

Advances on the Treatment of Allergic Rhinitis by Traditional Chinese Medicine and Western Medicine

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Abstract

Background: Allergic rhinitis is a common and high incidence disease in clinic, which has a certain impact on the work, life and social activities of patients. Modern medicine still lacks effective treatment methods for such diseases. In recent years, clinical cases of children and adolescents have also increased year by year. **Objective:** In order to provide references for further study and practical treatment on allergic rhinitis, this paper summarized the advances on the treatment of allergic rhinitis by Traditional Chinese Method (TCM) and Western Medicine Method (WMM) in clinical practice and study. **Method:** Through detailed review and study of literatures, the theory and clinical experiences in TCM, WMM, and integrated treatment of the two were analyzed and summarized. **Conclusions:** TCM conducts personalized treatment for patients by syndrome differentiation. The main means are to regulate the body's health Qi and Yang Qi. Drugs, acupuncture, psychology and other means of treatment are all used and the effects of treatment are very well. WMM mainly relieves the infiltration of local inflammatory cells, expands local capillaries, improves nasal permeability and alleviates the occurrence of allergic graduation by using kinds of drugs or surgery. Though both TCM and WMM are effective and have some common characteristics and each has its own characteristics, the combination of TCM and WMM has a good prospect and is more effective and can effectively reduce the adverse reactions of patients, because TCM is to change patients' own constitution and the starting point of WMM is to eliminate the pathogen.

Keywords

Allergic Rhinitis, TCM, WMM, Combination of TCM and WMM

1. Introduction

Allergic Rhinitis (AR) is a type-I allergic disease mediated by IgE. The clinical manifestations mainly include frequent sneezing, runny nose, nasal itching and nasal congestion [1].

AR belongs to the category of “Bi Qiu” in TCM, also known as “Qiu Ti” and “Qiu Shui”. Liu Wansu in the Jin Dynasty mentioned in his book “Su Wen Xuan Ji Yuan Bing Shi-Liu Qi Wei Bin” that “Qiu is a person with rhinorrhea”, which gave the definition of the word “Qiu”. “Za Bin Yuan Liu Xi Zhu” written in Qing dynasty recorded that “There are also patients with allergic rhinitis, who is accompanied with rhinorrhea, which is caused by cold in the lung meridian”. It pointed out the cause of the disease. TCM thinks that this disease is induced by external and internal causes. The external causes include mostly exogenous cold or perverse trend, resulting in the decrease of loss of the function of propaganda and solemn surrender of lung Qi; The internal causes are mostly related with the deficiency of viscera, the lack of healthy Qi, and the instability of defensive Qi. The deficiency of viscera is closely related to the lung, spleen and kidney. The external pathogenic factors first invade the nose, and the lung Qi is connected to the nose. The nose is disadvantageous due to the pulmonary deregulation, resulting in sneezing and rhinorrhea. Spleen and stomach are the acquired foundation and the origin of Qi and blood. If the Qi of spleen and stomach is weak, then the acquired foundation is passive, which leads to the deprivation of nourishment of nose. “Suwen-Xian Ming Wu Qi” said that one will sneeze if one’s kidney is insufficient. The Yang Qi of Kidney dominates the Yang Qi of the whole body. If the kidney Yang is insufficient, then the nose will not be warm and so fall ill once it is attacked by external pathogenic factors. Therefore, the pathological changes of AR are closely related to the functions of lung, spleen and kidney. If one has suffered AR for a long time, His/her lung Qi must be weak. So, the type of lung Qi deficiency and cold is more common clinically.

WMM think that AR is a kind of allergic inflammation dominated by Th2 immune reaction and mediated by IgE. Th1/Th2 cell imbalance is one of the keys to the occurrence and development of the disease. Th1 reaction is triggered when the antigen is virus or bacteria. Th1 cells secrete IL-2 and IFN- γ , and mediate cellular immunity of anti infection. Th2 reaction is triggered when the antigen is an allergen. Th2 cells secrete IL-4, IL-5 and other mediator fluid immunity and can induce B cells to synthesize specific IgE. It is the key to restore the dynamic balance of Th1/Th2 cells in the treatment of AR.

