

ORIGINAL ARTICLE

Clinical study of traditional Chinese medicine fumigation in the treatment of allergic rhinitis

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ABSTRACT

Objective: To study the clinical effect of traditional Chinese medicine fumigation on treating allergic rhinitis.

Methods: 80 cases of patients with allergic rhinitis in our hospital from August 2020 to August 2021 were selected and then randomly divided into two groups. In this research, the combination of montelukast sodium tablets and cetirizine was used in the control group. Traditional Chinese medicine fumigation was given in addition to oral medication in the treatment group.

Results: The total effective rate of the clinical treatment in the treatment group was higher than that in the control group, and the difference was statistically significant ($p < .05$). It took less time to relieve nasal itching, runny nose, nasal congestion, and sneezing in the treatment group than in the control group, and the difference was statistically significant ($p < .05$). Besides, the symptoms were much more relieved in the treatment group than in the control group, and the difference was statistically significant.

Conclusions: Traditional Chinese medicine fumigation shows a remarkable clinical effect on the treatment of allergic rhinitis, and it is worthy of clinical application.

Key Words: Allergic rhinitis, Traditional Chinese medicine fumigation

1. INTRODUCTION

Allergic rhinitis, also known as allergic rhinitis (AR), is a common clinical allergic disease.^[1] The condition, which usually occurs in spring and autumn,^[2] is a type I allergic non-infectious inflammatory disease of the nasal mucosa mainly mediated by IgE, and its symptoms mainly include sudden and repetitive sneezing, nasal itching, nasal congestion, and runny nose, which may be accompanied by hyposmia.^[3] The incidence worldwide ranges from 10% to 30%.^[4] The prevalence is as high as 32.4% according to the epidemiological survey in the grassland area of northern China,^[5]

and glucocorticoids, leukotriene receptor inhibitors, and antihistamines are the primary treatment approaches clinically. However, these drugs have more significant side effects and are easily resistant. In recent years, it has been reported that traditional Chinese medicine significantly impacts treating allergic rhinitis. However, at present, there are few studies on the treatment of allergic rhinitis with traditional Chinese medicine in Inner Mongolia. This study mainly discusses the local treatment of traditional Chinese medicine fumigation to relieve the symptoms of allergic rhinitis. Further, it explores the application value of traditional Chinese medicine fumigation in the treatment of allergic rhinitis.

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2. DATA AND METHODS

2.1 General information

Eighty cases of patients with allergic rhinitis in our hospital from August 2020 to August 2021 were selected as subjects and randomly divided into two groups ($n = 40$): the treatment group, in which 21 cases of male and 19 cases of female, aged from 10 to 44 (36.5 ± 4.9), with a course of 4-33 (17.0 ± 2.2) months; the control group, in which 22 cases of male and 19 cases of female, aged from 11 to 45 (35.2 ± 4.8), with a course of 3-27 months (17.3 ± 2.6).

There was no statistically significant difference in general information between the two groups ($p > .05$), and they were comparable. Inclusion criteria: (1) patients aged 10 to 45; (2) patients with a medical history of allergic rhinitis; (3) patients who signed informed contents. Exclusion criteria: (1) patients whose age was below 10 or above 45; (2) patients whose medical history, interview record and nasal endoscopic examination indicated typical infectious rhinitis, structural rhinitis, atrophic rhinitis, acute sinusitis, chronic sinusitis, nasal polyp or other space-occupying lesions; (3) patients with distinct respiratory, immune, neurological, vascular, hematological, metabolic or digestive diseases; anopia, hearing impairment, aphasia, mental disorder, congenital deformity, severe malnutrition, or any condition that, in the opinion of the investigators, would interfere with assessment of study results or compromise physical safety; (4) patients who received corticosteroids, leukotriene receptor inhibitors, antihistamines, theophyllines or various decongestants by nasal, oral, or systemic administration in the last 3 months; (5) patients who participated in other clinical studies in the past 30 days; (6) patients who were allergic or fearful to acupuncture; (7) patients who were in the period of pregnancy or lactation. The research was approved by Ethics Committee (Approval No.: 2020MER-008).

