Qi-deficiency in the Patients with Allergic Disorders

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■ **Introduction** Allergy refers a hypersensitive immune response to the various environmental factors and Qi is considered as vit al energy to defend oneself from environments in Traditional Chinese Medicine. Therefore, this study was performed to assess the relationship between allergy and Qi-deficiency

■ **Methods** We enrolled the subjects with allergic disorders and the healthy controls without allergic disorders. We got the information on the general characteristics, and the score of Qi-deficiency from all of the subjects, and measured their total Immunoglobulin E(IgE) level.

■ **Results** There were one hundred forty three subjects with allergic disorders and 211 of the control. The educational level, total IgE, and the scores of the Qi-deficiency were higher in the allergy group than in the control.

■ **Conclusion** Allergic subjects tend to have more severe Qi-deficiency. This could suggest the clinical effectiveness of some herbal medicines for Qi-deficiency on allergic disorders.

■ **Key words** Qi-deficiency, Allergy, Total IgE

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❏ Introduction

An allergy is a hypersensitivity disorder of the immune system. It is the condition when normally harmless substances exaggerate immune re-action resulting in various symptoms such as skin problems, rhinitis, bronchial asthma, conjunctivitis, and anaphylaxis. In clinics, many allergic patients suffer from general weakness and being caught by cold frequently. These can be seen easily in the patients with Qi-deficiency. From the point of the view of Traditional Chinese Medicine(TCM), one of the fundamental functions of Qi is to defend oneself from the various environmental factors and be closely related with immunity. Therefore, we conducted this study to find out the relationship between allergy and Qi-deficiency.

❏ Methods

The study subjects with allergic disorders were recruited on December 2014, in Hospital of Korean Medicine, Kyung Hee University, Seoul, Korea. The diagnosis of allergic disorders was made from the corresponding symptoms[1, 2] or having anti-allergic treatment history. Diagnosis of hypertension, diabetes mellitus, and hyperlipidemia was assigned for subjects already receiving treatment or when the World Health Organization diagnostic criteria were fulfilled at the time of enrollment. As for the control, we enrolled healthy subjects without allergic disorders from the same hospital during the same period. Relevant information on past medical history, smoking habits, allergic family history(parents, brothers/sisters, and direct descendants), and the questionnaire of Qi-deficiency were obtained from all subjects. The Institutional Research Board(IRB) of Kyung Hee Medical Center approved this study in November 2014(KOMCIRB-140821-HR-003). Informed con-

sensus and blood samples were obtained from the subjects after a full explanation of this study at the moment they were enrolled. And then blood serum were frozen at -80℃ until use after being extracted by centrifugation. FEIA(Fluorescence Enzyme Immunoassay) was performed by ImmunoCAP®(Phadea, Sweden) to detect total IgE level.[3] To assess the significant difference between the two groups, we used Mann-Whitney U test for continuous variables, and chi-square test for categorical variables. P-value under 0.05 was considered as significant. The analysis was performed using SPSS for Windows, version 12.0(SPSS Inc., Chicago, Illinois, USA).

❏ Results

Of the total 183 subjects with allergic disorders, there were 69(32.7%) of urticaria, 79(37.4%) of allergic rhinitis, 5(2.4%) of bronchial asthma, 4(1.9%) of anaphylaxis, and 26(12.3%) of multi-symptoms. The number of the control subjects without allergy was 211, and the general characteristics of the two groups are shown in Table 1. There was no significant difference in age, gender, and Body Mass Index(BMI) between the two groups except the educational level. Naturally, having allergic family history was more common in the allergy group than in the control(P<0.001). Also, the means of total IgE level and the scores of the questionnaire of Qi-deficiency were higher in the allergy group than in the control(P=0.019, and P<0.001 respectively).

❏ Discussion

In this study, the subjects' general characteristics were not significantly different between the two groups. However, the educational level was higher in the allergy group than in the control(P=0.005).

