

ammonium persulfate. The mechanism of such a reaction remains unknown, but the relatively short interval between patch application and appearance of symptoms indicates an IgE-mediated reaction, as suggested by the frequent positive SPTs to ammonium and potassium persulfates in subjects occupationally exposed with work-related respiratory symptoms (4). In our case, as in the anaphylactic reaction after patch testing with formaldehyde (3), there was a history of respiratory symptoms.

Our case suggests the need of a period of observation after application of patches with ammonium persulfate, at least in patients with a history of asthma, where open testing may also be preferable. It also suggests the use of a transparent patch when testing with ammonium persulfate to recognize immediate reactions.

In conclusion, systemic reactions to patch testing, although uncommon, should be taken into consideration, especially in patients with a history of dyspnea.

*Servizio di Allergologia e Immunologia Clinica
Fondazione Salvatore Maugeri IRCCS
via Ferrata, 8
27100 Pavia
Italy

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Inhalant allergy in the United Arab Emirates

L. Räsänen

Key words: allergy; Chenopodiaceae; Gramineae; Leguminosae; prick test; United Arab Emirates.

● RESPIRATORY disorders such as asthma and allergic rhinitis are common in the United Arab Emirates (UAE). In a study of 850 schoolchildren, the prevalences of diagnosed asthma and allergic rhinitis were

13.6% and 22.9%, respectively (1). The present study aimed to obtain basic data on prick test

reactivity to inhalant allergens and to construct a prick test series suitable for local

Positive prick tests to pollens from grasses, chenopods, and legumes are common.

use. To accomplish this, patients with allergy-like respiratory disorders were prick-tested with a panel of inhalant allergens.

This study was carried out in the Allergy Clinic of Tawam Hospital, Al Ain, Emirate

Table 1. Prick test reactions to inhalant allergens

Allergen	% Positive (no. positive of those tested)	Kappa coefficient ¹
Natural rubber latex	1.0 (1/105)	
Cockroach mix	14.7 (28/190)	
<i>D. pteronyssinus</i>	17.1 (38/222)	
<i>D. farinae</i>	9.5 (21/221)	0.43 ²
Cat dander	9.4 (21/223)	
Goat dander	14.6 (19/130)	
Feather mix	7.1 (6/85)	
Camel hair and dander	5.9 (3/51)	
Bermuda grass	31.3 (74/238)	
Grass mix	40.7 (22/54)	0.61 ⁴
Russian thistle	48.2 (119/247)	
Lamb's-quarters	31.0 (61/197)	0.48 ²
Firebush	47.7 (71/149)	0.76 ⁴
Sea blite	43.8 (67/153)	0.71 ⁴
Scale mix	32.9 (26/79)	0.38 ³
Pigweed mix	44.3 (27/61)	0.57 ²
Mugwort	4.6 (7/153)	
Plantain	4.8 (6/126)	
Date palm	13.8 (8/58)	
Mesquite tree	45.5 (80/176)	
Golden acacia	25.6 (11/43)	0.75 ⁴
Alfalfa	22.9 (11/48)	0.74 ⁴
<i>Alternaria</i>	5.6 (3/54)	
<i>Aspergillus</i> mix	7.3 (4/55)	
<i>Cladosporium</i>	0 (0/53)	
<i>Penicillium</i> mix	3.9 (2/51)	

¹In calculating concordance of prick test reactivity, *D. farinae* was compared with *D. pteronyssinus*, grass mix with Bermuda grass, other chenopods and pigweed mix with Russian thistle, and other legumes with mesquite.

²Moderate degree of agreement.

³Fair degree of agreement.

⁴Substantial degree of agreement.

of Abu Dhabi, UAE. The study population comprised 249 patients (146 females, mean age and range 28.4, 6–62 years, respectively) who suffered from nasal, conjunctival, or chest symptoms.

The patients were prick-tested by a standard technique. The prick test series changed somewhat with time, but the latest version included the allergens listed in Table 1. The allergens were purchased from Stallergènes, Fresnes Cedex, France, or from Bayer, Spokane, WA, USA. A prick test reaction was defined as positive if it gave a wheal with an area of at least 7 mm² (corresponding to a wheal diameter of 3 mm) and if the area of the wheal was at least half of that of the positive control (10 mg/ml histamine).

The concordance of prick test reactions among various representatives of taxonomically related species was estimated by calculating the kappa coefficient.

The results of the prick tests are shown in Table 1. Sensitization was common to the pollens of chenopods (Russian thistle, lamb's-quarters, firebush, sea blite, and scales), pigweeds, grasses, and legumes (mesquite tree, golden acacia, and alfalfa). Table 1 also shows how compatible prick test reactions were to taxonomically related species.

The family Chenopodiaceae is well represented in the UAE. Most local chenopods are perennial bushes called saltbush. In accordance with previous reports from Kuwait (2) and Saudi Arabia (3), chenopods seem to be commonly sensitizing allergenic plants also in the UAE. In most cases, it was not possible to obtain chenopod allergen extracts from locally growing species; therefore, extracts from the same genus had to be used. However, high levels of positive reactions to these commercial chenopod extracts were seen, and patients may have reacted to common allergen epitopes shared by different members of the Chenopodiaceae family.

Many species of Leguminosae, including trees, shrubs, and herbs, grow naturally in

the UAE. Several members of this family are also cultivated for animal fodder or ornamental purposes. The prick test panel used included three representatives of this family, and positive reactions to them were common. In addition, prick test reactivity to the mesquite tree was associated with that to acacia and alfalfa, and here again cross-reactivity may play a role. In investigations performed in other Gulf countries, sensitization to legume pollens was likewise common (2, 3).

Grasses are important inhalant allergens throughout the world, as in the UAE, where around 100 grass species are represented (4), and sensitization to grass pollens has been found to be frequent. Bermuda grass and a 12-grass mixture were selected for the prick test series since the former commonly grows here and the latter should provide a good selection of grass allergens.

I suggest that the basic inhalant allergen series for the inland area of the UAE include the following 15 allergens: cockroach, *Dermatophagoides pteronyssinus*, *D. farinae*, cat, Bermuda grass, 12-grass mixture, date palm, mesquite tree, acacia, Russian thistle, lamb's-quarters, scale mix, pigweed mix, mugwort, and plantain. This series could be complemented, when necessary, with animal epithelia or other relevant allergens. It is also desirable that more allergen extracts be available from locally growing plant species.

Tawam Hospital
PO Box 15258
Al Ain
Abu Dhabi
United Arab Emirates
Fax: +971-3-677274

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Asthma to *Gammarus* shrimp

X. Baur, H. Huber, Z. Chen*

Key words: asthma; fish food; *Gammarus*; IgE.

● THE amphipod *Gammarus* shrimp, or freshwater shrimp, belongs to the Crustacea family Gammaridae. It is used in several European countries to produce pet-fish food. So far, sensitization to *Gammarus* has not been reported. Our patient, a plant electrician who worked in a fish-food factory, appeared to suffer from allergic asthma due to the dust of these shrimp occurring in the workplace.

The patient was a 29-year-old man. About 8 weeks after he had started working in a fish-food factory, he developed chest tightness, cough, and dyspnea with wheezing. These symptoms appeared regularly at times when he was working near the production areas where dried *Gammarus* shrimp were mixed and packed with other fish-food ingredients. Sometimes the symptom of dyspnea would last until noon of the following day. On weekends or holidays, the symptoms decreased or disappeared completely.