

Overview of Research on the Clinical Treatment of Allergic Rhinitis

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Abstract Three kinds of treatment for allergic rhinitis (Western medicine, traditional Chinese medicine and their combination) were described respectively, and the different treatment methods of AR and their characteristics were analyzed. This study will help to further improve the diagnosis and treatment of the disease and promote the early recovery of patients.

Key words Allergic rhinitis, Western medicine, Traditional Chinese medicine, Integrated treatment of Chinese and western medicine

1 Introduction

With social progress and environmental changes, the prevalence of specific diseases has increased. The World Health Organization (WHO) has made a clear definition of allergic diseases and listed it as a global priority disease for prevention and control. Allergic rhinitis (AR), a relatively common allergic disease, can occur at any age, including infancy^[1], and there is no gender difference in the incidence. AR is more common, and patients will have nasal itching, sneezing, runny nose and other symptoms. The incidence is getting higher and higher, and it is easy to combine with other diseases. AR has become a global public health problem, affecting 10% – 40% of population in the world^[2–4]. In this paper, three kinds of treatment for AR (Western medicine, traditional Chinese medicine and their combination) were summarized to provide a reference for clinical treatment.

2 Treatment of AR by western medicine

2.1 Pathogenesis AR, which is the most common allergic disease in clinic, is a kind of chronic rhinitis caused by the contact between susceptible people and allergens^[5–6]. Western medicine believes that IgE is the main cause of allergic rhinitis, and its pathogenic mechanism belongs to type I allergy. Through "bridging" with IgE, allergens will cause a series of biochemical reactions on the cell membrane and release various vector substances including histamine^[7].

2.2 Clinical manifestations AR patients are prone to the following symptoms shown in Table 1.

Table 1 Clinical manifestations of AR

No.	Manifestation	Symptom
1	Sneeze	There are often 10 – 20 episodic sneezes a day
2	Snot	Watery nasal discharge is generally a lot, and often cause nasal vestibulitis and upper lip peeling
3	Nasal obstruction	Due to swelling of the nasal mucosa, seasonal rhinitis causes nasal congestion
4	Itchy nose	Most patients suffer nasal itching, which is sometimes accompanied by throat itching, palate itching, ear itching and so on
5	Hyposmia	Edema of nasal mucosa is obvious
6	Headache	It can cause headaches, dizziness and other uncomfortable symptoms for a long time

When there is inflammation in the nose, the nasal cavity will secrete a lot of snot, and it may turn yellow due to infection. It is manifested as congestion or edema. If it is not treated in time, it will cause sinusitis, otitis media, bronchial asthma, etc^[8].

2.3 Methods and characteristics of treatment Considering the pathogenesis and stage of Western medicine, Western medicine can treat or slow down AR in four major ways, such as immunotherapy, 0.9% sodium chloride solution or hypertonic solution cleaning, drug therapy and surgical treatment (Table 2).

3 Treatment of AR by traditional Chinese medicine

3.1 Etiology and pathogenesis In the view of traditional Chinese medicine, the occurrence of allergic diseases is mainly caused by spleen-lung qi deficiency, unfavorable qi and insufficient qi of middle-jiao energy, and the treatment principles are as follows: dispelling heat and spasm, invigorating lung and spleen, evacuating wind-cold and warming nasal passages^[20]. Traditional Chinese medicine believes that the location of AR is in the lung, spleen, and kidney, mainly showing "deficient root and excessive superficial" and "mixture of asthenia and sthenia". The main cause of the disease is the function abnormality of lung, spleen, kidney and other organs. Patients will have nasal itchiness, sneezing, nasal congestion, runny nose and other uncomfortable symptoms at the beginning. The occurrence of this disease is closely related to "latent evil", and the retention of "latent evil" is the "permanent root" of AR recurrence^[21]. At present, the principle of AR treatment by traditional Chinese medicine is centered on strengthening the body resistance to eliminate pathogenic factors. In clinical practice, traditional Chinese medicine and acupuncture are commonly used to achieve the effects of tonifying deficiency, dispelling exterior, dispelling wind and dispelling evil^[22].

