

Review: controlling house dust mites is ineffective for asthmatic patients who are sensitive to mites

Gøtzsche PC, Hammarquist C, Burr M. *House dust mite control measures in the management of asthma: meta-analysis*. *BMJ* 1998 Oct 24;317:1105-10.

Hammarquist C, Burr ML, Gøtzsche PC. *House dust mite control measures for asthma*. (Cochrane Review, latest version 30 Apr 1998). In: *Cochrane Library*. Oxford: Update Software.

Question

Is a reduction in exposure to dust mite antigen in the home effective for patients with asthma who are sensitive to mites?

Data sources

Studies were identified by searching the the Cochrane Airways Group databases, which contain citations from CINAHL, Medline, and Embase/Excerpta Medica. *Respiration* and *Clinical and Experimental Allergy* were handsearched (1980-96). Bibliographies of relevant articles were scanned, and primary authors were contacted for additional data.

Study selection

Studies in any language were selected if they were randomised controlled trials that compared chemical or physical measures for controlling mites in the home with no treatment in patients with bronchial asthma. A diagnosis of asthma by a physician and confirmation of sensitisation to mites were required.

Data extraction

2 authors extracted data on subjective wellbeing, improvement in asthma symptoms, medication to control asthma, number of sick days, number of unscheduled visits to a physician or hospital, FEV₁ (forced expiratory volume in 1 sec), peak expiratory flow rate, provocative concentration that causes a 20% decrease in FEV₁ (PC₂₀), and results of skin prick testing.

Main results

23 studies involving 686 adults and children met the inclusion criteria (1 study that had 3 groups was treated as 2 separate trials). Follow up ranged from 2-52 weeks (mean 18.6 wks). 13 studies used physical methods to control mites, and 3 reported a reduction in mite exposure (5 studies did not assess mite exposure). 6 studies used chemical methods to control mites, and none reported a reduction in mite exposure. 4 studies used a combination of methods, and 3 reported a reduction in mite exposure. Groups did not differ for number of patients who improved after intervention (5 studies), asthma symptom improvement (7 studies), peak expiratory flow rate in the morning (10 studies) or evening (6 studies), PC₂₀ (8 studies), or medication use (6 studies). Heterogeneity existed among trials for asthma symptom improvement ($p < 0.001$).

Conclusion

A reduction in exposure to dust mite antigen in the home does not lead to an improvement in patients with asthma who are sensitive to mites.

Sources of funding: Nordic Council of Ministers; Hovedstadens Sygehusfaellesskab, Rigshospitalet, Denmark; Sygekassernes Helsefond, Denmark; Swedish Heart Lung Foundation.

For correspondence: Dr P C Gøtzsche, Nordic Cochrane Centre, Rigshospitalet, Department 7112, DK 2200, Copenhagen N, Denmark. Fax +45 35 457007.

A modified version of this abstract appears in Evidence-Based Medicine.

Commentary

Liquid and powder chemicals (acaricides) and physical mite control measures, such as hot water laundering of bedding, reducing humidity, vacuum cleaning, removing stuffed animals, and using air filtration systems, are commonly suggested to patients with asthma who are sensitive to mites.¹ The review by Gøtzsche *et al*, however, shows that the current methods to control dust mites are ineffective. The results of this review differ from another recent review by Custovic *et al*, which concluded that the environmental control of allergens should be an integral part of the management of sensitised patients.² A reason for the discrepancy is that Gøtzsche *et al* limited their review to randomised controlled trials, whereas Custovic *et al* included observational studies as well.

Strengths of this review include a comprehensive search strategy and the exclusion of all non-randomised controlled

trials. The review did not include studies completed after 1996. In 1997, Bahir *et al* published a randomised controlled trial of dust mite avoidance measures for children with asthma who were allergic to dust mites.³ Although they found no improvement in morning and evening peak expiratory flow rates and FEV₁, they did find improvements in symptoms. This and other trials completed since 1996 should be included in an update of the review.

Most of the studies in the review followed up patients for <6 months. Six month and 1 year follow up outcome measurements are needed to evaluate compliance and symptoms. Studies are needed to examine potential sources of mite infestation outside the home (eg, office, school, and daycare) and effects on patient symptoms. Future studies should be larger, have longer follow up periods,

and evaluate other methods of mite control.

Nurse driven patient education continues to provide important building blocks for individualising asthma management and outcomes. Benefits may be enhanced by symptom tracking, efforts to increase compliance with prescribed medication regimens, peak flow monitoring, and regular medical evaluation.

Dianne M Fihe, RNC, BSN
Pulmonary Nurse Clinician
Children's Hospital Medical Centre of Akron
Akron, Ohio, USA

1 Boggs PB. *Sneezing your head off? How to live with your allergic nose*. New York: Simon & Schuster, 1992.

2 Custovic A, Simpson A, Chapman MD, *et al*. *Thorax* 1998;53:63-72.

3 Bahir A, Goldberg A, Mekori YA, *et al*. *Ann Allergy Asthma Immunol* 1997;78:506-12.