

- 15 Mitchell EA, Elliott RB. Controlled trial of an electrostatic precipitator in childhood asthma. *Lancet* 1980;2:559-61.
- 16 Reiser J, Ingram D, Mitchell EB, Warner JO. House dust mite allergen levels and an anti-mite mattress spray (natamycin) in the treatment of childhood asthma. *Clin Exp Allergy* 1990;20:561-7.
- 17 Sette L, Comis A, Marcucci F, Sensi L, Piacentini GL, Boner AL. Benzylbenzoate foam: effects on mite allergens in mattress, serum and nasal secretory IgE to Dermatophagoides pteronyssinus, and bronchial hyper-reactivity in children with allergic asthma. *Pediatr Pulmonol* 1994;18:218-27.
- 18 Verrall B, Muir DCF, Wilson WM, Milner R, Johnston M, Dolovitch J. Laminar flow air cleaner bed attachment: a controlled trial. *Ann Allergy* 1988;61:117-22.
- 19 Walshaw MJ, Evans CC. Allergen avoidance in house dust mite sensitive adult asthma. *Q J Med* 1986;58:199-215.
- 20 Warburton CJ, Niven RM, Pickering CAC, Fletcher AM, Hepworth J, Francis HC. Domiciliary air filtration units, symptoms and lung function in atopic asthmatics. *Respir Med* 1994;88:771-6.
- 21 Warner JA, Marchant JL, Warner JO. Double blind trial of ionisers in children with asthma sensitive to the house dust mite. *Thorax* 1993;48:330-3.
- 22 Zwemer RJ, Karibo J. Use of laminar control device as adjunct to standard environmental control measures in symptomatic asthmatic children. *Ann Allergy* 1973;31:284-90.
- 23 Carswell F, Birmingham K, Oliver J, Crewes A, Weeks J. The respiratory effects of reduction of mite allergen in the bedrooms of asthmatic children: a double-blind controlled trial. *Clin Exp Allergy* 1996;26:386-96.
- 24 Van der Heide S, Kaufmann HF, Dubois AEJ, de Monchy JGR. Allergen-avoidance measures in homes of house-dust-mite-allergic asthmatic patients: effects of acaricides and mattress encasings. *Allergy* 1997;52:921-7.
- 25 Huss K, Squire EN, Carpenter GB, Smith LJ, Huss RW, Salata K, et al. Effective education of adults with asthma who are allergic to dust mites. *J Allergy Clin Immunol* 1992;89:836-43.
- 26 Maesen FPV, Shuysmans FG, Brombacher PJ, Smeets JJ. Ervaringen met het gebruik van luchtfilterapparaat in de woonruimten van voor huisstof overgevoelige atopische patienten. *Acta Tuberc Pneumol Belg* 1977;68:133-47.
- 27 Ihre E, Axelsson IGK, Zetterström O. Late asthmatic reactions and bronchial variability after challenge with low doses of allergen. *Clin Allergy* 1988;18:557-67.
- 28 Ihre E, Zetterstrom O. Increase in non-specific bronchial responsiveness after repeated inhalation of low doses of allergen. *Clin Exp Allergy* 1993;23:298-305.
- 29 Hammarquist C, Burr ML, Göttsche PC. House dust mite control measures in the management of asthma. In: *The Cochrane Library*, Issue 3. Oxford: Update Software, 1998.

(Accepted 28 July 1998)



Science commentary: Hypersensitivity revisited

When someone who is allergic to house dust mites starts wheezing they are experiencing a type I hypersensitivity reaction. Type I reactions occur rapidly and are mediated by IgE antibodies (to the allergen) which bind strongly to the surface of mast cells in the skin. The synthesis of IgE antibodies is triggered by T helper cells (Th 2 cells) which produce a number of inflammatory cytokines in the process. The most important cytokine in these type I responses is interleukin 4.

When the IgE antibodies bind to mast cells they break open and release histamine which causes the clinical symptoms. The clinical response usually stops when the allergen is removed or when the inflammatory response is dampened down by antihistamine drugs or anti-inflammatory drugs. Other type I hyper-

sensitivity reactions include allergic rhinitis, eczema, urticaria, and systemic anaphylaxis.

Type II and type III hypersensitivity reactions are mediated by IgG antibodies. These set off the complement cascade which induces phagocytosis of the allergens. Common examples of these hypersensitivity reactions include reactions to drugs and serum sickness. Type II reactions are directed against antigens on the cell surface; type III reactions are directed against soluble antigens.

Type IV hypersensitivity reactions are mediated by T cells, and tissue damage is caused by macrophages and cytotoxic T cells. Contact dermatitis is a clinical example of a type IV hypersensitivity reaction.

Abi Berger *Science editor, BMJ*

A memorable consultant Perils of opera

"I'm afraid I think that is a carcinoma of the larynx," the ear, nose, and throat consultant leaned over the radiologist to point to an opacity on the barium swallow.

"I have to agree," said the radiologist, taking the film from the screen to study it more closely.

My heart seemed to run south like a nervous squirrel as the implications sank in. Three weeks earlier I had become aware of a vague discomfort in the throat followed some days later, to the evident relief of my colleagues, by an increasing loss of voice.

The ear, nose, and throat consultant put a reassuring hand on my shoulder. "I'll refer you to the top man in this field in London immediately."

A fortnight later I was shown into the Great Man's office. He was seated behind a large clear desk; a small, gnome like man with twinkling eyes. He gestured towards a chair in front of me.

"Sit down young man and tell me the story."

After I had given him what I hoped was the ideal patient history in a hoarse crackly voice, he stood up and came round the desk.

"Let's have a look at you." After a few minutes of gentle probing and the use of light and mirror, he started back round the desk. He stopped at the side tapping his cheek reflectively with his pen.

"Hmm," he said, "I should think your favourite opera is either La Bohème or Faust, though you may perhaps prefer Bellini." I blinked as he resumed his seat. How could he possibly know of my love for La Bohème and Faust or indeed for Bellini. Not for me the weighty paragraphs of Wagner.

"And your favourite singer is probably Bjorling or Gigli or even this new chap Pavarotti," the Great Man went on.

I nodded dumbly, "Bohème and Bjorling," I croaked.

He smiled, "And you always try to join him in that top C in the first act usually while you're in your car."

Balbao viewing the Pacific must have had less of "wild surmise" than I. How on earth could this magical man know this? He answered my look. "Because all you have is a loose left vocal chord which you have abused trying to reach high notes with no training. Speak as little as possible for the next month and all will be well, but please," he paused, "Please don't sing in the car."

There was a sad sequel. Some three months later this marvellous man, Freddie Capps, died quite suddenly. But I was able to then to tell the story in a restored, but alas still baritone, voice. Bjorling remained unchallenged.

James Wright, *retired consultant physician, Yelverton, Devon*