

Original Articles

## The Effect of a Cooperative System of Oriental and Western Medicine in the Treatment of Allergic Rhinitis

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**Background and Purpose :** Allergic rhinitis is a well-known, relatively controllable chronic disease.

Although a number of methods for treating allergic rhinitis have been tried, many patients have not been satisfied with their treatment. Therefore, this study tried to evaluate the effect of a cooperative system of Oriental and Western medicine and to develop a new diagnosis protocol for treatment of allergic rhinitis.

**Methods :** We measured improvement rate and acoustic rhinometry after the allergeninduction test and performed a filter paper test as a nonspecific hypersensitivity test with 60 patients who are allergic to house dust mite. Patients were divided into two groups, one treated with Western medicine only and one treated with both Western and Oriental herbal medicine. For the group with Western medicine only, antihistamine for one week and local steroid medicine for two weeks were prescribed. For the group with combined medicine, Oriental herbal medicine was prescribed according to the patient's constitution, along with Western medicine. After all treatments, the above tests were re-performed and the improvement rate was compared.

**Results and Conclusion :** We observed better results in the group treated with both Western and Oriental herbal medicines, comparing improvement rate and the alteration of total nasal volume through acoustic rhinometry after the allergen induction test. In the filter paper test, there was no significant difference between the two groups.

In conclusion, we showed the additive effect of Oriental herbal medicine without any severe side effects compared with treatment with Western medicine only. In this study, we set only two patient groups, but further study is required to create various experimental groups and compare among them. We suggest that it might enhance understanding of the improved effect of Oriental herbal medicine in the therapy of allergic rhinitis. (*Korean J of Oriental Med* 2003;24(4):64-70)

**Key Words:** allergic rhinitis, Western-Oriental cooperative medicine

### Introduction

Allergic rhinitis is defined as any allergic reaction of

the nasal mucosa which may occur perennially or seasonally. It is characterized by sneezing, swelling of the nasal mucosa with a profuse watery discharge, itching of the eyes, and lacrimation.

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Generally, medication, immunotherapy, surgical therapy, or environmental control are applied for patients with allergic rhinitis. Although non-sedating antihistamines, antagonists of leukotrienes and tronboxane A<sub>2</sub> have been developed, there still remain

some patients refractory to these drugs or reluctant to take them because of their adverse effects. It is also disadvantageous for patients who receive immunotherapy to require repeated visits to physicians<sup>1-3)</sup>.

A number of Oriental herbal medicines have been tried to treat allergic rhinitis, but there are still many controversies concerning their use. Because there are not enough clinical tests or standards of diagnosis for allergic rhinitis, it is too difficult to decide upon it. Also, we should consider formulation and cost of medicines, which can limit long term therapy. Recently, alternative medicine has been recommended alongside Western medicine. However, this requires more studies for standardization and systemization of allergic rhinitis, because objective clinical tests have not been carried out for most therapies for allergic rhinitis with Oriental herbal medicine.

Therefore, this study tried to evaluate the effect of a cooperative system of Oriental and Western medicine and to develop a new diagnosis protocol to treat allergic rhinitis. We analyzed the complementary relationship between Oriental herbal medicine and Western medicine and compared their effects. Also, clinical tests, which are normally used in Western medicine, were applied to Oriental medicine.

We suggest that these results might be help to reduce medical cost by preventing double diagnosis of Oriental and Western medicine.

## Materials and methods

### 1. Patients

60 patients (30 treated with both Western and Oriental Korean herbal medicine and 30 patients treated

with Western medicine only) suffering from allergic rhinitis were included in this study according to selection and exclusion criteria.

#### 1) Selection criteria

Patients allergic to house dust mite were selected according to selection criteria of Table 1, 4.

#### 2) Exclusion criteria

Patients whose results could be affected by other diseases, such as infectious sinusitis or nasal polyp, recent steroid therapy or antihistamine therapy, pregnancy, and other general diseases, were excluded.

## 2. Clinical test

### 1) Development of diagnosis protocol and procedure of clinical test

Protocols for this study were developed in a seminar of Kang-Nam Hospital and Kang-Nam Oriental Hospital, Dong-Guk University. Treatment with Western medicine was performed in the Department of Otolaryngology, Kang-Nam Hospital. For treatment with combined medicine, clinical testing was performed at Kang-Nam Oriental Hospital, Dong-Guk University, and then Oriental herbal medicine was prescribed with Western medicine.

