

## Original Research Article

# Skin prick test positivity to house dust mites (HDM) in patients with chronic urticaria

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### ABSTRACT

**Background:** The urticaria lasting for more than 6 weeks is termed chronic urticaria. The etiology of chronic urticaria and angioedema remains uncertain in most of the patients. Aeroallergens can induce or exacerbates chronic urticaria. The common aeroallergens are house dust mites (HDM), pollens, moulds, etc. House dust mites can trigger immunological process through ingestion, inhalation or inoculation. These mite allergens are resistant to high temperatures, and do not lose their antigenic property even on cooking. HDMs can also cause worsening of existing atopic dermatitis. Skin test with HDMs is well known to cause irritation due to their proteolytic enzymes. The study was undertaken with the objective to study the skin prick test positivity to house dust mites in patients with chronic urticaria.

**Methods:** The study was done on 56 consecutive patients of clinically diagnosed cases of chronic urticaria attending the OPD. The skin prick test was done according to the standard protocol.

**Results:** We had a total of 56 patients with chronic urticaria, of which males were 30 and females were 26 with a male to female ratio of 1:0.8. Of the 56 patients with chronic urticaria skin prick test to HDM was seen in 8 (14.2%) patients. *D. pteronyssinus* 6 (10.7%) constituted the majority among the HDM positivity followed by *D. farinae* 2(3.5%). We also found skin prick test positivity to pollens, moulds and animal dander in 5, 4 and 2 patients respectively.

**Conclusions:** House dust mites can cause or trigger the urticarial symptoms and one should consider to do skin prick test to HDM in identifying the cause and thereby relieving the symptoms of urticaria on its avoidance.

**Keywords:** House dust mite, Skin prick test

### INTRODUCTION

The urticaria lasting for more than 6 weeks is termed chronic urticaria. The etiology of chronic urticaria and angioedema remains uncertain in most of the patients. Aeroallergens can induce or exacerbates chronic urticaria. The common aeroallergens are house dust mites (HDM), pollens, moulds etc. House dust mites can trigger immunological process through ingestion, inhalation or inoculation. These mite allergens are resistant to high

temperatures, and do not lose their antigenic property even on cooking. HDMs can also cause worsening of existing atopic dermatitis. Skin test with HDMs is well known to cause irritation due to their proteolytic enzymes.<sup>1,2</sup> Since there are paucity of results showing the correlation between the skin prick positivity in patients with chronic urticaria, the being undertaken. The objective of the present study was to analyse the skin prick test positivity to house dust mites in patients with chronic urticaria.

## METHODS

The study was done on 56 consecutive patients of clinically diagnosed cases of chronic urticaria attending the dermatology OPD at Ramaiah Medical College during 2013 to 2015 were included for the study. The skin prick test to house dust mites was done according to the standard protocol, using the test kit obtained from Creative diagnostics, Mumbai.

The medial aspect of the forearms and the upper arms were cleaned and test sites for placing the allergens were marked using a marker 2-3 cm away from the wrist and antecubital fossae. Distance between two allergens was kept at 2 cm to avoid false positives either due to direct contamination or due to axon reflex. A drop of each allergen was placed on the skin and was pricked with a lancet to introduce the allergen. Equal pressure was applied for all the allergens. Histamine dichloride (10 ng/ml or 0.1%) was used as a positive control and saline as negative control. Results were read after 20 minutes. Wheals at the test site were compared with the wheal produced at the positive control site. Largest diameter of the wheal was measured using a plastic scale provided along with the test kit. A wheal of 2 mm more than positive control was considered as positive. Negative control was used to rule out any dermographism.<sup>8</sup>

### Statistical analysis

Data obtained was analyzed using IBM SPSS 20.0.

## RESULTS

We had a total of 56 patients with chronic urticaria, of which males were 30 and females were 26 with a male to female ratio of 1:0.8. Of the 56 patients with chronic urticaria skin prick test to HDM was seen in 8 (14.2%) patients. *D. pteronyssinus* 6 (10.7%) constituted the majority among the HDM positivity followed by *D. farinae* 2 (3.5%). We also found skin prick test positivity to pollens, moulds and animal dander in 5, 4 and 2 patients respectively as shown in Table 1.

**Table 1: Demographic data and SPT positivity to HDM and others.**

Variables	No. of cases	Percentage
<b>Sex</b>		
M	30	
F	26	
<b>Skin prick test positivity</b>		
HDM	8	14.2%
<i>D. pteronyssinus</i>	6	10.7%
<i>D. farinae</i>	2	3.5%
Pollen	5	8.9%
Moulds	4	7.1%
Animal dander	2	3.5%

## DISCUSSION

The urticaria lasting for more than 6 weeks is termed chronic urticaria. The etiology of chronic urticaria and angioedema remains uncertain in most of the patients. The GI, infections, ingestants, inhalants, injectants, implants, irritants can provoke urticaria symptoms. Aeroallergens can induce exacerbations of chronic urticaria. In addition, the possible role of house dust mites (HDM) has been considered in a few reports. HDMs can trigger immunological process through ingestion, inhalation or inoculation. Ingestion of contaminated food, more commonly wheat flour can cause anaphylaxis. These mite allergens are resistant to high temperatures, and do not lose their antigenic property even on cooking. Contact urticaria due to HDMs is a common manifestation. HDMs can also cause worsening of existing atopic dermatitis. Skin test with HDMs is well known to cause irritation due to their proteolytic enzymes. Many patients with chronic urticaria worry that foods or other allergens are responsible for their urticaria. Skin prick testing may be one of the investigations used to provide a clear illustration.<sup>1-3</sup>

In our study 14.2% of patients with chronic urticaria showed a positive skin prick test to HDM. Of which *D. pteronyssinus* (10.7%) constituted the majority followed by *D. farinae* (3.5%). These results were almost similar to that obtained by Nath et al (12%) on patients with chronic idiopathic urticaria. In a study by Caliskaner et al skin prick test positivity to house dust mites was seen in 24.7% of patients with chronic idiopathic urticaria without allergic rhinitis and/or asthma. Gafari et al in their study on 78 subjects showed a positivity of 36% each among *D. pteronyssinus* and *D. farinae* among those who showed a positive skin prick test.<sup>4-6</sup>

In our study skin prick test to pollens (8.9%) was next to house dust mites. This was followed by moulds (7.1%) and animal dander (3.5%). Caliskaner et al, in their study had a positivity rate of 7.7%, 0.4% and 0.8% respectively to pollens, molds and cockroach. However we did not encounter any patient with positive skin prick test to cockroach. Tezcan et al in their study showed that, most of their patients (54%) had positivity to grass pollen.<sup>4,7</sup>

## CONCLUSION

House dust mites can cause or trigger the urticarial symptoms and one should consider to do skin prick test to HDM in identifying the cause and thereby relieving the symptoms of urticaria on its avoidance.

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