3.2 Clinical manifestations By using "four diagnostic methods", the disease is treated from "the deficiency and excess of the five internal organs". Patients with "lung deficiency" and "superficial deficiency syndrome" will have parched mouth and scorched tongue, often sneeze, and have runny nose, nasal obstruction, reduced sense of smell, fear of wind and cold, spontaneous sweating, short breath, pale face, and less sputum. Patients with deficiency-cold in spleen and stomach have runny nose, nasal obstruction, pale face, reduction of weight, loss of appetite, weak limbs, and short breath. Patients with deficiency of kidney yang and hy-

pothemia often sneeze, and have runny nose, nasal obstruction, pale face, waist and leg pain or spermatogenic disease. There is heat in the lung, and when it rushes into the nose, there will be

nasal itching, sneezing, runny nose, nasal obstruction and other symptoms, which often occur in sultry weather^[23–24].

Table 2 Methods and characteristics of treatment by Western medicine

No.	Method	Characteristic	Defect
1	Immunotherapy	Changing the patient's natural course of disease, effectively controlling symptoms, reducing medication and respiratory complications, and preventing the increase of allergens ^[9]	The specific immune course is longer ^[10]
2	Normal saline cleaning	Effectively removing some irritants, allergens and inflammatory secretions in the nose and reducing the edema of the nasal mucosa	In some patients, nasal discomfort is indirectly induced by irritation of nasal mucosa by cleaning
3	Drug therapy	Local antihistamines, anticholinergic drugs, glucocorticoid drugs, decongestants and hypertrophic cell membrane stabilizers are used according to specific causes and relieve stress state ^[11–16]	Patients are prone to drug resistance. Long-term use of glucocorticoid drugs is easy to cause weight gain and decline of the body immunity. Anticholinergic drugs can induce epistaxis and dryness of nasal mucosa. Long-term use of decongestants can lead to drug-induced rhinitis ^[17]
4	Surgical treatment	Inferior turbinoplasty, parasympathetic amputation and nasal septum correction can effectively relieve severe nasal congestion that cannot be relieved by conservative treatment, and are characterized by less trauma, light pain and quick recovery ^[18–19] .	There may be side effects such as nasal adhesions, bleeding, and decreased or lost sense of smell

3.3 Methods and characteristics of treatment

3.3.1 Internal treatment. Chinese medicine has the advantage of treating allergic rhinitis based on syndrome differentiation. The treatment of AR has a long history in China. Many famous doctors have unique insights and rich clinical experience in the application of traditional Chinese medicine to AR. Doctors of all dynasties took Shenling Baizhu Powder^[25–26], Buzhong Yiqi Decoction and Yupingfeng Powder^[27] as representative prescriptions. Li Siwei *et al.*^[28] studied the clinical efficacy of Qifangbimin Decoction on AR. The results showed that this prescription could improve the clinical signs and symptoms of the patients with AR, and significantly reduce the content of its allergen IgE. Wu Jianteng *et al.*^[29] studied the therapeutic effect of modified Yupingfeng Powder, and achieved excellent effect. After treatment, the clinical symptoms of patients were significantly relieved, and the volume of turbinate was significantly reduced, demonstrating the superiority of treatment. The treatment regimen of Qiu Yimin^[30] showed that the combination of Yupingfeng Powder and Tongxuan Lifei Pill could significantly improve the olfactory recovery of patients with AR. Wei Dangjun *et al.*^[31] found that Qingfei Zhitai Decoction could improve not only patients' clinical symptoms but also IL-12 and IL-13 indicators in the serum.

3.3.2 External treatment. (i) Acupuncture therapy. Acupuncture, as an external therapy of traditional Chinese medicine, has the advantages of precise efficacy, little side effect, simple operation, *etc.*, and is widely used in clinic. Song Tingting *et al.*^[32] randomly divided 105 patients with moderate-to-severe seasonal allergic rhinitis (SAR) into the observation group (53 cases but 3 cases dropped off) and control group (52 cases but 4 cases dropped off). The patients in the observation group were treated with acupuncture at Yintang, Yingxiang, Hegu, Zusanli, Fengchi, Feishu, *etc.* 4 weeks before the seizure period, which was conducted once every other day and 3 times a week for 4 weeks.

After treatment, it is concluded that acupuncture can reduce the incidence of moderate-to-severe SAR and reduce the use of emergency drugs.