#### 2) Test items

##### (1) Past history and physical exam

Sinusitis and past history of nose surgery were investigated and nasal cavity test and general physical exam were performed.

##### (2) Symptom index

Symptom levels of patients were evaluated for 5 symptoms related to allergic rhinitis, rhinorrhea, sneezing, nasal obstruction, nasal itching, and postnasal drip, using a visual analog scale<sup>5)</sup> (Table 2).

**Table 1.** Diagnosis Criteria of Allergic Rhinitis

|   |
|---|
| 1) Existence of specific symptom of allergic rhinitis (See 'Symptoms of allergic rhinitis')           |
| 2) Increase of total and specific IgE of MAST test or positive reaction of allergy skin reaction test |

**Table 2.** Evaluation of Symptoms of Allergic Rhinitis

|                        |            |   |   |   |   |   |   |   |   |   |   |    |             |
|------------------------|------------|---|---|---|---|---|---|---|---|---|---|----|-------------|
| 1) Rhinorrhea (snivel) | No symptom | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | very severe |
| 2) Sneezing            | No symptom | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | very severe |
| 3) Nasal obstruction   | No symptom | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | very severe |
| 4) Nasal itching       | No symptom | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | very severe |
| 5) Postnasal drip      | No symptom | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | very severe |

**Table 4.** Combined Medicine Treated Group

| Phase<br>Test items  | I            | II                                | III                                 |
|--|--------------|-----------------------------------|-------------------------------------|
|  | Pretreatment | During<br>treatment<br>First week | Posttreat<br>ment<br>Second<br>week |
| Past History   | ○            |                                   |                                     |
| Physical Exam.   | ○            | ○                                 | ○                                   |
| Laboratory Exam.   | ○            |                                   |                                     |
| Exam. for the <i>Sasang</i><br>constitution classification | ○            |                                   | ○                                   |
| PNS X-ray  | ○            |                                   |                                     |
| Visual Analogue Scale                                      | ○            | ○                                 | ○                                   |

(3) Laboratory test

Allergic test was confirmed by MAST test or allergic skin reaction test, and an allergen-specific provocation test was performed by stimulating with confirmed allergen to intranasal concha nasalis inferior. Before and after induction-reaction test, nasal minimal cross-

**Table 3.** Western Medicine Treated Group

| Phase<br>Test items   | I            | II                                | III                                 |
|-----------------------|--------------|-----------------------------------|-------------------------------------|
|                       | Pretreatment | During<br>treatment<br>First week | Posttreat<br>ment<br>Second<br>week |
| Past History          | ○            |                                   |                                     |
| Physical Exam.        | ○            | ○                                 | ○                                   |
| Laboratory Exam.      | ○            |                                   | ○                                   |
| PNS X-ray             | ○            |                                   |                                     |
| Visual Analogue Scale | ○            | ○                                 | ○                                   |

sectional area (MCA) was determined by sound nasal draft test, total nasal capacity measured, and then compared<sup>6,7)</sup>. Also, a filter paper test was performed to measure nonspecific hyperreactivity<sup>8)</sup>.

(4) Radiation test

PNS X-ray test was performed to exclude combined sinusitis.

(5) Examination of the Sasang Constitution Classification<sup>9)</sup>

For examination of the Sasang Constitution Classification for Western and Oriental herbal medicine treatment, analysis of question sheets were used and results were entered into the Questionnaire of the Sasang Constitution Classification (QSCC II) provided by the society of Sasang Constitutional medicine. Constitutions were divided into four groups - *Taeum-In*, *Soyang-In*, *Soum-In*.

(6) Test schedule

Improvement score was evaluated before treatment, and after first and second week of treatment. Before and after allergen-specific provocation test, sound nasal draft test and filter paper test were performed before treatment and after second week of treatment (Table 3, 4).

3) Treatment of patients

(1) Western medicine treated group

An oral antihistamine, Aseptin (azelastine), was dispensed twice a day and a local steroid medicine,

Flixonase (fluticasone propionate), was sprayed into the nasal cavity once a day during the first week of treatment, and then only the local steroid was sprayed during the second week of treatment.

