

Atopic Dermatitis and House-dust Mites

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Atopic dermatitis (AD) is a disease, which may be caused by intrinsic factors including immunological and pharmacological abnormalities and extrinsic factors such as food allergens and other common environmental allergens known as inhalant allergens and irritants.

Previous investigations have shown that AD patients have: 1) a high exposure to house dust mites; 2) that 75% of children with atopic diseases are sensitised to house-dust mites by the age of 10; that AD patients have a relative risk of 1.60 of positive skin tests to house-dust mites when born from May to November in Denmark; 4. patch testing with dust mite antigens for 48 h in superficially abraded skin sites may induce eczematous lesions in AD patients and the cumulative incidence rate has increased from 3% to 10% for the age interval 0-7 years for children born during the period 1960-1964 compared with 1970-1974.

Since the last investigation in 1985 concluded that new and presumable still unknown factors in the environment in our industrialized world must have affected the prevalence of the diseases, the purpose of the present study was to evaluate house-dust mites as possible etiologic agent in AD in a case-control study comparing the occurrence of house-dust mites in dwellings from patients and healthy controls

MATERIAL AND METHODS

Twenty-six AD patients without bronchial asthma were investigated. Eleven (5 men and 6 women aged 12 to 52 years (mean 23)) had mild AD and 15 (3 men and 12 women aged 16 to 38 (mean 27)) had moderate to severe AD according to the score system proposed by Rajka and Langeland.

A second group of 20 non-atopic patients with psoriasis were included as a group of patients with a high production of skin scales.

As a control group 41 healthy persons were investigated. These were randomly selected from the Municipal Register in Århus and were all living in the same geographic area as the AD patients.

In all the homes dust samples were collected during the period April to May 1987 by vacuum cleaning mattress surfaces and bedroom floor.

All AD patients were skin prick tested using 5 HEP (Histamine Equivalent Prick) extracts of *Dermatophagoides pteronyssinus*.

RESULTS

The median and inter quartile ranges (IQR) of the concentrations of house-dust mites in 0.1 g dust samples from the two locations in the three study groups are shown in Table I.

When moderate to severe AD patients were compared to the controls the exposure to house-dust mites in the mattresses corresponded to a relative risk of 4.6 and a clear dose-response relationship with an in-

Table I

	Atopic Dermatitis		Psoriasis	Control
	Mild	Moderate		
Mattress	1	85	19	8
IQR	(0-12)	(11-136)	(1-59)	(1-89)
P	NS	$p < 0.01$	NS	
Bedroom floor	2	42	14	9
IQR	(0-18)	(11-116)	(0-152)	(1-115)
p	NS	NS	NS	
No	11	15	20	41

creasing relative risk with increasing exposure could be demonstrated.

The result of the prick test with house-dust mites showed 4 positive reactions among the patients with mild eczema and 8 positive in the other group.

CONCLUSIONS

There is a high concentration of house-dust mites in mattress dust in beds of atopic dermatitis patients with moderate to severe eczema.

The scale production did not seem to influence the concentration of house-dust mites in mattress dust.

The severity of eczema seems to depend on the concentration of mite antigen in the mattress dust.