

Contact allergy to topical medicaments becomes more common with advancing age: an age-stratified study

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Eczema is common in the elderly people who often use topical medicaments. Previous studies in the elderly people have noted allergic positive patch tests in between 43% and 64% of those tested. We set out to assess whether medicament contact allergies are more common in elderly patients. We undertook a retrospective age-stratified study of all patients patch tested at the Royal Hallamshire Hospital, Sheffield, between January 1994 and July 2005. We confirmed that contact allergy to topical medicaments is more common in those aged more than 70 years compared with the younger age groups. There was no sex difference. The commonest problematic allergen types found in medicaments were fragrances and preservatives. The most frequent individual allergens were fragrance mix, *Myroxylon pereirae*, lanolins, local anaesthetic agents, neomycin and gentamicin, and tixocortol pivalate. The pattern of medicament contact allergens was similar to that of the younger age groups except that multiple allergic positives were more frequent and sensitivities to local anaesthetics and *Myroxylon pereirae* were proportionally more common. Elderly patients were more likely to have multiple contact allergies than the younger ones. Care needs to be taken when prescribing topical medicaments to elderly patients with eczema, especially for preparations that contain perfumes, lanolins, and local anaesthetics.

Key words: allergic contact dermatitis, elderly, fragrance, lanolins, local anaesthetics, *myroxylon pereirae*, patch testing © Blackwell Munksgaard 2007

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Introduction

Eczema is common in the elderly people, and they use many topical medicaments as treatment. In previous patch test series, which have focussed on elderly patients, allergic positive patch tests have been noted in between 43% and 64% of elderly patients tested (1–3). The prevalence of contact allergy to medicaments in the elderly patients is approximately 8% (2, 4), with no sex difference. In a recent article, Schafer et al. in the KORA study examined the relationship between age and contact allergy (5). They found in an analysis with respect to age categories (28–39, 40–49, 50–59, and 60–78 years), a trend of decreasing sensitization with age (43.6%, 42.0%, 36.7%, and 37.9%, respectively; P trend = 0.09) and a significant decrease for sensitization to nickel with age (23.4%, 13.3%, 8.8%, and 9.0%, respectively; P trend < 0.0001). Contrariwise, they found that the sensitization to fragrance mix seemed to increase with age (11.8%, 12.8%, 20.4%, and 19.1%, respectively; P trend = 0.003) (5).

In this study, we set out to assess whether medicament contact allergies are more common in elderly patients, arbitrarily defined as aged 70 years or above, than the general contact dermatitis clinic population and to examine which allergens are most commonly responsible for these allergies.

Methods and Subjects

We undertook a retrospective study of all patients patch tested at the Royal Hallamshire Hospital, Sheffield, between January 1994 and July 2005. Data were collected between January 1994 and December 2001 by the Audit Department of the hospital, and all data collected between January 2002 and July 2005 were entered into databases formulated by the British Contact Dermatitis Society. For these data, the MOAHLF results are as follows: male 32.0%, occupational 17.7%, atopy (personal history of) 49.9%, hand dermatitis 34.9%, leg dermatitis 9.1%, and facial dermatitis 24.1%.

In this time, overall 4384 (2931 female, 1453 male) consecutive patients suspected of a contact allergy were patch tested. The average age was 43.29 years (females 43.11 years; males 43.53 years). Of these, 395 (9.01%; 273 female, 122 male) patients were aged more than 70 years at the time of testing.

All patients were tested to the British Contact Dermatitis Society standard series. Additional series were tested when deemed appropriate to the clinical presentation. We have analysed reactions to the medicaments present in the standard, medicament, perianal and vulval, and topical local anaesthetic series. Patch test reactions were assessed on day (D) 2 and D4, according to standard procedure and scored as ?+, +, ++, or +++. Only + reactions or more were regarded as true positives.

All positive reactions, which had either current, past, or possible clinical relevance, were noted, with irritant and negative reactions being excluded before analysing the results. A χ^2 -test was used to test for any significant difference between the incidence of medicament allergy in patients aged 70 years or above and the general population (the significance level was set as $P < 0.05$).

Results

Of the 4384 patients patch tested between 1994 and 2005, 901 (626 female, 275 male) patients showed a positive allergic reaction to 1 or more medicament allergens. In our clinic, leg dermatitis is a less common reason for patch testing (at 9.1%) than in some other series. 126 (91 female, 35 male) medicament allergy patients were aged more than 70 years and were classed as 'elderly'. The overall prevalence of allergy to topical medicaments and their constituents was 20.6%. The prevalence of allergy increases with age from 14.8% in patients aged 30 years or younger to 21.3% in patients between 30 and 70 years of age and to 31.9% in elderly patients (Fig. 1). Both males and females showed this pattern of increasing prevalence of allergy (Fig. 1).

For patients younger than 70 years, there were 985 positives (out of 901 patients), making a ratio of 1.1 positives per patient who had an allergic patch test reaction (Table 1). For patients older than 70 years, there were 213 positives in 126 patients, a ratio of 1.7, showing that those older than 70 years were more likely to have more than 1 allergic positive reaction on patch testing than their younger counterparts.

