

level) to beech wood dust in the patient's serum. The positive nasal challenge test to beech wood dust, but not to iroko, supports the diagnosis. Neither an irritant nor a toxic effect was suspected, as no response was observed in control subjects. To the best of our knowledge, this is the first report of occupational rhinitis due to beech wood dust inhalation.

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References

1. Chan-Yeung M. Western red cedar and other wood dusts. In: Bernstein IL, Chang-Yeung M, Malo JL, Bernstein D., editors. *Asthma in the workplace*. New York: Marcel Dekker, 1993:503-531.
2. Herold DA, Wahl R, Maasch HJ, Hausen BM, Kunkel G. Occupational wood-dust sensitivity from *Euonymus europaeus* (spindle tree) and investigation of cross reactivity between *E.e.* wood and *Artemisia vulgaris* pollen (mugwort). *Allergy* 1991;**46**:186-190.
3. Basomba A, Burches E, Almodovar A, Hernández D, De Rojas F. Occupational rhinitis and asthma caused by inhalation of *Balfourodendron riedelianum* (Pau Marfim) wood dust. *Allergy* 1991;**46**:316-318.
4. Fernández Rivas M, Pérez-Carral C, Senent CJ. Occupational asthma and rhinitis caused by ash (*Fraxinus excelsior*) wood dust. *Allergy* 1997;**52**:196-199.
5. Reijula K, Kulala V, Latvala J. Sauna builder's asthma caused by obeche (*Triplochiton scleroxylon*) dust. *Thorax* 1994;**49**:622-623.
6. Fernandez Caldas E, Swanson MC, Pravda J, Welsh P, Yunginger JV, Reed CE. Immunochemical demonstration of red oak pollen aeroallergens outside the oak pollination season. *Grana* 1989;**28**:205.
7. Malet A, Amat P, Valero A, Bescós M, Merola E, Lluch M. Hipersensibilidad Ocupacional a Espiramicina. A propósito de un caso. *Allergol Immunopathol (Madr)* 1992;**20**:127-130.
8. Bachmann W. The present status of rhinomanometry. *Int Rhinol* 1976;**14**:5-8.

Renal failure – a new risk group for latex allergy?

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Key words: chronic renal failure; fruit antigens; latex sensitivity; SPTs.

● IMMUNOGLOBULIN E (IgE)-mediated hypersensitivity to natural rubber latex (NRL) has been recognized as an international medical problem due to the widespread use of latex products. The prevalence of latex allergy appears to be higher in individuals with increased exposure or increased intrinsic predilection for atopy (1). Recently, cross-reactive allergenic proteins have been identified in banana, avocado, chestnut and kiwi (2, 3).

Patients with chronic renal failure (CRF) who are undergoing long-term dialysis are a suspected risk group due to high exposure to latex in the form of gloves, catheters, adhesive bandages, tourniquets, drains, and anesthetic

equipment. In the present study, we investigated latex sensitivity in this group of patients and examined the relationship between latex and certain fruit allergens as well.

Between November 1996 and June 1997, a total of 424 patients on regular dialysis were invited to participate in this study. However, 156 cases were withdrawn due to prior use of antihistamines, diagnosis of anergy, unwillingness to enroll, etc. Skin prick tests (SPTs) were performed with latex, kiwi, banana, and walnut extracts (Stallergènes SA-Pasteur, France). Serum samples were collected from each subject in order to determine total IgE level (Abbott Laboratories, IL, USA). Patients were compared to a group of 76 healthy controls. Data analysis was performed with SPSS for Windows. A *P* value of <0.05 was regarded as significant.

Eight subjects reported allergic symptoms related to rhinitis, while 58 had dermatitis and pruritis. None had experienced reactions to latex products. Of the 268 patients tested (159

male/109 female, mean age 43.1 years, with a range of 11-85), three (1.1%) had positive SPT results to latex antigen. One subject with latex sensitivity had positive SPT response to kiwi extract, while in the SPT-negative group, two patients had positive reactions to kiwi and one to banana antigens. All but one in the SPT-positive group were female. Atopy, defined as above-normal IgE, was not diagnosed in any of the subjects with positive SPT. Statistical analysis of the results identified the variables with no statistical significance (*P*>0.05) as age, duration of renal disease, frequency of dialysis, and IgE. None of the patients in the control group had latex sensitivity with SPT.

Certain groups are known to have an increased incidence of allergic reactions to latex products (1, 4). Our results showed that a significant number of patients with CRF have negative SPT response to latex despite frequent exposure. Host and environmental factors, including atopy and high levels of occupational and nonoccupational exposure, can predispose individuals to immunologic sensitization to latex (4-6). This is further supported by data from the present study, which indicate that none of the patients with latex-positive SPT reported manifestations of atopic disease, nor did they have elevated IgE levels.

According to our results, the prevalence of latex-positive SPT in CRF patients is lower than that of other reported risk groups. One of the key differences between the present report and previous ones is that our study group consisted of equal numbers of patients on the different dialysis programs. Exposure to latex products varies according to dialysis methods. Moreover, other studies may have involved a larger proportion of symptomatic subjects, whereas we tried to avoid this by attempting to assess virtually all dialysis patients. Another explanation of the difference in response rates could be the allergen content in the latex extract used, since allergenicity varies from one product to another.

