HOUSE DUST MITES AND ALLERGIC MANIFESTATIONS AMONG SOME CHILDREN IN DAMMAM, SAUDI ARABIA

By

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Abstract

The house dust mites is (=HDM) still one of the many causes of allergy, particularly atopic dermatitis. In the houses of children who were suffering allergic manifestations as atopic dermatitis, respiratory allergy, bronchitis, skin rash and fever. Double manifestations with fever were reported in four children. In the present study, two types of mites were recovered, Dermatophagoides farinae and Ornithonyssus bacoti. The immunoglobulins (G, M, A & E) as well as complements (C3 & C4) were measured in the patients and cross-matched controls. The complements did not show any significant difference among patients and controls. Elevation was detected in IgG and IgM, but not in IgA. However, high significant elevation was in IgE. The results were discussed on the light of regional work.

Introduction

The term HDM is generalized to all species of mites which are found in the house dust causing the allergic dermatitis, respiratory problem and others (Morsy et al., 1994, Chang et al., 1998). House dust mites (HDM) have been shown to be important sources of indoor allergens associated with different allergic conditions among mite sensitive patients, such as extrinsic bronchial asthma, allergic rhinitis and atopic dermatitis (Bahceciler et al., 2005), as well as mild fever, lymphadenitis and highly significant elevation of IgM (Morsy et al., 1995). The
role of HDM in relation to allergic disorders of the respiratory tract stimulated scientists worldwide to increase efforts as a fundamental health problem. The importance has been growing considerably than before since their public health hazards are increasing. The dead mites, their glandular excretion, reproductive products and fecal excreta are the source of active dust allergens. These allergens have been encountered at different indoor sites, mainly on mattresses, pillows, blankets, carpets and bedroom floors (Causer et al., 2004; da Silva et al., 2005).

This study aimed at identification of the house dust mites (HDM) in the houses of children with different allergic manifestations in Damman district, and to identify the serum levels of the immunoglobulins (G, M, A, & E.) and complements (C3 & C4).

**Patients, Materials and Methods**

The indoor house dusts were collected from houses of allergic children (5-15 years of both sexes) with an electric vacuum cleaner. The house dust samples were kept in separate labeled plastic bags and transported immediately by the car to the microbiologic laboratory of King Faisal College of Medicine. The method was essentially the same as given by Gamal-Eldin et al. (1982). In the laboratory, the mites from each plastic bag were separately isolated from house dust by the modified Berlese funnel method (Morsy et al., 1994). Mites were picked up from the water surface with a fine needle, added by and mounted in Hoyer’s medium (Pritchard and Kruse, 1982). After drying and hardening at 45°C for 7-10 days, mites were examined by sex and species according to the standard Keys given by Baker et al. (1955) and Lane and Crosskey (1993).

On the other hand, whenever possible, blood samples were taken, after complete approval of the children’s fathers left at room temperature for at least an hour and the sera were separated by centrifugation. The level of immunoglobulins (G, M & M.) and complements (C3 & C4) were estimated by using the commercially available single immunodiffusion plates (Hoechst, Germany). The method adopted was essentially the same as given by Manecini et al. (1965). For the IgE serum level the
found no significant difference between \( C_1 \) and \( C_4 \) and controls. Roitt (1978) stated that the complement is a cytocidal reaction system activated by antigen antibody complex through the classical pathway or other substances through alternative ways. He added that its real values varied depended on the sampling time of the disease activity.

In the present study, the immunoglobulins (G., M. & E but not A) significantly increased particularly IgE. The IgG and IgM showed significant increase in Arthropod-dermatitis due to scabies (Hancock and Ward, 1974; Abo-Shady et al., 1985; Morsy et al., 1993) and fleas' bite (Abo-Gamra et al., 1992). Also, significant increase in the serum levels of IgG and IgM was reported in other parasites as cutaneous leishmaniasis (Morsy et al., 1987) and helminthes (Johannson, 1967). So, both were not specific indication for HDM infestation. On the other hand, IgE showed high significant elevation. This IgE was considered as a minor component of normal serum and its antibody being associated with allergy. Many helminthes and protozoan infections as well as ectoparasites activate IgE production (Johannson et al., 1972). However, the IgE level atopic dermatitis due to HDM was normal (Krafchik, 1983). Uehara (1985) reported that IgE level greater than 2000 IU/ml was supportive for HDM allergy.

In the present study, the 44 children with allergic manifestations had symptoms in a descending order; atopic dermatitis, respiratory allergy, bronchitis, skin rash and mild fever. A combination of any symptoms and mild fever were encountered in four children. Allergy caused by HDM was reported by many authors in Kuwait (Gamal-Eddin and Hamad, 1992), in Egypt (Morsy et al., 1994; 1995) and abroad (Chang et al., 1998; Causer et al., 2004; da Silva et al., 2005). Most of these authors reported that the most common allergic manifestations due to HDM were atopic dermatitis followed by respiratory allergy.

References