2.2 Methods

The control group was treated with the traditional treatment method by orally using leukotriene receptor inhibitors (montelukast sodium tablets, 1 tablet/time, qd) and antihistamines (cetirizine 1 tablet/time, qn). Based on the traditional treatment method, the treatment group was also treated with traditional Chinese medicine fumigation. The main ingredients of traditional Chinese medicine were as follows: periostracum cicada 5 g, ramulus cinnamomi 8 g, flos chrysanthemi 8 g, flos magnoliae 15 g, herba menthae haplocalycis 15 g, divaricate saposhnikovia root 10 g, radix astragali 10 g, dense fruit Nittany root-bark 10 g, Siberian color fruit 15 g, tree peony bark 8 g, Japanese Honeysuckle 15 g, Mongolian dandelion herb 10 g and herba violata 10 g. The treatment was given twice a day, with a course of treatment for 10 days. The two

groups were compared after three methods of treatment.

2.3 Diagnostic criteria

At least two clinical symptoms, such as sneezing, watery nasal discharge, nasal congestion, and nasal itching, occurred, and the symptoms persisted or lasted for more than 1 hour per day. It may be accompanied by ocular symptoms such as ocular itching and conjunctival congestion. The commonly seen signs were pale nasal mucosa, edema, and watery nasal discharge.

2.4 Evaluation methods

(1) Three courses of treatment were performed to determine the efficacy. Refer to "Criteria of diagnosis and therapeutic effect of disease and syndromes in traditional Chinese medicine."^[6] The markedly effective clinical outcomes were as follows: the main symptoms (sneezing, runny nose, nasal congestion, nasal itching) and main signs (pale mucosa, edema) were significantly relieved and subsided, and the perennial type did not develop for at least half a year after treatment; the seasonal type did not develop during the season of onset. The moderately effective clinical outcomes were as follows: it could be seen that the main symptoms and main signs were relieved, and the intensity and frequency of attacks were significantly reduced. The ineffective clinical outcomes were as follows: the main symptoms and signs were not significantly relieved. (2) The improvement time of nasal itching, runny nose, nasal congestion, and sneezing was compared between the two groups. (3) The scores of symptoms and signs before and after treatment were compared between the two groups (0-10 points). The rating criteria were as follows: runny nose: 0 point (none), 1 point (≤ 4 times/d), 2 points (5-9 times/d), 3 points (≥ 10 times/d); nasal congestion: 0 point (none), 1 point (unilateral occasionally nasal congestion), 2 points (occasionally alternative bilateral nasal congestion), 3 points (bilateral nasal congestion, mouth breathing required); sneezing: 0 point (none), 1 point (continuous sneezing 3-5 times each onset), 2 points (continuous sneezing 6-10 times each onset), 3 points (continuous sneezing more than 10 times each onset); nasal itching: 0 point (none), 1 point (occasionally nasal itching), 2 points (formication but tolerable), 3 points (formication, challenging to tolerate, accompanied by pain).

2.5 Statistical methods

SPSS 20.0 statistical software was used to analyze the data. The measurement data were represented by mean \pm standard deviation ($\pm s$) and analyzed by *t*-test. The categorical data were described by % and compared using the chi-square test (χ^2). The difference was statistically significant ($p < .05$).

3. RESULTS

3.1 Comparison of clinical efficacy between the two groups

After three courses of treatment, the total effective rate of the clinical medicine in the treatment group was higher than that in the control group, and the difference was statistically significant ($p < .05$) (see Table 1).

3.2 Comparison in the improvement time of various symptoms between the two groups

It took less time to relieve nasal itching, runny nose, nasal congestion, and sneezing in the treatment group than in the

control group, and the difference was statistically significant ($p < .05$) (see Table 2).

3.3 Comparison in the scores of symptoms and signs before and after treatment between the two groups

There was no statistically significant difference in the scores of various symptoms and signs between the two groups before treatment ($p > .05$) (see Table 3).

After treatment, it took less time to relieve nasal itching, runny nose, nasal congestion, and sneezing in the treatment group than in the control group. The difference was statistically significant ($p < .05$) (see Table 4).

Table 1. Comparison of clinical efficacy between the two groups of patients with allergic rhinitis (n)

Group	n	Markedly Effective	Effective	Ineffective	Total Effective Rate
Treatment Group	40	21	14	5	87.5%
Control Group	40	11	13	16	60%
χ^2					10.768
p					.012

Note. Total effective rate refers to the sum of markedly practical and compelling cases

Table 2. Comparison in the improvement time of various symptoms between the two groups ($\bar{x} \pm s, d$)

Group	Nasal Itching	Runny Nose	Nasal Congestion	Sneezing
Treatment Group	3.71±0.82	4.22±1.31	3.63±1.04	3.22±1.13
Control Group	4.62±1.03	5.68±1.53	4.98±1.15	5.06±1.34
t value	4.824	4.038	4.298	5.989
p value	< .001	< .001	< .001	< .001