The most striking finding in this study was the clear predominance of middle-aged women among latex- and fruit-positive SPT subjects. Female predominance in our data might be explained by greater exposure through the use of household latex products (1, 6). Moreover, considerable cross-reactivity between NRL

Nonatopic CRF patients are not at risk of latex allergy despite recurrent exposure.

and certain fruit allergens can be assumed, as one subject in the latex-positive SPT patients had positive reaction to kiwi.

In conclusion, CRF patients with no history of hypersensitivity reactions should not be considered at risk of developing latex sensitization, despite the frequent exposure they experience. Diagnosis of clinically relevant allergy depends, in the first instance, on a correlation between the clinical history and the results of skin tests. Thus, when a patient has no history of latex allergy, but has a positive SPT response, cross-reactive allergens may be the cause, and such patients should be closely followed up.

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References

1. Turjanmaa K, Alenius H, Mäkinen-Kiljunen S, Reunala T, Palosuo T. Natural rubber latex allergy. *Allergy* 1996;**51**:593–602.
2. Blanco C, Carrillo T, Castillo R, Quiralte J, Cuevas M. Latex allergy: clinical features and cross-reactivity with fruits. *Ann Allergy* 1994;**73**:309–314.
3. Brehler R, Theissen U, Mohr C, Luger T. "Latex-fruit syndrome": frequency of cross-reacting IgE antibodies. *Allergy* 1997;**52**:404–410.
4. Porri F, Lemiere C, Birnbaum J. Prevalence of latex allergy in atopic and non-atopic subjects from the general population. *J Allergy Clin Immunol* 1995;**95**:154.
5. Hadjiliadis D, Khan K, Tarlo S. Skin test responses to latex in an allergy and asthma clinic. *J Allergy Clin Immunol* 1995;**96**:431–432.
6. Fuchs T. Latex allergy. *J Allergy Clin Immunol* 1994;**93**:951–952.

Mite allergens in feather and synthetic pillows

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Key words: Der p 1; Der p 2; feather; house-dust mites; synthetic.

● THE use of nonfeather pillows appears to have increased in the general population over the last few decades. In two population-based, case-control studies carried out 13 years apart, Butland et al. reported an increase in the use of nonfeather pillows from 44% in 1978 to 67% in 1991 (1). Recently, Kemp et al. compared the levels of the major house-dust mite allergen Der p 1 in synthetic and feather pillows in New Zealand, and found significantly higher levels in the synthetic pillows (2). We investigated the levels of house-dust mite allergens in feather and synthetic pillows in the UK.

Questionnaires about the type and age of pillows were administered in 150 randomly selected homes, and those in which a pair of pillows (one synthetic fibre filled and one feather filled) had been on the same bed for at least 2 years were selected for the study. Dust samples were collected from 14 pairs of pillows, all in different homes. Each pair of pillows had been *in situ* on the same bed, and was used daily by the same individual. The pillows were vacuumed for 1 min on each side

with a dust sampler with an airflow rate of 45 l/s, through a 355-µm-diameter mesh onto a 5-µm vinyl filter, producing a sample of fine dust. Samples were extracted, and Der p 1 and Der p 2 determined by a two-site monoclonal antibody-based ELISA.

Results presented as geometric means (GM) and 95% confidence intervals (CI) are shown in Table 1, and are expressed both as total amount of allergen recovered and as concentration of allergen per unit weight (µg/g).

Total dust-mite allergens recovered were significantly higher in the synthetic pillows (Der p 1: 4.12-fold difference [95% CI 1.56–10.89], $P=0.008$; Der p 2: 5.13-fold difference [95% CI 1.55–16.98], $P=0.001$; paired sample *t*-test). When the results were expressed as µg/g, synthetic pillows contained significantly more Der p 2 than feather pillows (2.84-fold difference [95% CI 1.03–7.78], $P=0.04$), while for Der p 1 there was a clear trend which failed to reach significance (2.28-fold difference [95% CI 0.81–6.40], $P=0.1$).

We have demonstrated that synthetic pillows contain approximately fivefold more mite allergens than feather pillows, a finding which is in keeping with the results of Kemp et al. from New Zealand (2). The reason for this is unclear. It is possible that the encasements surrounding feather pillows, which are usually made from tightly woven fabrics (in order to keep the feathers within the pillows), act as a barrier to mite allergens and also prevent mite colonization. If this is the case, feather pillows may mimic the effect of environmental control encasement.

However, asthmatic patients are very often advised to replace their feather-filled pillows

Table 1. House-dust mite allergens Der p 1 and Der p 2 (geometric mean and 95% confidence interval) in feather and synthetic pillows

	Synthetic pillows	Feather pillows
Der p 1 (total recovered [ng])	134.7 (39.5–459)	32.7 (11.6–92)
Der p 2 (total recovered [ng])	101.9 (31.5–329.6)	19.8 (6.2–63.2)
Der p 1 (µg/g)	3.41 (0.97–12.03)	1.49 (0.48–4.65)
Der p 2 (µg/g)	2.58 (0.83–8.01)	0.91 (0.32–2.57)