(ii) Moxibustion. Bi Guizhi *et al.*^[33] carried out warm moxibustion at patients' Fengchi, Feishu, Dazhui, Yingxiang, Shangyintang, Fengmen, Dingchuan, Bailao, Pishu, Shenshu, Mingmen, Shenque and other acupoints. The results showed that the recurrence rate of patients in the moxibustion group was lower, and the long-term effect was better.

(iii) Acupoint embedding. Acupoint embedding refers to the continuous stimulation of acupoints through absorbable surgical sutures. This method can help improve the health of the body, so as to achieve the effect of pain relief. In addition, this method can also improve mental health, enhance physical immunity, and promote physical rehabilitation^[34].

(iv) Acupoint injections. The body's non-specific immunity can be stimulated by drug injections or injections of one's own blood. Li Yuhong *et al.*^[35] carried out injections at patients' Feishu, Yingxiang, Tiantu, Lianquan and other acupoints, and the effective rate was 98.39%.

(v) Acupoint application. The acupoints selected by Ding Bing *et al.*^[36] were back acupoints, of which Feishu topped the list. Commonly used drugs were Baijiezi, Xixin, Gansui, Yanhusuo, *etc.* Han Dongyue *et al.*^[37] found that Baijiezi, Jiangzhi, Xixin, Yuanhu, Baizhi, Gansui, *etc.* constituted the main herb prescription; Feishu, Dazhui, Shenshu, Pishu, Gaohuang, Fengmen constituted the main acupoint prescription.

(vi) Nasal irrigation with traditional Chinese medicine. Li Xiangyi *et al.*^[38] applied nasal washing to treat AR, and it could significantly reduce patients' clinical symptoms and improve their sleep quality and quality of life.

(vii) Others. In addition to the above external treatment, it can be treated by traditional Chinese medicine sachets, traditional

Chinese medicine nose drops, *etc.*, and they are simple to operate, safe and easy for patients to accept.

3.3.3 Characteristics of treatment. In the treatment of AR, traditional Chinese medicine can improve the symptoms, signs and symptoms of patients, regulate and improve their immune function, and it is not easy to relapse. Besides, traditional Chinese medicine has no particularly big side effects on the human body, is not easy to cause trauma, and has the characteristics of small side effects, low recurrence rate and high efficiency^[39].

4 Treatment of combining traditional Chinese and Western medicine, prevention and nursing

At present, there are many advantages and disadvantages in both traditional Chinese medicine and Western medicine. The combined application of traditional Chinese and Western medicine in the prevention and treatment of AR has become a research hotspot in the field of otolaryngology^[40]. The treatment of combining traditional Chinese and Western medicine can learn from each other, and better play the advantages of traditional Chinese medicine in the treatment of diseases, so that the treatment is more effective. Besides, traditional Chinese medicine can also adjust the zang-fu qi and blood, regulate the balance of yin and yang, and reduce the impact of pathogenic factors on the body, so as to effectively reduce the risk of AR recurrence.

Therefore, the advantages of combining traditional Chinese and Western medicine to treat AR by clinical workers are gradually emerging. Through reasonable drug treatment, traditional Chinese medicine conditioning, traditional Chinese acupuncture and massage and other means, it can effectively improve the symptoms of patients, so as to effectively improve the efficiency of clinical treatment and provide better medical services for patients. In addition, the treatment of combining traditional Chinese and Western medicine can also give play to the advantages of traditional Chinese medicine, strengthen psychological counseling for patients, and make patients easier to accept treatment. Presently, the clinical treatment of AR by combining traditional Chinese and Western medicine mainly includes oral administration of traditional Chinese medicine combined with Western medicine, acupuncture combined with Western medicine^[41-43] and the combination of these two methods, and certain research results have been obtained. This study will further confirm the efficacy and repeatability of combined therapy of traditional Chinese and Western medicine in AR, and lay a foundation for its clinical application.

In daily prevention and nursing, several points should be paid attention to, such as avoiding contacting with allergens, avoiding eating cold and other irritant food, usually eating more food for replenishing and restoring lung qi, using the correct method of nose wiping, not using vasoconstrictive nasal drops too much.

