

Regarding mite counts Cuthbert and Jeffrey state in 1980 that 'The numbers of mites in the stored hay rose rapidly during the first weeks of storage, reaching a peak of between 700 and 1400 per gram of hay in October' and 'there was a gradual stabilization of the population around 500 mites per gram. With slight variations, the pattern is the same on all the farms studied' [3]. We consider 500 mites per gram of hay to be a modest figure compared with that of *Lepidoglyphus destructor* (geometric means in our two investigations were about 6000 and 7000 per gram of dust respectively). Furthermore, T. E. Hallas has investigated the fauna of stored hay in Iceland and shown that the occurrence of *T. longior* is not the same all over the cool and temperate regions [4]. He writes 'A dominant species in English (Griffiths, 1960) and Orcadian (Orkney) hay (Ingram *et al.* 1979 and Cuthbert *et al.* 1980) in *Tyrophagus longior*. This species has not been found in the samples of Icelandic hay [4].

In our earlier studies of allergenic crossreactivity between different mite species we found a high degree of crossreactivity between *L. destructor*, *Glycyphagus domesticus*, *Acarus siro* and *T. putrescentiae* [1,5]. One could expect an even greater similarity between mites belonging to the same genus. This is, indeed, indicated by Cuthbert and Jeffrey [3] when comparing specific IgE titres to different mite species in a very limited numbers of farmers. Two of the three subjects with a positive radioallergosorbent test (RAST) to *Tyrophagus* had higher titres for *T. putrescentiae* than for *T. longior*, even though *T. putrescentiae* is 'not found on Orkney farms' [3].

We consider that, when screening for IgE-mediated sensitization, one should test for the dominating mite species of the region, and for economic reasons it is enough to test for one mite per genus.

References

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Effective domestic allergen control

Sirs, the recent paper by Marks *et al.* [1] raises a number of points concerning research into effective domestic allergen control.

The apparent failure of the bedcovers used in their study needs clarification. From tests of multiple potential barrier textiles, I can state that some older forms of polyurethane-coated fabrics do allow transmission of significant quantities of Der p 1. In addition, some types of backing textile, but not others, do allow colonization by mites. Interpretation of the data requires information on the construction and particle holdout efficiency of the particular products employed.

The advocacy of the use of tannic acid for domestic allergen control seems based on dubious logic. Firstly, it is not acaricidal, so surviving mites will immediately secrete more allergen. Secondly, the aqueous vehicle will actually promote mite proliferation by raising local humidity. The more it is used, the more it will need to be used. A necessary minimal daily usage would certainly be both more trouble and much more expensive than simple vacuum cleaning at the same frequency.

The safety of tannic acid in the domestic environment has not been established. Some advertised claims that it is 'natural and safe' are both misleading and potentially dangerous. Regular usage will lead to build up of high concentrations of dry powder which will become airborne and inhaled. Whatever the effect on the airway, allergen will not be denatured by dry tannic acid, even if subsequent *in vitro* denaturation does take place in the course of aqueous extraction prior to measurement of Der p 1 levels by ELISA. Under these circumstances, the only valid measurement of *in vivo* allergenicity would be provocation with unextracted dust.

This paper seems to confirm the advice from an earlier age of meticulous clinical observers, namely, that only the most thorough, multi-faceted dust eradication programme is likely to benefit asthma. Some of us born in the first half of the century can personally attest both to

the rigours of the regimes then imposed on asthmatics and their families; but also to their effectiveness at a time when few effective drugs were available. Perhaps the most accessible summary of practice in the 1940s and 1950s is in the review by Deamer [2], but I have textbooks giving virtually the same advice dating back to the 1930s. Current allergy research would benefit from building on existing knowledge and long clinical experience, rather than starting *de novo* each generation.

References

- 1 Marks GB, Tovey ER, Green W et al. House dust mite avoidance: a randomised controlled trial of surface chemical treatment and encasement of bedding. *Clin Exp Allergy* 1994; 24:1078–83.
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Reply

Sirs, we agree with Dr Pearson that effective house dust mite avoidance in a high house dust mite environment will probably require the application of a combination of methods. From the clinical standpoint the key issue is to identify a method which is feasible, acceptable, safe and effective. We had some reason to believe that the combination of a chemical treatment with a physical barrier might meet these criteria. The chemical we used (Allersearch DMS) combined tannic acid, as an allergen-denaturant, with benzyl-alcohol, as an acaricide, and had been shown to be effective in preliminary studies [1]. Alternative methods did not meet the criteria of acceptability or efficacy. For example, it is difficult to find consistent data to support the use of regular vacuuming. It is not effective at removing live mites [2,3] though it

may remove some mite nutrients and also some allergenic faecal particles. Most of the rigorous regimens proposed in the past will only ever be acceptable to a small minority of patients.

Unfortunately, our method did not achieve the desired effect. The possible reasons for this were discussed in the paper [4].

While we agree with Dr Pearson that there is much to gain from past clinical experience, unfortunately this and uncontrolled trials have not provided the quantitative basis for the development of feasible, acceptable, safe and effective methods of allergen avoidance. There is much work yet to be done.

References

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