(2) Combined medicine treated group

Oriental herbal medicine was administered along with Western medicine according to constitution as classified by QSCC II. For *Taeum-In, Ga Mi Tong Gue Tang* was administered in the first week followed by *Chung Pae Sa Gan Tang* in the second week; for *Soum-In, Ga Mi Sam So Um* in the first week and *Bo Jung Ik Ki Tang* in the second week; and for *Soyang-In, Bang Pung Hae Dok Tang* the first week and *Yuk Mi Ji Hwang Tang* the second week.

4. Determination

Symptom scores of allergic rhinitis were evaluated before and after treatment, and after first week of treatment. Improvement rate was calculated according to Table 5 and then compared with each group. Before

treatment and after the second week of treatment, allergen-specific provocation test and sound nasal draft test were performed and differences compared with each group. As a specific hyperreactivity test, a filter paper test was performed for each group and then results from before treatment and after second week of treatment were compared.

Results

Improvement rate for symptoms was increased in the group treated with Western medicine only during the first week of treatment, but there was no significance.

Two weeks after treatment, symptoms were slightly decreased in the group treated with combined medicine(Fig. 1). In the filter paper test for specific allergen hyperreactivity test, the group treated with Western medicine only improved, but there was not much statistical difference between both groups(Fig. 2). In MCA of sound nasal draft test after allergy

Table 5. Calculation Method of Improvement Rate

$$\text{Improvement rate} = \frac{\text{Pretreatment scores} - \text{Posttreatment scores}}{\text{Pretreatment scores}} \times 100(\%)$$

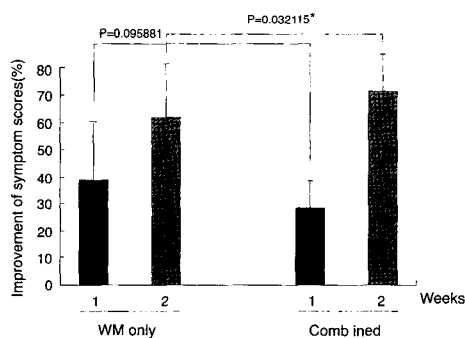


Fig. 1. Comparison in the improvement scores between western and combined medicine treated groups. Improvement rate of symptoms was increased in the group treated with Western medicine only after first week of treatment, but there was no significance. Two weeks after treatment, symptoms were slightly decreased in the group treated with combined medicine.

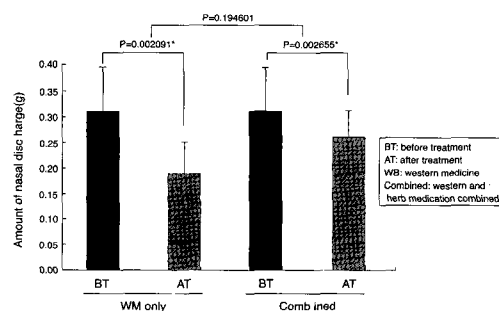
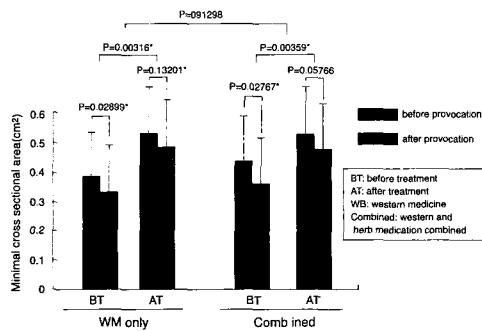
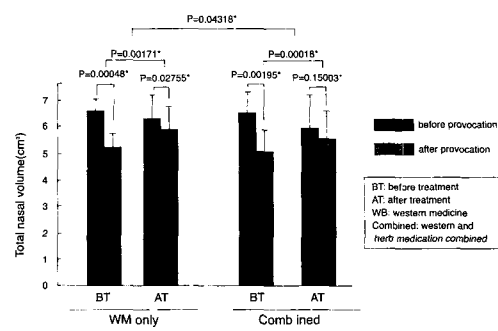


Fig. 2. Comparison of the results of the filter paper test between western and combined medicine treated groups. In the filter paper test for specific allergen hyperreactivity test, the group treated with Western medicine only was improved, but there was not much statistical difference between the two groups.



**Fig. 3.** Comparison in minimal cross sectional area of after sound nasal draft test between western and combined medicine treated groups.