Table 1. Comparison between the allergy and the control group

	Allergy group (n=183)	Control group (n=211)	P-value
Age	40.3 ± 11.9	43.3 ± 14.4	N.S.
Gender, male/female	45/138	67/144	N.S.
BMI(kg/m^2)	22.3 ± 2.9	22.5 ± 3.0	N.S.
Education (%)			0.005
very low(≤13)*	2 (1.1)	7 (3.3)	
low(14-16)	4 (2.2)	13 (6.2)	
middle(17-19)	46 (25.1)	46 (34.1)	
high(≥20)	131 (71.6)	117 (55.5)	
Medical history (%)			
Hypertension	13 (7.1)	20 (9.5)	N.S.
Diabetes	5 (2.7)	5 (2.4)	N.S.
Dyslipidemia	8 (4.4)	4 (1.9)	N.S.
Heart diseases	1 (0.5)	0	N.S.
Smoker(%)	19 (10.4)	27 (12.8)	N.S
Family history(%)	51 (27.9)	14 (6.6)	<0.001
Total IgE(IU/ml)	198.8 ± 491.6	139.4 ± 285.1	0.019
Qi deficiency	70.1 ± 16.3	58.0 ± 19.6	<0.001

BMI: Body Mass Index.
N.S.: Non Significant
*: Age at which studies were finished.
P-values were calculated by Mann-Whitney U test for continuous variables and Chi-square test for categorical variables.

Although the relationship between allergy and educational level is not fully understood yet[4], some previous studies reported that the subjects in higher socio-economic status were prone to have allergic disorders more than those in lower socio-economic status.[5-7] And our finding is in accordance with those results.

Although we can hardly diagnoses allergic disorders by total IgE level alone,[8] It tends to be higher in patients with allergic disorders, and is reported to be associated with the manifestation of clinical allergic symptoms and poor outcome, [9-12]. So, it was used as a predictor of future responders to anti-allergic treatment.[13, 14] The result of this study is in line with the previous reports, showing that the subjects with allergic disorders had higher level of total IgE than the control(P=0.019).

Allergic disorders such as urticaria, allergic rhinitis, bronchial asthma, conjunctivitis, and anaphylaxis are the results from the hyper or inadequate immune response to the various environmental factors. In TCM, one of the most representative functions of Qi is to defend one's own body from the toxic or organic harmful environments. So we thought that allergic disorders have a close relationship with Qi-deficiency. To assess Qi-deficiency, we used the Qi-deficiency questionnaire developed by Yoon in 2007.[15, 16] It consists of 19 items rated on the following 7-point Likert scale: 1=disagree very strongly; 2=disagree strongly; 3=disagree; 4=neither agree nor disagree; 5=agree; 6=agree strongly; and 7=agree very strongly(Appendix 1). The Qi-deficiency score of each subject was calculated by summing the scores of each item. Higher score means more severity of Qi-deficiency. As noted, this study

identified that the allergic subjects tend to have more severe Qi-deficiency by showing that the mean score of Qi-deficiency in the allergy group was higher than that in the control(P<0.001).

further studies to prove the clinical effectiveness of some herbal medicines, which have been used for Qi-deficiency, on allergic disorders near the future.

❏ Conclusions

We confess that this is a just observational study which showed the relationship of allergy and Qi-deficiency. However, considering this is the first trial to assess Qi-deficiency in the allergic subjects, it would be a basic point of the advanced

❏ Acknowledgment

Appendix 1. Questionnaire of Qi-deficiency

	1	2	3	4	5	6	7
Do you catch cold oftenly?							
Does your cold keep up for a long time?							
Do you have a hoarse throat after much talking?							
Do you overwork yourself?							
Are you under stress because of your work?							
Is your work hours irregular?							
Do you have a poor appetite?							
Do you have an indigestion?							
Do you feel heavy or weak on your limbs?							
Do you have trouble in standing or walking for a long time?							
Do you feel weak after skipping your meal?							
Do you feel languid or tired after meals?							
Do you feel pain after working?							
Do you always feel tired or languid?							
Do you feel short of breath after working?							
Do you oftenly have fever?							
Do you ofternly have sunken voice?							
Does your memory go from bad to worse?							
Do you have a pulling down feeling on you anus?							

7-point Likert scale: 1=disagree very strongly; 2=disagree strongly; 3=disagree; 4=neither agree nor disagree; 5=agree; 6=agree strongly; and 7=agree very strongly

◆ **Reference**

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