Indoor and outdoor allergens in Bloemfontein

The Free State province of South Africa is traditionally considered to be a haven for outdoor allergens such as grass pollens, which cause severe hayfever symptoms in the grass pollen season, and maize pollens, particularly in the rural areas.

In 1991 Mercer and Van Niekerk reported a house-dust mite skin-prick test positivity rate of 25.7% in an asthma clinic in Bloemfontein,[1] compared with a prevalence of 80% reported in children attending an allergy clinic in coastal Cape Town.[2]

This issue of the *SAMJ* features a new study by Seedat *et al*.[3] on indoor and outdoor allergen sensitisation in the Free State. Not only does the study identify sensitisation to a previously unrecognised outdoor allergen (the spider mite, *Tetranychus urticae*) in the region, but it reports that the sensitisation rate to house-dust mites in patients with allergic rhinitis is a significant 46% for *Dermatophygoides pteronyssinus* and 44% to *D. farinae* using the ImmunoCap RAST.

A second small acaralogical study by Sinclair *et al*.[4] of house-dust mite species in Bloemfontein, also published in this issue of *SAMJ*, found house-dust mite in 50% of the homes investigated at some time of the year, and in 30% mites were present consistently.

The finding of high levels of sensitisation to the spider mite *Tetranychus*, readily explained by the widespread prevalence of the mite in Free State farms referred to by Seedat *et al*.,[3] has also been reported from the Hex River Valley in the studies of Jeebhay.[5] Since many subjects sensitised to spider mite are simultaneously polysensitised to other outdoor and indoor allergens, the clinical significance of such sensitisation has yet to be studied by exposure and challenge studies. There are no vaccines available to desensitise patients to spider mites.

In contrast, immunotherapy for house-dust mite allergens is available by the sublingual and subcutaneous routes for patients sensitised to *D. farinae* and/or *D. pteronyssinus* who do not simultaneously have other significant allergen sensitisations, on a named-patient basis. For patients in the Free State who have persistent rhinitis symptoms outside the pollen season related to the indoor environment, testing for specific mite indoor allergen sensitisation is very important, both for institution of allergen avoidance measures and selection of the appropriate mite-specific avoidance measures, and for selection of the appropriate mite-specific immunotherapy vaccine to offer the patient a chance of cure.

It is interesting to note that Seedat *et al*.[3] found that allergic subjects in the Free State who had previously lived at the coast were significantly more likely to be sensitised to mites than those who had not, emphasising the importance of history taking when selecting allergy test panels for the investigation of allergic patients.

The acaralogical studies of Sinclair *et al*.[4] provide some insight into the variability of the presence of and therefore exposure to mites in Bloemfontein homes, and also illustrates that in some homes very high levels of mites are attained as a result of indoor microclimate factors that raise indoor humidity, such as en-suite bathrooms.

These studies suggest that the relationship between exposure, sensitisation and the expression of clinical allergic disease to house-dust mites is not a simple one and may depend not only on level of exposure but age of exposure and context of exposure.

The sensitisation rates of allergic subjects in the Free State to cockroach species such as *Blatella germanica* (38%), the oriental cockroach (28%) and *Periplanata americana* (22%) are similar to the rates of sensitivity to cockroaches reported by Manjra *et al*.[6] (40% in the Western Cape and Natal and 32% in the highveld of Gauteng). Monosensitisation to cockroach species (in the absence of sensitisation to house-dust mites or grass pollen) is extremely rare in the South African context, and no immunotherapy vaccines are available for cockroach desensitisation.

Studies such as these add to the growing body of published information on allergens and allergies in southern Africa. They emphasise the need for further studies and provide opportunities for curative allergen-specific immunotherapy in carefully selected patients. There is also a great need for adequate education and training of medical students and specialists in the area of regional allergies to raise the standard of allergy treatment in South Africa.

P C Potter

Allergy Diagnostic and Clinical Research Unit
University of Cape Town Lung Institute and
Groote Schuur Hospital
Cape Town

Corresponding author: *P C Potter (Paul.Potter@uct.ac.za)*

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