

Israeli allergology clinic. 547 (63.3%) patients were female and 317 (36.7%) were male. 346 (40%) patients had ≥ 1 positive patch test reactions. The most common allergens were nickel sulfate for 114 (13.2%) patients, potassium dichromate 111 (12.8%), fragrance mix 59 (6.8%), cobalt chloride 12 (1.4%), ethylenediamine dihydrochloride 11 (1.3%), epoxy resin 11 (1.3%), balsam of Peru 9 (1.0%), carba mix 7 (0.8%), thiomersal 6 (0.7%), wool alcohol 5 (0.6%), black rubber (PPD) mix 5 (0.6%), neomycin 4 (0.5%); Kathon CG, Colophony and Quaternium 15 – each 2 (0.2%), other allergens – each 1 (0.1%). In male patients, carba mix, black rubber (PPD) mix and epoxy resin sensitivity was more frequent, whereas nickel sulfate, fragrance mix, ethylenediamine dihydrochloride and cobalt chloride sensitivity was significantly more frequent in female patients. Our results are in general agreement with previously published reports, excluding the low sensitivity rates to cobalt, which maybe is missed by TRUE test[®].

Key words: contact sensitivity; Israel; patch test; TRUE test.

Allergic contact dermatitis (ACD) is a significant cause of cutaneous disease affecting many individuals in the home and at the workplace. In this study, we planned to determine the frequency of sensitivity to TRUE test[®] patch test allergens in patients with ACD in Israel.

Patients and Methods

864 consecutive eczema patients, referred to the Allergy Clinic, Leumit Health Services, Ashdod, Israel from 2002 to 2005, were patch-tested using TRUE test, which was applied to the upper back of the patients. The strips were removed after 2 days, and the reading was recorded after 30 min. The sites were re-examined after 4 days. Atopic dermatitis was diagnosed according to the criteria of Hanifin and Rajka (1). The results were evaluated according to the standard scoring system recommended by ICDRG (2).

Results

Demographics and frequent positive patch test reactions (≥ 5 cases) in adult patients are presented in Table 1. Lower sensitization rates

Sensitizations to allergens of TRUE test[®] in 864 consecutive eczema patients in Israel

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The TRUE test[®] is a widespread diagnostic tool for initial patch testing of patients with contact dermatitis (CD). From 2002 to 2005, 864 patients with eczema were patch-tested using TRUE test[®] in one

Table 1. Patch test results and the distribution of positive patch test reactions according to sex

Allergen	Total n (%)	Male n (%)	Female n (%)
Total number of patients	864 (100)	317 (36.7)	547 (63.3)
Nickel sulfate	114 (13.2)	23 (2.7)	91 (10.5)
Wool alcohols	5 (0.6)	2 (0.2)	3 (0.4)
Potassium dichromate	111 (12.8)	39 (4.4)	82 (9.4)
Fragrance mix	59 (6.8)	8 (0.9)	51 (5.9)
Epoxy resin	11 (1.3)	8 (0.9)	3 (0.4)
Balsam of Peru	9 (1)	3 (0.4)	6 (0.6)
Ethylenediamine dihydrochloride	17 (2)	5 (0.6)	12 (1.4)
Cobalt chloride	12 (1.4)	3 (0.4)	9 (1)
Carba mix	7 (0.8)	7 (0.8)	0 (0)
Black rubber (PPD) mix	5 (0.6)	4 (0.4)	1 (0.2)
Thiomersal	6 (0.7)	3 (0.4)	3 (0.4)

were found to neomycin 4 (0.5%); Kathon CG, Colophony and Quaternium 15 – each 2 (0.2%), other allergens – each 1 (0.1%). The occupational factors of the studied population are presented in Table 2.

In 44 children, 19 (43%) positive reactions were found. The most common allergens were nickel sulfate for 6 (13.6%) patients, thiomersal 5 (11.4%), potassium dichromate 5 (11.4%), neomycin sulfate 4 (9%), balsam of Peru 3 (6.8%), fragrance mix 3 (6.8%) and wool alcohol 2 (4.5%). Among the children, sensitizations to colophony, cobalt chloride, paraben mix, formaldehyde, epoxi resin, quinoline mix, ethylenediamine dihydrochloride and carba mix were 1 (2.3%) each.

Discussion

In conclusion, our study results identify the prevalence of common contact dermatitis allergens in Israel as tested by the TRUE test[®] and are in general agreement with previ-

ously published reports using other patch test methods (2–5). The higher sensitization rates to both nickel sulfate reflect the local customs of earrings or/and wearing several items of jewellery, which contain nickel and also may be due of body-piercing or professional contact in the field of metallic constructions (6). Although fragrance mix sensitivity was high (due to higher rates of using deodorants, perfumes, UV filters, skin care and hair care products in Israel, possibly due to the local climate conditions), some patients may be 'missed' by TRUE test[®] fragrance mix; in particular, due to lack of hydroxy-isohexyl-3-cyclohexene carboxaldehyde (Lyrall) and additional fragrance chemicals (7). Thus, we suppose that the patients should be tested to extended cosmetic series in addition to standard series. Moreover, in the recent meta-analysis of 15 years of published TRUE test data, low rate (4.8%) of sensitization to cobalt was noted (8). This raises a question whether there is some dif-

ference between the TRUE test[®] and other techniques in detecting cobalt sensitivity. Another important limitation of TRUE test[®] is absence of allergens to topical corticosteroids and methylidibromo glutaronitrile, as European Environmental and Contact Dermatitis Research Group (EECDRG) recommended including of these allergens in the European standard patch test series (9).

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Table 2. MOAHLFA index of occupational skin diseases

	All cases n (%)	Wet work n (%)	Construction industry n (%)	Health care n (%)	Food n (%)
Male	317 (36.7)	69 (21.3)	141 (90.1)	16 (22.5)	5 (27.8)
Occupational	542 (62.7)	227 (70.1)	155 (100)	71 (100)	18 (100)
Atopic dermatitis	122 (14.1)	35 (10.8)	19 (12.3)	11 (15.5)	3 (16.7)
Hand dermatitis	502 (58.1)	131 (40.4)	118 (76.2)	47 (66.2)	14 (77.8)
Leg dermatitis	143 (16.6)	43 (13.3)	13 (8.4)	4 (5.6)	1 (5.6)
Face dermatitis	164 (19)	82 (25.3)	21 (13.5)	23 (32.4)	3 (16.7)
Age >40 years	391 (45.3)	118 (36.4)	65 (41.9)	31 (43.7)	11 (61.1)
Total	864	324	155	71	18

MOAHLFA, percentage Male, Occupational, Atopic dermatitis, Hand dermatitis, Leg dermatitis, Face dermatitis, Age >40 years.