5 Brief summary

AR, a common disease in otorhinolaryngology, is induced by a variety of factors. In order to effectively prevent and treat AR, scientific and targeted treatment programs should be taken according to the specific conditions of patients to achieve the best treatment

effect. Chinese medicine and Western medicine have made great progress in the understanding and treatment of AR, and they continue to explore new therapeutic methods to effectively control the symptoms and course of AR. Practice has proved that the combination of accurate diagnosis of Western medicine and syndrome differentiation of Chinese medicine can effectively reduce the misdiagnosis rate of AR, so as to better protect the health of patients.

In this paper, from the aspects of Western medicine, traditional Chinese medicine and their combination, different treatment methods for various types of allergic rhinitis were listed, including drug treatment, surgical treatment, *etc.*, and the characteristics of these methods were analyzed in detail, so as to help clinicians better grasp the diagnosis and treatment methods of allergic rhinitis, and then improve the treatment level of the disease and promote the early recovery of patients.

References

- [1] WANG M, ZHENG M, WANG XD, *et al.* Progress in epidemiology of allergic rhinitis in China[J]. Chinese Archives of Otolaryngology-Head and Neck Surgery, 2019, 26(8): 415-420. (in Chinese).
- [2] BROZEK JL, BOUSQUET J, AGACHE I, *et al.* Allergic rhinitis and its impact on asthma (ARIA) guidelines-2016 revision[J]. Journal of Allergy and Clinical Immunology, 2017, 140(4): 950-958.
- [3] BOUSQUET J, KHALTAEV N, CRUZ AA, *et al.* Allergic rhinitis and its impact on asthma (ARIA) 2008[J]. Allergy, 2008, 63(S86): 8-160.
- [4] WANG XD, ZHENG M, LOU HF, *et al.* An increased prevalence of self-reported allergic rhinitis in major Chinese cities from 2005 to 2011[J]. Allergy, 2016, 71(8): 1170-1180.
- [5] ARYAN Z, HOLGATE ST, RADZIOCH D, *et al.* A new era of targeting the ancient gatekeepers of the immune system: Toll-like agonists in the treatment of allergic rhinitis and asthma[J]. International Archives of Allergy & Immunology, 2014, 164(1): 46-63.
- [6] SHI Y, FAN XH, ZHAO GQ. Analysis of clinical effect of combined Chinese and western medicine in the treatment of allergic rhinitis[J]. Renowned Doctor, 2020(1): 270. (in Chinese).
- [7] GRAINGER J, DRAKE-LEE A. Montelukast in allergic rhinitis: A systematic review and meta-analysis. [J]. Clinical Otolaryngology, 2010, 31(5): 360-367.
- [8] LI HB, WANG XD, WANG HT, *et al.* Oral H1 antihistamines for allergic rhinitis 2018 Guangzhou consensus[J]. Chinese Journal of Ophthalmology and Otorhinolaryngology, 2018, 18(3): 149-156. (in Chinese).
- [9] JALALIA MM, SOLEIMANIB R, JALALI SM, *et al.* Evaluation of the effects of allergic rhinitis treatment on sexual functioning, sleep, and fatigue parameters[J]. Revue Française d'Allergologie, 2020, 60(2): 55-60.
- [10] ESCHENBACHER W, STRAESSER M, KNOEDDLER A, *et al.* Biologics for the treatment of allergic rhinitis, chronic rhinosinusitis, and nasal polyposis[J]. Immunology and Allergy Clinics of North America, 2020, 40(4): 539-547.
- [11] ZHANG P, ZHANG Y, ZHAO Y. The clinical effect of cetirizine combined with fluticasone propionate aerosol in the treatment of allergic rhinitis in children[J]. Chinese Medical Digest: Otorhinolaryngology, 2022, 37(5): 28-30. (in Chinese).
- [12] WU XB. Observation on the effect of Tongqiao rhinitis capsule combined with loratadine in the treatment of allergic rhinitis[J]. Chinese Journal of Rural Medicine and Pharmacy, 2022, 29(20): 13-14. (in Chinese).
- [13] WU YJ, YANG HR. Progress in the mechanism and application of antihistamines in allergic rhinitis[J]. Chinese Journal of Otorhinolaryngology

