

Immediate contact reactions to fragrance mix constituents and Myroxylon pereirae resin

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We have studied patients who have positive-patch test reactions to fragrance-allergic screening substances fragrance mix (FM) or Myroxylon pereirae resin (balsam of Peru) for immediate contact reactions to the standard FM, the constituents of the FM and Myroxylon pereirae resin. In the fragrance-positive subjects ($n=60$), there were positive immediate contact reactions to Myroxylon pereirae resin in 56.6% and to FM in 11.6%. In a control group ($n=50$) of eczematous, patch test-negative patients there were positive immediate reactions to Myroxylon pereirae resin in 58.0% subjects and to FM in 12.0%. The absence of a significant difference between the fragrance-allergic group and control group is in keeping with a non-immunological basis for the majority of the immediate reactions seen.

Key words: contact urticaria; cosmetics fragrance mix; Myroxylon pereirae resin. © Blackwell Munksgaard, 2004.

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Allergic contact dermatitis from fragrance substances persists as a problem, with no decrease in frequency (1). Some patients complain of stinging on application of fragrance. It has been suggested that patients with contact allergy to fragrances have a higher rate of immediate reactions to fragrance materials (2).

Materials and Methods

From 26 January 2001 to 3 July 2002 in St. John's Institute of Dermatology, St George's Hospital and Whittington Hospital, patients were recruited who had positive-patch test reactions to fragrance mix (FM) or Myroxylon pereirae resin [$n=60$ (male 14, female 46) and mean age 38.6]; controls had negative patch test reactions to FM and Myroxylon pereirae resin [$n=50$ (male 15, female 35) and mean age 38.0]. Patients were closed patch tested on the forearm for 30 min (short patch test), using 8 mm Finn ChambersTM on ScanporTM (Epitest, Tuusula, Finland), to Myroxylon pereirae resin 25%, FM 8%, cinnamic alcohol 1%, cinnamal (cinnamic aldehyde) 1%, alpha-amyl-cinnamal 1%, oak moss absolute 1%, eugenol 1%, geraniol 1%, hydroxycitronellal 1%, isoeugenol 1%,

sorbitan sesquioleate 20% (all in petrolatum) and pet. (Trolab, Reinbek, Germany). A positive reaction was palpable erythema or wheal. Comparison between fragrance patch test positive and control group was made by χ^2 tests (χ^2).

Results

Positive rates (control) were cinnamic alcohol 8.4 (8.0)%, cinnamal 31.6 (38.0)%, alpha-amyl-cinnamal 0 (0)%, oak moss absolute 0 (0)%, eugenol 0.16 (0.2)%, geraniol 0.32 (0.2)%, hydroxycitronellal 0 (0)%, isoeugenol 0.16 (0.2)%, sorbitan sesquioleate 0 (0)%, FM 11.6 (12.0)%, Myroxylon pereirae resin 56.6 (58.0)% and pet. 0 (0)%. There was no discernible difference between the fragrance-allergy group and the control group for all materials (Table 1).

Discussion

As expected, we had high positive rates of immediate contact urticarial reactions to Myroxylon pereirae resin and cinnamal. M. pereirae

Table 1. Immediate contact reactions to fragrance mix (FM) constituents and Myroxylon pereirae resin (%)

Allergen	fragrance patch test-positive*(%)	control (%)
Cinnamic alcohol	8.4	8
Cinnamal	31.6	28
Alpha-amyl-cinnamal	0	0
Oak moss absolute	0	0
Eugenol	0	0
Geraniol	0	0
Hydroxycitronellal	0	0
Isoeugenol	0	0
Sorbitan sesquioleate	0	0
Fragrance mix	11.6	12
Myroxylon pereirae resin	56.6	58
Petrolatum	0	0

*Not significantly different compared to control.

resin is the natural resinous balsam, which exudes from the trunk of the Central American tree *Myroxylon pereirae* after scarification of the bark. It consists of essential oil and resin and is thus an oleoresin. The composition varies and standardization is based on physical characteristics and the identification of some major chemical constituents (3). Cinnamal is a major component of Myroxylon pereirae resin (4). It has been reported to cause non-immunological immediate contact reactions (5).

An association between immediate skin reactions and delayed allergic reactions to fragrances has previously been suggested (2). However, we have observed no evidence for any association between susceptibility to immediate contact reactions and the presence of delayed-type hypersensitivity. In previous reports, immediate reactions to FM have been reported in 17% (5), cinnamal 42.3% (6,7) and Myroxylon pereirae resin in 16.9% (5), 36.6% (6), 0% (7) and 28% (8). Only a minority of such reports suggests immunological reactions (5–8). The wide variation in frequency of positive immediate reactions to Myroxylon pereirae resin (5–8) suggests methodological variation. Nevertheless, our results are consistent with the view that the mechanisms of immediate and delayed reactions to fragrance chemicals are entirely separate.

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