Mahidol University

Faculty of Medicine

Siriraj Hospital

The correlation between intradermal testing and serum specific IgE to house dust mite in negative skin prick test allergic rhinitis adult patients

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Pongsakorn Tantilipikorn,[1] Piyanart Danpornprasert,[1] Premyot Ngaotepprutaram,[1] Paraya Assanasen[1] Chaweewan Bunnag[1] and Bandit Thinkhamrop[2]

Summary

Background: **Diagnosis of allergic rhinitis (AR) is based on history, physical examination, and skin prick test (SPT) while intradermal (ID) test can be performed to confirm the diagnosis in case of negative result of SPT. However, the ID test is not recommended for cat and timothy grass allergy because of its high false positive rate. As a result, the "quantitative" technique of serum specific IgE (sIgE) measurement might be helpful to diagnose AR with more confidence.**

Objectives: **To evaluate the correlation between ID tests and sIgE in the diagnosis of house dust mite (HDM)-sensitive AR patients.**

Methods: **Patients with chronic rhinitis (CR) were recruited and SPT was performed. If SPT was *negative*, ID test and sIgE to HDM [*Dermatophagoides pteronyssinus (Dp)*] measurement were performed.**

Results: **Eighty-two patients with chronic rhinitis (CR), whose SPTs were negative for Dp, were included. There were 39 males (47.6%) and 43 females (52.4%) aged between 18 and 76 years old (mean age = 43.3 years). The ID test was positive in 13 patients (15.9%), and was negative in 69 patients (84.1 %). sIgE to HDM was positive (≥ 0.35 kUA/l) in 2 patients (2.4%). There was a fair to moderate correlation between the size of wheal of ID test and sIgE to HDM (r = 0.44, 95% confidence interval: 0.19 to 0.67, $p < 0.01$).**

Conclusion: **ID test has a fair to moderate correlation with sIgE *Dermatophagoides pteronyssinus* and it can be used in CR patients with negative SPT where sIgE is not feasible. *(Asian Pac J Allergy Immunol 2015;33:308-11)***

Keywords: *allergic rhinitis, skin prick test, intradermal test, specific immunoglobulin E, house dust mite*

From 1. Department of Otorhinolaryngology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand.

2. Department of Biostatistics and Demography, Faculty of Public Health, Khon Kaen University, Khonkaen, Thailand.

Corresponding author: Bandit Thinkhamrop

E-mail: bandit@kku.ac.th

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Introduction

Most allergic diseases are caused by the antigen and immunoglobulin E (IgE) antibody reaction. Allergic rhinitis (AR) is the most common allergic disease. Its prevalence ranges from 10 to 30% in adults, and up to 40% in children.[1] Allergic inflammation is caused by the contact of airborne allergens with the nasal mucosa, leading to IgE-mediated type I hypersensitivity. The symptoms of AR include nasal congestion, rhinorrhea, sneezing and itching. These symptoms are similar to those caused by non-allergic nasal inflammation. To precisely diagnose AR, skin prick test (SPT) is the preferred technique because it is relatively non-traumatic and reproducible.[2]

But when there is a conflicting result between SPT and the clinical symptoms, nasal allergen provocation test (NAPT) can be used to reveal the existence of IgE-mediated nasal inflammation. Until now, there is no consensus on positive criteria of NAPT and this technique is time-consuming and required sophisticated instruments for airflow measurement.

Intradermal (ID) test is usually done in patients who are suspected to have venom and drug allergy.[1] ID test is also used for aeroallergen that show negative SPT, yet allergy being suspected following examination of the environmental history. For instance, all of our AR adult patients are exposed to

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Assoc. Prof. Dr. Pongsakorn Tantilipikorn
Department: Otorhinolaryngology
Field of interests: Respiratory Medicine, Clinical Immunology, Allergology
Contribution: First author

Piyanart Danpornprasert
Department: Otorhinolaryngology
Field of interests: Otolaryngology, Allergy
Contribution: Co-author

Dr. Premyot Ngaotepprutaram
Department: Otorhinolaryngology
Field of interests: Allergology, Otolaryngology
Contribution: Co-author

Assoc. Prof. Dr. Paraya Assanasen
Department: Otorhinolaryngology
Field of interests: Respiratory Medicine, Pulmonology, Sleep Medicine
Contribution: Co-author

Emeritus Prof. Dr. Chaweewan Bunnag
Department: Otorhinolaryngology
Field of interests: Rhinology and Allergology
Contribution: Co-author

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Table 1. Results of intradermal test (ID test) and specific IgE (sIgE) in 82 subjects whose skin prick test were negative.

	sIgE +	**sIgE -**	**Total**
ID test +	1	12	13
ID test -	1	68	69
Total	2	80	82

Table 2. Comparison of results obtained by intradermal test (ID test) and sIgE from the immunoCAP system.

Concordant result		**Discordant result**	
ID+/sIgE+	ID-/sIgE-	ID+/sIgE-	ID-/sIgE+
1	68	12	1