In MCA of the sound nasal draft test after the allergy induction-reaction test, which was performed after the second week of treatment, reaction with allergen was improved in both groups but there was no significance.



**Fig. 4.** Comparison in total nasal volume change of the sound nasal draft test after allergen specific provocation test between western and combined medicine treated groups.

Total nasal volume showed improved patterns in both groups but the group treated with combined medicine was better than the group treated with Western medicine only.

induction-reaction test, which was performed after the second week of treatment, reaction with allergen was improved in both groups but there was no significance (Fig. 3). Total nasal volume showed improved patterns in both groups but the group treated with combined medicine was better than the group treated with Western medicine only (Fig. 4). Two patients had mild stomachache as a side effect of Oriental herbal medicine, but severe complications did not occur.

### Discussion

Allergic rhinitis is a type I hypersensitivity disease which occurs by reaction with various materials or cells through allergen stimulation to the nasal mucous membrane. Caused by severe air pollution, the prevalence rate of allergic rhinitis is on the increase in developed countries. Although many therapeutic methods, including milieu therapy, pharmacotherapy, surgery, or immunotherapy have been tried to treat allergic rhinitis in Western medicine, they have not given much satisfaction to patients because of the chronicity of the course of the disease<sup>1-3</sup>.

Recently, many study groups of Western medicine have reported about treatment of allergic rhinitis with Oriental herbal medicines, which has been described with both negative and positive aspects. Negative aspects are occupational diseases, including asthma or rhinitis of physicians who deal with Oriental herbal medicines, and pneumonia or hepatitis caused by Oriental herbal medicine. In contrast, positive aspects are that *Perilla frutescens*, an Oriental herbal medicine, was effective on mouse with allergy, and several herbal medicines had anti-allergic effects<sup>10-14</sup>. Also, a number of clinical studies have been tried to see the effect of herbal medicine as well as acupuncture therapy or external therapy in the study of Oriental medicine<sup>15-17</sup>.

In this study, we used several herbal medicines, which are known clinically as greatly effective for patients with allergic rhinitis depending on their constitution. Two patients suffered mild stomachache, but severe side effects were not observed.

It has been known that rhinorrhea, sneezing, and nasal obstruction are three main symptoms of allergic rhinitis, and are often accompanied with nasal itching or postnasal drip<sup>18</sup>. In this study, we used a visual analog

scale to compare improvement rate before and after treatment. After the first week, the improvement rate was increased in the group treated with Western medicine only, indicating the quick effect of Western medicine. Generally, acupuncture, bee venom, and herbal spray are used in the chronic phase to compensate for this problem. Unfortunately, we could not rule them out in this study, because we only used Oriental medicine through oral administration. The improvement rate at two weeks after treatment was higher in the group treated with combined medicine, suggesting an additive effect of Oriental herbal medicine.

The nasal induction-reaction test was divided into two tests, one against allergens and the other against non-specific hypersensitivity. A paper disc test was used as a test against allergens, and a filter paper test was used as a non-specific hypersensitivity test<sup>8)</sup>. In both tests, we observed more reduced reaction with allergens after treatment than before treatment, but there was no difference between the groups.

Acoustic rhinometry was used as an index of test against allergens. This method was newly developed by Hilberg and has been considered as the best way to evaluate the structure of the nasal cavity. In many studies, MCA and total nasal volume have been used as an index to analyze results of induction-reaction tests of the nasal cavity. In MCA, both groups showed reduced narrowing rate, but there was no significant difference<sup>6,7,19)</sup>. Importantly, in total nasal volume, improvement rate was increased in the group treated with combined medicine compared to the group treated with Western medicine only. This result indicates a significance of Oriental herbal medicine for treatment of allergic rhinitis.

Various Oriental herbal medicines have been used for allergic rhinitis. However, it is too difficult to determine a direction of study on allergic rhinitis, because standardized therapeutics are not established yet. In this

study, we showed the additive effect of Oriental herbal medicine without severe side effects. Further study is required to analyze components of various Oriental herbal medicines via basic research. We expect that this could help to develop standardized therapeutics.

In this study, we set only two groups, a Western medicine treated group and a group treated with Western and Oriental herbal medicine combined. It is suggested that creation and analysis of various experimental groups might enhance to understand the additive effect of Oriental herbal medicine for therapy of allergic rhinitis.

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