- gy-skull Base Surgery, 2021, 27(6): 742–745. (in Chinese).
- [14] YANG JL. Efficacy of beclomethasone dipropionate nasal spray in the treatment of seasonal allergic rhinitis and its influence on patients' symptoms[J]. Chinese Medical Digest; Otorhinolaryngology, 2022, 37(5): 70–71, 69. (in Chinese).
 - [15] WANG J, HAN JJ, HU XY, *et al.* Pharmaceutical analysis of chlorpheniramine maleate combined with budesonide nasal spray in the treatment of allergic rhinitis[J]. Chinese Medical Digest; Otorhinolaryngology, 2022, 37(5): 89–91. (in Chinese).
 - [16] WANG ZY, JI H, SHI T, *et al.* Inflammation characteristics and treatment effects by intranasal steroid in different types of nonallergic rhinitis[J]. Journal of Medical Postgraduates, 2022, 35(4): 367–370. (in Chinese).
 - [17] HU YP, ZHOU Z, NI HF, *et al.* Effect of local glucocorticoid therapy on adenoid hypertrophy complicated with allergic rhinitis in children[J]. Chinese Remedies & Clinics, 2022, 22(7): 586–589. (in Chinese).
 - [18] LI DB, TANG ZY, DENG ZY, *et al.* Curative effect analysis of low-temperature plasma radiofrequency ablation in 27 cases of drug-related rhinitis[J]. Journal of Otolaryngology and Ophthalmology of Shandong University, 2022, 36(5): 11–17. (in Chinese).
 - [19] ZHENG XJ, CHEN XQ, JIANG ZQ. Clinical research progress of combination of traditional Chinese and western medicine in treatment of allergic rhinitis[J]. Medical Recapitulate, 2022, 28(10): 1983–1987. (in Chinese).
 - [20] GUO Y, RUAN Y. Clinical manual of otorhinolaryngology with Chinese and western medicine[M]. Beijing: Science Press, 2019: 109–113. (in Chinese).
 - [21] ZHAO PF, ZHANG PT. Rethinking the similarities of allergic diseases and autoimmune diseases from the perspective of integrated traditional Chinese and western medicine[J]. Negative, 2015, 6(3): 42–43, 47. (in Chinese).
 - [22] REN ZY, PAN WQ. Approach to idea of treating allergic rhinitis with traditional Chinese medicine[J]. Shanxi Journal of Traditional Chinese Medicine, 2021, 37(11): 1–3. (in Chinese).
 - [23] CHENG J, CAI WJ, ZHANG XM. Study on characteristic of syndrome differentiation and therapeutic methods of traditional Chinese medicine on allergic rhinitis[J]. China Journal of Traditional Chinese Medicine and Pharmacy, 2012, 27(7): 1947–1950. (in Chinese).
 - [24] SAN CX, GAO L. Current status of research on the pathogenesis of allergic rhinitis and treatment with traditional Chinese medicine[J]. Xinjiang Journal of Traditional Chinese Medicine, 2017, 35(5): 133–136. (in Chinese).
 - [25] DONG XC, SUN MQ. Efficacy of the treatment of allergic rhinitis by adding and subtracting Shenling baizhu powder and its effect on the content of substance P in nasal secretion[J]. Lishizhen Medicine and Materia Medica Research, 2020, 31(6): 1406–1407. (in Chinese).
 - [26] TAN RZ, LIU WJ, ZHANG XY, *et al.* Efficacy and safety of Shenling Baizhu Powder for allergic asthma and rhinitis: A Meta analysis[J]. China Journal of Traditional Chinese Medicine and Pharmacy, 2018, 33(10): 4429–4432. (in Chinese).
 - [27] XU JT, LAO ZZ, ZHANG LJ, *et al.* Effects of Yupingfeng Formula Granules on Th17/Treg balance and related cytokines of rats with allergic rhinitis[J]. Chinese Traditional Patent Medicine, 2020, 42(9): 2311–2316. (in Chinese).
 - [28] LI SW, KONG YH, HAN J, *et al.* Observation of clinical efficacy of Qifangbimin Decoction in 100 cases of allergic rhinitis[J]. China Journal of Traditional Chinese Medicine and Pharmacy, 2014, 29(8): 2707–2709. (in Chinese).
 - [29] WU JT, BAI Y. Clinical efficacy of allergic rhinitis treated by adding Yupingfeng Powder[J]. Inner Mongolia Journal of Traditional Chinese Medicine, 2021, 40(5): 30–31. (in Chinese).
