

The allergenicity of feather bedding material

K.P. Jones*, S. Rolf, C. Stingl, G.E. Walters, B.H. Davies

Key words: feather allergy; house dust mite.

• IT HAS LONG been recognized that exposure to high levels of antigen is an important risk factor for the development and exacerbation of atopic asthma and other allergic disorders (1). For this reason allergen avoidance is advised for subjects with allergic disease and for children at risk of developing allergy (2). The principal indoor allergen is the house dust mite (3); several strategies have been suggested to reduce exposure to mite allergens in the bedroom, such as occlusive covers for mattresses, pillows and duvets (4).

Additionally, synthetic materials for pillows and duvets has been encouraged to avoid sensitization to feather allergens. However, a recent Finnish study has concluded that most positive skin test

reactions seen with feather extracts are due to mite allergens (5). Feathers used

Feather bedding material does not induce skin test response.

for production of bedding material are extensively washed before use and feather bedding appears less allergenic than synthetic alternatives (6). This is partly due to the outer covering associated with the two types. Synthetic fillings have lighter thinner covering material. This facilitates the entry of house dust mites into the filling. Allergic symptoms to bedding are most probably related to Der p 1 sensitivity rather than the filling.

We investigated the prevalence of sensitivity to feather bedding material in a dust mite sensitive population. Their previous exposure to feather bedding material was assessed during interview and compared with observed sensitivity. 105 patients with confirmed dust mite (Der p 1) sensitivity and a symptomatic history to dust were included in the study. A further 25

nonatopic subjects were included as a control group.

Each subject was skin prick tested against dust mite, grasses, cat and commercial chicken feather extract (Bayer) and against extracts of duck feather, goose feather and polyester filling material. A positive response was considered as equal to or greater than a 3-mm wheal difference from the negative control.

Protein concentrations from the two feather extracts were extremely low at 9 µg/g feathers for goose and 18.5 µg/g feathers for duck. This illustrates the efficiency of the washing process used for preparation of the bedding material.

All atopic subjects responded to the Der p 1 and some to cat and/or grasses. There were no positive reactions to any of the feather or synthetic bedding extracts or the commercial chicken feather skin test reagent used, confirming the low prevalence of feather allergy demonstrated by other workers (5). None of the nonatopic controls reacted to any of the skin test solutions apart from the histamine control.

Of the atopic subjects only 15% were using feather filled bedding material and 25% indicated previous use such but had discontinued use of such products following concern over possible allergenicity. Contact with feather bedding material more than two years previously was considered as no contact. There was no association between skin test reactivity and current or previous use of feather bedding.

In conclusion, the feather fillings used in this study do not have the potential to sensitize individuals to feather allergens in normal usage.

The nomenclature used in this study complies with that of the EAACI position paper (7).

* School of Applied Sciences
University of Wales Institute Cardiff
Western Avenue
Cardiff CF5 2YB
United Kingdom
Tel: +44 029 2041 6849
Fax: +44 029 2041 6982
E-mail: kpjones@uwic.ac.uk

Accepted for publication 8 November 2001
Allergy 2002; 57:266

Copyright © Blackwell Munksgaard 2002
ISSN 0105-4538

References

1. DREBORG S. Mite allergens. Collection, determination, expression of results, and risk levels for sensitisation and symptom induction. *Allergy* 1998;**53**:88–91.
2. CUSTOVIC A, SIMPSON BM, SIMPSON A, et al. Manchester Asthma and Allergy Study: low-allergen environment can be achieved and maintained during pregnancy and in early life. *J Allergy Clin Immunol* 2000;**105**:252–258.
3. CUSTOVIC A, SIMPSON A, WOODCOCK A. Importance of indoor allergens in the induction of allergy and elicitation of allergic disease. *Allergy* 1998;**53**:115–120.
4. VANLAAR CH, PEAT JK, MARKS GB, RIMMER J, TOVEY ER. Domestic control of house dust mite allergen in children's beds. *J Allergy Clin Immunol* 2000;**105**:1130–1133.
5. KILPIO K, MAKINEN-KILJUNEN S, HAAHTELA T, HANNUKSELA M. Allergy to feathers. *Allergy* 1998;**53**:159–164.
6. RAINS N, SIEBERS R, CRANE J, FITZHARRIS P. House dust mite allergen (Der p1) accumulation on new synthetic and feather pillows. *Clin Exp Allergy* 1999;**29**:182–185.
7. JOHANSSON SGO, O'B HOURIHANE J, BOUSQUET J, et al. A revised nomenclature for allergy. An EAACI position statement from the EAACI nomenclature task force. *Allergy* 2001;**56**:813–824.

Unusual soy oil allergy

D.A. Moneret-Vautrin*, M. Morisset, J. Flabbee, G. Kanny, F. Kirch, L. Parisot

Key words: elemental amino acid formula; non IgE-mediated allergy; soy oil.

• THOMAS WAS born uneventfully from a normal pregnancy and fed with milk formula. At one month of age the first signs of the IgE-associated subgroup (AD) of the atopic eczema/dermatitis syndrome (AEDS) (1) led to a prick test, which was positive to milk: 12 mm (codeine: 3 m). The pediatrician substituted soya milk but the AD worsened, and at five months of age the atopic dermatitis severity score