaction.[2]

In conclusion, APT is a diagnostic procedure with minimum side effects. The most common adverse effects are contact urticaria and irritative reactions due to the adhesive tape. Regarding the second one, Finn Chambers are more suitable than Curatest for testing the food allergens. Because APT can disturb the barrier function of the skin[6] and there is a potential risk of transcutaneous allergic sensitization of the subjects tested,[7,8] it is necessary to perform this test only when it is indicated. Although the APT seems safe, some highly sensitized children cannot be tested by APT.

References

1. Turjanmaa K, Darsow U, Niggemann B, Rancé F, Vanto T, Werfel T. EAACI/GA2LEN position paper: present status of the atopy patch test. *Allergy.* 2006;61:1377-1384.
2. Darsow U, Laifaoui J, Kerchenlohr K, et al. The prevalence of positive reactions in the atopy patch test with aeroallergens and food allergens in subjects with atopic eczema: a European multicenter study. *Allergy.* 2004; 59:1318-1325.
3. Hansen TK, Host A, Bindslev-Jensen C. An evaluation of the diagnostic value of different skin tests with egg in clinically egg-allergic children having atopic dermatitis. *Pediatr Allergy Immunol.* 2004;15:428-434.
4. Niggemann B, Reibel S, Wahn U. The atopy patch test (APT)—a useful tool for the diagnosis of food allergy in children with atopic dermatitis. *Allergy.* 2000;55:281-285.
5. Vanto T, Juntunen-Backman K, Kalimo K, et al. The patch test, skin prick test, and serum milk-specific IgE as diagnostic tools in cow's milk allergy in infants. *Allergy.* 1999;54:837-842.
6. Gfesser M, Rakoski J, Ring J. The disturbance of epidermal barrier function in atopy patch test reactions in atopic eczema. *Br J Dermatol.* 1996;135:560-565.
7. Codreanu F, Morisset M, Cordebar V, Kanny G, Moneret-Vautrin DA. Risk of allergy to food proteins in topical medicinal agents and cosmetics. *Allerg Immunol (Paris).* 2006;38:126-130.
8. Strid J, Hourihane J, Kimber I, Callard R, Strobel S. Epicutaneous exposure to peanut protein prevents oral tolerance and enhanced allergic sensitization. *Clin Exp Allergy.* 2005;35:757-766.