

Short communication

Human proteins in house dust

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A. M. Witteaman^{1,2}, J. van Leeuwen¹,
G. J. Perdok¹, J. S. van der Zee², S. O.
Stapel¹, R. C. Aalberse¹

¹Central Laboratory of The Netherlands Red

Cross Blood Transfusion Service and

²Department of Pulmonology, Academic
Medical Centre, University of Amsterdam

Prof. Dr R. C. Aalberse

c/o Publication Secretariat

Central Laboratory of The Netherlands Red

Cross Blood Transfusion Service

P.O. Box 9406, 1006 AK Amsterdam

The Netherlands

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Allergen analyses of house dust samples are useful for investigations of the role of indoor allergens in population-based studies and for the assessment of

allergen exposure of individual patients (3–5). Allergen levels are generally expressed as amounts per g dust. A drawback of this method is that dust often

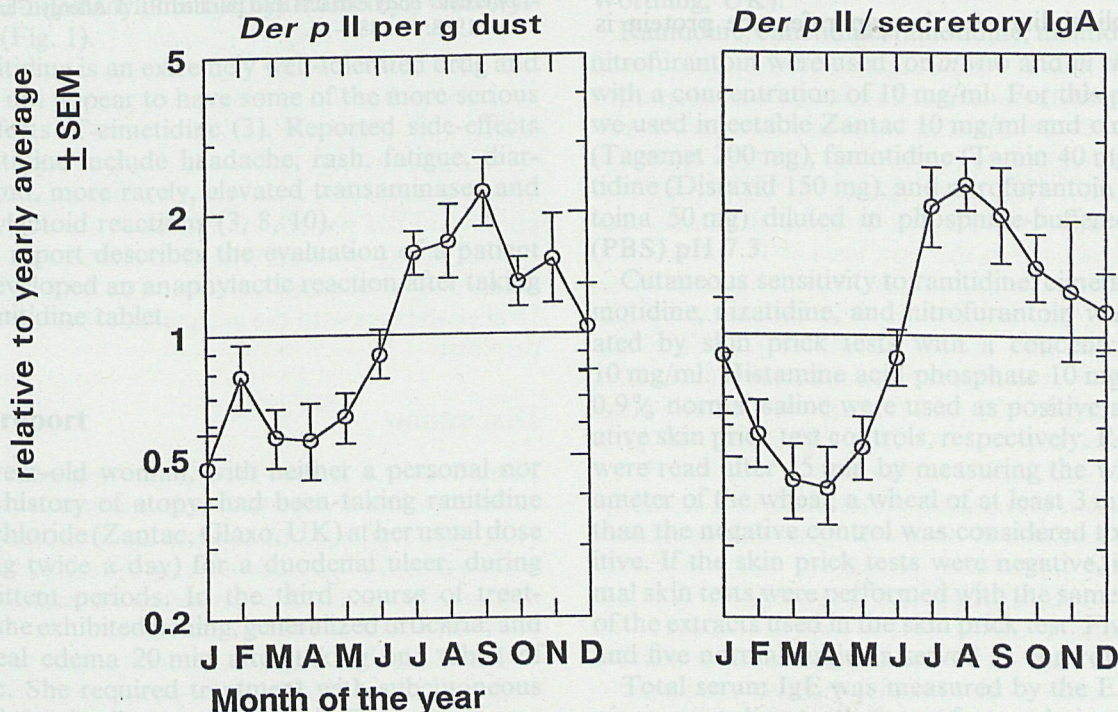


Fig. 1. Seasonal influences on the amount of *Der p* II, expressed per µg secretory IgA and per g dust.

contains varying amounts of relatively heavy material, such as sand, which influences the calculated allergen contents. This is especially problematic when small changes in allergen content are to be measured. Sieving cannot separate this irrelevant material from allergen-containing particles.

One possible way to circumvent this problem is to relate the allergen content of a dust sample to the amount of human proteins present in the sample. To investigate the use of human proteins as reference components, we measured human albumin, secretory IgA, and a 12–14-kDa protein from human dander (6) in floor dust from seven bedrooms, collected by vacuum cleaning in a standardized way. After preparation of 10% dust extracts (w/v), we determined albumin and human dander protein by application of a competitive RIA, using radiolabeled albumin or human dander protein and rabbit antibodies to these components (1). We measured secretory IgA by a sandwich assay, using a polyclonal antibody to the secretory component as capturing agent, and radiolabeled anti-IgA for detection of bound IgA.

Recently, an ELISA for determination of secretory IgA, with a murine-monoclonal antihuman secretory piece has become available (2).

The following results were obtained:

Secretory IgA, median 92 μg per g dust (range 8–353).

14-kDa protein, median 285 μg per g dust (range 2–600).

Albumin, median 170 μg per g dust (range 40–301).

The applicability of a human reference protein is

illustrated in Fig. 1, which shows seasonal influences on the allergen level in house dust. The amount of *Der p* II was determined in monthly dust samples from 13 houses by a noncompetitive sandwich assay (7). Allergen levels were expressed per g dust as well as per μg secretory IgA. We found no seasonal effect for secretory IgA.

On the basis of these results, we feel that when the aim of the investigation is to measure changes in time in one location, it is better to express the amount of allergen per μg human protein.

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