 - [30] QIU YM. Analysis of the clinical effect of Yupingfeng Powder combined with Tongxuan Lifei Pill in the treatment of allergic rhinitis[J]. Chinese Community Physician, 2020, 36(33): 112–113. (in Chinese).
 - [31] WEI DJ, JIANG LM, LI G. Clinical observation on the treatment of allergic rhinitis by clearing lung and stopping snot soup[J]. Shanxi Journal of Traditional Chinese Medicine, 2016, 32(8): 45. (in Chinese).
 - [32] SONG TT, JING XH, GUO W, *et al.* Acupuncture for prevention of moderate to severe seasonal allergic rhinitis: A randomized controlled trial[J]. Chinese Acupuncture & Moxibustion, 2023, 43(2): 123–127. (in Chinese).
 - [33] BI GZ, DUAN Y. Clinical observation on the treatment of allergic rhinitis by moxibustion[J]. Cardiovascular Disease Electronic Journal of Integrated Traditional Chinese and Western Medicine, 2017, 5(29): 166–167. (in Chinese).
 - [34] JI DJ, YE GX, GUAN ST, *et al.* Clinical application of acupoint embedding therapy for allergic rhinitis[J]. Journal of Practical Traditional Chinese Internal Medicine, 2020, 34(1): 35–37. (in Chinese).
 - [35] LI YH, XU JP. Observation on the efficacy of acupoint injection in the treatment of allergic rhinitis in 62 cases[J]. Yunnan Journal of Traditional Chinese Medicine and Materia Medica, 2012, 33(1): 51. (in Chinese).
 - [36] DING B, LI B, WANG FC. Acupoint application analysis of acupoint selection and medication rule in the treatment of allergic rhinitis[J]. Jilin Chinese medicine, 2018, 38(9): 993–996. (in Chinese).
 - [37] HAN DY, LIU C, QIE LL, *et al.* Acupoint selection and medication rules analysis for allergic rhinitis treated with acupoint application based on data mining technology[J]. Chinese Acupuncture & Moxibustion, 2015, 35(11): 1177–1180. (in Chinese).
 - [38] LI XY, ZHOU NY. Clinical effect of nasal irrigation in the treatment of allergic rhinitis[J]. Chinese Community Doctors, 2021, 37(33): 36–37. (in Chinese).
 - [39] ZHU YF, XIE X, QIN YR, *et al.* Observation on the efficacy of combined Chinese and western medicine in the treatment of allergic rhinitis[J]. Shanxi Journal of Traditional Chinese Medicine, 2020, 36(9): 32–33. (in Chinese).
 - [40] WANG R, HU HW. Observation on the therapeutic effect of the combination of traditional Chinese medicine and western medicine in the treatment of allergic rhinitis[J]. Guangming Journal of Chinese Medicine, 2020, 35(12): 1881–1883. (in Chinese).
 - [41] ZHU XM, WANG L, XUE D, *et al.* Observation on the efficacy of spleen tonifying and qi benefiting traditional Chinese medicine combined with specific immunotherapy in the treatment of allergic rhinitis[C]. Proceedings of the National Symposium on Allergic Reactions of the Chinese Medical Association, Chengdu, 2011. Beijing: Chinese Medical Association Branch of Allergic Reactions, 2011: 91. (in Chinese).
 - [42] WEI QY, ZHU XM, YE J, *et al.* Efficacy of spleen-supplementing and qi-benefiting traditional Chinese medicine combined with specific immunotherapy in the treatment of allergic rhinitis[C]. Proceedings of the Eighth National Academic Conference on Integrative Chinese and Western Medicine for Allergic Reactions and the First Shenzhen Academic Conference on Integrative Chinese and Western Medicine for Allergic Reactions and the Tenth Shenzhen Respiratory Forum, Shenzhen. Chinese Society of Integrative Medicine and Western Medicine, 2016: 4. (in Chinese).
 - [43] LIU J, LIU G, WU FH. Clinical observation on the treatment of allergic rhinitis by "Tiao shen Tong qiao" Acupuncture and its effect on serum IL-6 and IL-10 levels[J]. Chinese Journal of Otorhinolaryngology in Integrative Medicine, 2021, 29(2): 101–105. (in Chinese).