In some of the decades below the eighth, medicament allergy was more common in women, but in those older than 70 years, the prevalence was

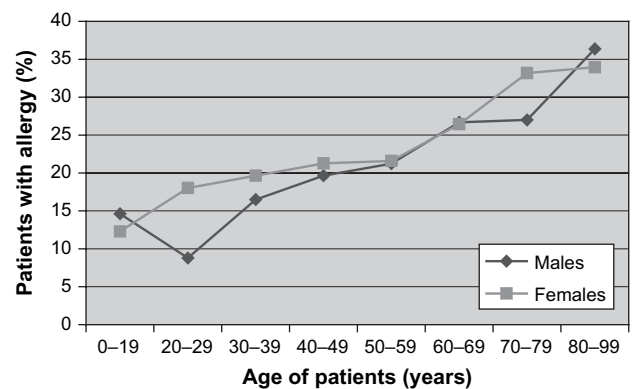


Fig. 1. The percentage of patients who had a relevant positive patch test to a medicament allergen according to their age (by decade) and sex.

equal in males and females. Elderly patients showed a statistically higher proportion of allergies to medicaments and their constituents ($P < 0.001$). However, no statistically significant difference could be found because of sex difference.

The most frequent group of allergens found in medicament, to cause contact allergy, were fragrances, preservatives, antibiotics, and emulsifying agents/emollients (Table 1). The commonest individual medicament allergens were fragrance mix I (42.3%), lanolin as detected by wool alcohols and Amerchol L101 (17.3%), *Myroxylon pereirae* (16.5%), neomycin (13.8%), and gentamicin (6.6%) (Table 2). The patterns of allergy for those older than 70 years were similar to the younger age groups except that contact allergy to *Myroxylon pereirae* and to local anaesthetic agents was proportionally more common.

Table 1. Relevant contact allergens as a percentage, classified according to allergen type, in patients older than 70 years or younger than 70 years. Males and females are grouped, as there were no differences between the sexes

Allergen type	Males and females, <70 years (n = 3989) (%)	Males and females, 70+ years (n = 395) (%)
Emulsifiers and emollients	3.6	7.8
Topical corticosteroids	1.6	3.0
Topical local anaesthetics	0.9	5.8
Fragrances	8.2	12.9
Preservatives and antiseptic agents	3.8	10.1
Antioxidants	0.4	1.2
Topical antibiotics	4.4	7.8
Topical antifungals	0.2	0.5
Hydrocolloids	0.02	0.2
Topical anti-eczema agents – other	0.02	0.5
Topical agents containing a mixture of therapeutic agents	1.0	3.3
Miscellaneous	0.07	0.5

Table 2. The frequency in percentages of individual medicament allergens according to age (older than 70 years and younger than 70 years). Males and females are grouped, as there were no differences between the sexes. 12 patients reacted to other allergens that have not been shown

Allergens	Males and females, <70 years (n = 3989) (%)	Males and females, 70+ years (n = 395) (%)
Fragrance mix I	8.3	12.9
Lanolin markers*	3.2	4.5
<i>Myroxylon pereirae</i>	2.9	8.1
Neomycin sulfate	2.7	8.8
Gentamicin	1.2	2.3
Tixocortol pivate	0.8	1.2
Soframycin	0.5	1.5
Fusidic acid	0.5	1.5
Benzocaine	0.2	4.3
Lanacane cream	0.5	1.5
Sorbic acid	0.4	1.3
2-tert-butyl-4-methoxyphenol (BHA)	0.5	0.7
Sorbitan sesquiolate	0.3	1.3

*Lanolin markers included both wool alcohols and Amerchol L101.

Discussion

Our results support a previous report from Singapore that, as age increases, the prevalence of sensitivity to topical medicaments increases (6). This may be because of the frequent use of topical medicaments and having a longer time for potential exposure to various allergens owing to age. Leg dermatitis has an influence on the propensity to develop medicament allergy, and venous leg ulcers occur in 1.7% of patients aged more than 65 years (7, 8). Important allergens in patients with leg dermatitis include wool alcohols, neomycin, and topical anaesthetic agents (9). However, leg dermatitis was not a common reason for patch testing at our centre. Interestingly, Uter et al. found that increasing age in addition to leg dermatitis was an independent risk factor for the development of medicament allergy, conclusions with which our study concurs (10).

The frequency of sensitivity to topical antibiotics has decreased in the past 20 years (9, 11). It is also possible that elderly patients with contact allergies to medicaments are referred to a dermatology clinic more readily than the other age groups, as they might be less likely to respond to general treatments. Patients older than 70 years were more likely to have multiple contact allergies on patch testing than those younger than 70 years (ratio of 1.7 to 1.1).

Fragrance chemicals, which are present in several topical medicaments, were the cause of

contact allergy in 8.4% females and 6.4% males in 1 patch test series (12), the frequency increasing with age in both males and females, with peaks of 13.7% in males in the eighth decade and 14.4% in females in the seventh decade, before showing a decline in frequency thereafter (12).

The exposure of the elderly to potential allergens in topical preparations must be minimized and common sensitizers avoided in topical preparations designed for use in old people.

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