

Correspondence

House dust mite avoidance—the right way to go forward

Sirs, Allergy to house dust mite is a world-wide problem, compounded by more or less tightly closed houses with fitted carpets and soft furnishings which provide the ideal habitat for the house dust mite. A practical effective and long lasting means of exterminating the mites and eliminating their allergens is therefore required, and treating the house rather than giving the patient drugs would be more logical.

We have reported on a positive clinical impact on the symptoms of allergic perennial rhinitis patients after using an acaricidal cleaning agent on textile objects compared to intensive cleaning [1]. Soon, mechanisms and patient compliance of such avoidance regimens will be published here [2]. An Editorial by Godfrey [3] addressed a number of questions and criticisms. We believe that by publishing this second paper [2], and by answering his questions and criticisms, we can contribute to the discussion on the best way to exterminate house dust mites.

We fully agree with Godfrey, that any new treatment should address efficacy, safety and practicality, in line with the accepted process of drug licensing [4]. Although the drug licensing system can be applied to avoidance procedures, there is an essential difference. Treatment is aimed at the dwelling, not at the patient, and clinical improvement is really a 'secondary' effect. The study on which we reported was a phase-2 study, in which all work (treatments, assessments) was performed by full-time investigators.

General remarks

The effectiveness of Acarosan in reducing house dust mite allergen in the environment in our phase-2 study was assessed by the semi-quantitative Acarex-Test, and although obviously inferior to measurement of quantitative determination of *Der p* I using monoclonal antibody, has been confirmed recently again as a valid method [5]. In an avoidance study the environment not the patient is treated. Therefore most problems concern the indoor environment and not the patient. Both cleaning methods (Acarosan and control) were equal in aerosolizing house dust mite faecal particles, and these could not be responsible for any worsening of symptoms in the control group only.

Assessment of effectiveness judged by symptoms caused will always be more difficult to prove, and the method of matched pairs was used for this reason. Files of

more than 100 outpatients were examined to find 20 patients who matched our criteria and were willing and able to be part of the double blind controlled Dutch study. In this time consuming study design it was not possible to include more patients, together with their dwellings. Because of the relatively low number, we have also chosen for the matched pair design.

Only 10 patients used daily medication and this number was not enough for evaluating significance of the usage of medication between the patients groups. However, in the acaricidal treatment group 50% were free of drugs by the end of the study, but none in the control group. In contrast to Godfrey's critical remarks, in no case were significant differences found between patients characteristics in the active treatment and control group at the start of the experiment (Mann-Whitney Test). A 50% higher guanine exposure was found in the acaricidal treatment group at the start of the trial. This indicates that avoidance in this group is being given an even more extreme test than in the control group. Because of the existing seasonal fluctuations, we evaluated guanine exposure reduction after one year. A more than 70% reduction was found in the acaricidal treatment group and a mere 3% was seen in the control group. The first 3 months were regarded as start-values for symptom scores. No significant differences were present in this time period. In order to compare the results of each matched pair, it was necessary to normalize data in every pair for their start value. Because of the matching principle (patients were matched also for severity of complaints) the normalizing does not influence the outcome of the results. Godfrey quoted from our article that spring 1989 had fewer allergic complaints than spring 1988. He concludes that this could be the reason for the improvement of the Acarosan group because of their more mite-allergic diathesis. We wrote that spring 1988 had fewer allergic complaints than spring 1989, so that we can conclude that the Acarosan group could improve less because of their more mite-allergic diathesis. It is therefore even more astonishing that this group improved greatly. As far as toxicity is concerned, all required data from the active ingredient benzyl benzoate for a phase-2 study are available. No adverse effects are shown.

Conclusion. In this controlled double-blind study with Acarosan, the efficacy of the method and product was tested extensively. More studies with a larger number of patients suffering from asthma and atopic dermatitis, multi-centred, conducted by full-time investigators are desirable (phase 2). In such trials ecological and medical

data should be gathered as in our study. Allergen exposure should be reduced, and if possible be correlated with a reduction in subjective/objective symptoms of patients. But until then, based on our study and others, we believe that the acaricidal cleaning treatment is helpful in reducing mite numbers, mite allergens, and also complaints in mite-allergic patients.

References

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Over the next few years control of house dust mite levels is likely to become a major public health issue and it is important that a healthy but critical discussion surrounds its scientific basis. The study by Kniest *et al.* is a helpful step forward, but there must be an awareness of the study's limitations in order for the debate to progress. Four points are worthy of emphasis:

1 The authors reiterate the common misconception that differences in baseline patient characteristics that do not

achieve statistical significance are unimportant. Differences in baseline characteristics of the matched pairs *were* present and although they failed to achieve statistical significance they may nonetheless have exerted an important confounding effect on the results.

2 Kniest and van Bronswijk state that no patient in a control group became free of drug treatment during the study. This statement is dependent upon the exclusion of control subject 5 on the basis that although they stopped treatment the patient's symptoms had not diminished. Rigorous application of the same principle to the Acarosan group should lead to the exclusion of subject 2 from the analysis of changes in medication as their symptoms worsened although their medication was markedly reduced.

3 Inspection of Fig. 2 reveals large variations in the guanine exposure of the control group. It is known that the seasonal pattern of house dust mite populations can vary greatly between different houses in the same geographical location [1] and it is possible that both seasonal variation and regression towards the mean may at least in part contribute towards the reduction in guanine exposure in the Acarosan group.

4 The number of patients studied really was too small for firm conclusions to be reached.

The evidence presented by Kniest *et al.* is suggestive of symptomatic benefit but far from conclusive. Demonstration of clear and clinically important symptomatic improvement in appropriately controlled large-scale trials is essential before a specific method of house dust mite control can become part of everyday clinical practice. Research should be directed not only into acaricidal agents, but also, more importantly, into means of making the housing environment more hostile to the house dust mite.

Reference

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