Table 3. Comparison of symptoms and signs between the two groups before treatment ($\bar{x} \pm s, \text{score}$)

Group	Nasal Itching	Runny Nose	Nasal Congestion	Sneezing
Treatment Group	2.48±0.75	2.85±1.32	2.68±1.06	2.96±1.12
Control Group	2.52±0.73	2.76±1.51	2.92±1.12	2.95±1.23
t value	0.231	0.345	0.264	0.298
p value	.826	.634	.752	.784

Table 4. Comparison of symptoms and signs between the two groups after treatment ($\bar{x} \pm s, \text{score}$)

Group	Nasal Itching	Runny Nose	Nasal Congestion	Sneezing
Treatment Group	0.69±0.78	0.62±0.67	0.68±0.52	0.82±0.36
Control Group	1.82±0.35	1.76±0.42	1.91±0.36	1.86±0.54
t value	4.562	4.368	4.634	4.298
p value	< .001	< .001	< .001	< .001

4. DISCUSSION

The incidence of allergic rhinitis is increasing yearly, and it has gradually become a public health problem threatening global life and health. According to statistics, more than

600 million AR patients worldwide present with intermittent sneezing, watery nasal discharge, nasal congestion, and nasal itching, accompanied by eye and conjunctival congestion.^[7] This disease is treated through drug therapy, immunotherapy,

and avoiding allergen exposure. Currently, the main treatment methods are dominated by glucocorticoids, leukotriene receptor inhibitors, antihistamines, etc. However, these drugs have strong side effects and are easily resistant. Therefore, it is essential to actively select safe and effective therapeutic agents in the current research.

Traditional Chinese medicine (TCM) has shown that allergic rhinitis is classified as “nasal purgative” and “sneezing,” and the external causes are related to the invasion of pathogens such as wind-chill and damp-heat, and the internal causes are related to qi deficiency caused by deficiency of spleen, lung, and kidney. In traditional Chinese medicine, fumigation therapy is an essential external treatment, taking TCM taste or water vapor produced by a decoction of traditional Chinese medicine to fumigate the affected area to achieve the treatment purpose. In the therapy of nasal fumigation, in addition to local application on the nasal cavity and paranasal sinuses, the drug can also enter the blood through local absorption and respiratory tract-pulmonary circulation instead of enterohepatic circulation, thereby increasing the absorption and utilization of the drug.^[8,9] In the study from Feng Shaobin et al.,^[10] AR patients were treated with Mahuang Fuzi Xixin Decoction and loratadine, respectively, and it was found that the total effective rate and the cure rate of the TCM group were higher than those of the Western medicine group. In the study from Gui Xiongbin et al.,^[11] a spleen strengthening prescription was combined with Azelastine Hydrochloride Nasal Spray to treat allergic rhinitis of spleen-qi weakness type, and it was found that the effective rate of the combination therapy was higher than the single-use. Traditional Chinese medicine fumigation was used in the treatment of allergic rhinitis in this research, in which periostracum ci-

cada, flos chrysanthemi, Japanese honeysuckle, Mongolian dandelion herb and herba violae have antipyretic effects; ramulus cinnamomi and siberian cocklour fruit have effects of dispelling cold and enlightening the body; flos magnoliae has the effect of relieving exterior and dispersing coldness, expelling wind and relieving pain; herba menthae haplocalycis has the refreshing effects; divaricate saposhnikovia root has the effect on dispelling current and eliminating pathogenic factors; radix astragali has the effect of tonifying spleen and protecting health, tonifying qi and consolidating superficialities; densefruit pittany root-bark has bitter-cold herbs easing dampness, dispelling wind and arresting itching; tree peony bark has the effects of removing pathogenic heat from blood, promoting blood circulation to remove blood stasis, clearing away liver fire and killing bacteria. The results showed that combining traditional Chinese medicine fumigation and traditional methods has apparent clinical effects on improving nasal itching, runny nose, nasal congestion, and sneezing in the treatment. The difference between the two groups was statistically significant ($p < .05$).

5. CONCLUSION

Traditional Chinese medicine fumigation can significantly relieve the symptoms of allergic rhinitis, and it is a cost-effective and easy treatment method worthy of clinical application.

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CONFLICTS OF INTEREST DISCLOSURE

The authors declare they have no conflicts of interest.

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