Mites in mattresses

J. L. Plácido*, A. Coimbra, J. L. Delgado,
J. P. Moreira Silva, M. Vaz

Key words: house-dust mites; housing conditions; mattresses; mite avoidance.

• Mattresses are important house-dust mite (HDM) reservoirs and priority targets of intervention in a mite-avoidance program (1). However, many factors influence these allergen levels in mattresses and the effectiveness of HDM-avoidance measures.

We investigated the Der p 1 level, assayed by mAb-based ELISA (2), in 20 mattresses belonging to mite-allergic asthmatics and its relation with the mattress age and housing conditions. Homes with carpeted bedrooms were excluded from our study.

New mattresses are rapidly infested in damp houses.

A significant correlation between the age of mattresses and their content of Der p 1 ($r=0.78$; $P=0.007$) was found. Mattresses older than 10 years had the highest Der p 1 median levels ($n=6$; 13.32 μg/g; 6.00–17.30), but new mattresses (less than 2 years) already contained high Der p 1 concentrations ($n=7$; 4.29 μg/g; 1.30–5.20). Mattresses from damp homes had significantly higher Der p 1 levels, a finding which was unrelated to mattress age (Fig. 1). A significant correlation between the house age and Der p 1 levels in mattresses was also observed ($r=0.86$; $P=0.001$).

Mite-allergic patients are commonly advised to buy new mattresses. This may not be effective, as the colonization of mattresses by mites may be very rapid under favorable climate and housing conditions (3). In this study, we confirm that new mattresses can represent an important source of mite exposure, even when carpets are not present in the bedrooms. In our geographic area, where the climate is temperate and high humidity levels are present throught the year (2, 4), housing conditions such as dampness, and not mattress age, seem to be the most important factor in the rapid and heavy infestation of new mattresses. Old homes may represent an additional risk for this infestation.

In conclusion, we cannot be sure whether a new mattress is already heavily infested by mites, particularly if it is in an old and damp home. In these circumstances, the replacement of mattresses is not justified, and other measures such as bedcovers should be considered from the start.

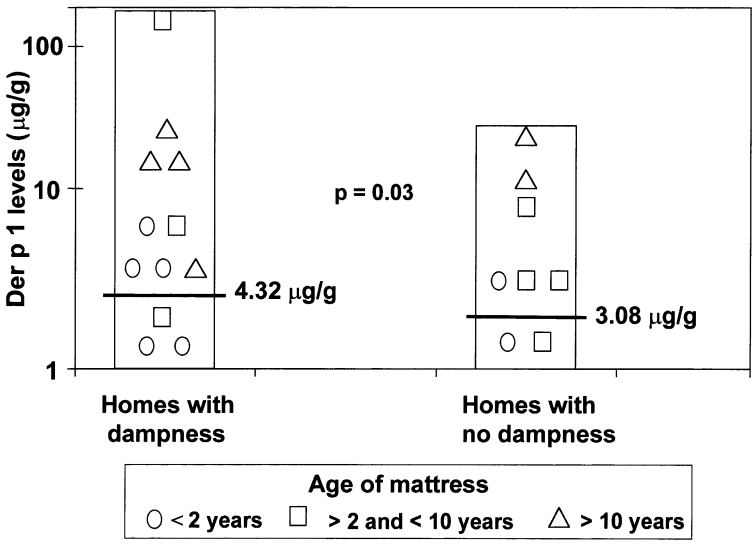

Figure 1. Der p 1 levels in mattresses and home dampness. Mattresses from homes with signs of dampness had significantly higher Der p 1 levels (4.32 μg/g; 1.10–131.59; $P=0.03$) than those from homes without these signs (3.08 μg/g; 1.30–17.30). This finding was not related to mattress age.

*Department of Allergology and Clinical Immunology
Hospital S. João
4202-451 Porto
Portugal
Fax: 351-22-5098667
E-mail: jlplacido@mail.telepac.pt

Accepted for publication 12 July 2001
Allergy 2001: 56:1234
Copyright © Munksgaard 2001
ISSN 0105-4538

References

1. Platts-Mills TAE, Vaughan JW, Carter MC, Woodfolk JA. The role of intervention in established allergy: avoidance of indoor allergens in the treatment of chronic allergic diseases. J Allergy Clin Immunol 2000;**106**:787–804.
2. Plácido JL, Cuesta C, Delgado JL, et al. Indoor mite allergens in patients with respiratory allergy living in Porto, Portugal. Allergy 1996;**51**:633–639.
3. Custovic A, Green R, Smith A, Chapman MD, Woodcock A. New mattresses: how fast do they become a significant source of exposure to house dust mite allergens? Clin Exp Allergy 1996;**26**:1243–1245.
4. Plácido JL, Coimbra A, Moreira Silva JP, Delgado JL, Vaz M. Seasonal variations of mite allergen exposure: effects in house dust mite allergic asthma. Allergy 2000;**55 Suppl 63**:137.