Si Tingling [2] thought that the main feature of seasonal rhinitis is that pathogenic factors are not expelled out of the body and lurks in the body. When one is in weak health state in season, AR can be triggered. He advocated to treat AR by the combination of virtual and real, cold and warm. Both the weak constitution and perverse factors should be treated seriously.

The number of patients with AR per day in each season is significantly different. Cold air and catastrophe of meteorological elements influence the number

of patients obviously. The change of meteorological elements can predict the incidence trend of AR, which is very important for guiding clinical prevention and treatment of AR [3].

When taking 0.1 KUA/L as the positive critical value of sIgE, the mean diameter, area and skin index of dust mite wind mass in skin prick test are significantly positively correlated with the serum sIgE value, while taking 0.35 KUA/L as the critical value, the positive correlation is not obvious and even in negative correlation. When using the skin index as the measurement standard, no matter what value is taken as the critical value, the concentration range of sIgE corresponding to the skin index with positive allergens at all levels cannot be obtained [4].

In the juvenile population, both house dust mites and dust allergy rates show an upward trend with age. The positive rate was the highest in the 7 - 18 year old group, and then the positive rate shows a downward trend with age. Sex and season had no effect on the allergic rate of house dust mites and dust mites.

The common psychological problems of AR include anxiety and depression, sleep disorder, interpersonal sensitivity, hostility, compulsion, etc. Therefore, psychotherapy from these aspects is very effective for AR [5].

The advances on the treatment of AR by Traditional Chinese Method (TCM) and Western Medicine Method (WMM) are summarized to provide references for further study and practical treatment on allergic rhinitis.

2. Treatment by TCM

The treatment of AR from the perspective of six-channel syndrome differentiation has the advantages of individualized treatment, significant efficacy and few adverse reactions. According to the three Yang syndrome differentiation, the basic pathogenesis should be exogenous solid pathogenic factors, and more research is done on the stage of Taiyang syndrome. Most of the prescriptions are use to dissipate cold and resolve the exterior pathogenic factors, such as ma-huang decoction; warm the lung to reduce watery phlegm, such as Xiaoqinglong decoction; Harmonizing Yin-Qi and defensive Qi, such as cinnamon twig decoction; warm Yang and diuretic, such as Wuling powder. If we treat the patients by corresponding methods for different pathogenesis, the therapeutic effect can be significantly improved [6].

According to the three Yin syndrome differentiation, the basic pathogenesis is the dysfunction of viscera. And most is related with the Taiyin meridian and Shaoyin meridian. The commonly used medicines include Linggui Zhugan decoction for invigorating spleen and warming phlegm, Zhenwu decoction for tonifying the kidney and resolving fluid retention, Shenqi Wan for nourishing and warming kidney-Yang, decoction of ephedra, aconite and asarum for warming and tonifying kidney Yang and concurrently dispel pathogenic factor. Few studies on AR treatment from the perspective of Yangming and Jueyin, which reflects that the relation between Yangming meridian, Jueyin meridian and AR is still understood little by researcher and doctors.

2.1. Treatment by Six Meridians Differentiation

2.1.1. Treatment of Taiyang Disease

1) Exterior excess syndrome of Taiyang disease

During the acute attack period of AR, the pathogenic factors of wind-cold invade the superficial defensive Qi and most are shown in Taiyang superficial solid symptom. The patients mainly manifest as stuffy nose, rhinorrhea, aversion to cold severely, thin white tongue, and tight pulse. They should be treated by using of drugs of pungent-warm and relieving exterior syndrome, warming the lung to reduce watery phlegm. Mahuang soup and Xiao Qinglong soup are also often used. If the superficial syndrome has not been eliminated, then heat will form after some time. The patients will show nasal congestion, runny yellow mucus, stringy and slippery pulse. Ma Xin Shi Gan soup can be used for treatment. To strengthen the superficial defensive Qi, radix aconiti carmichaeli, radix bupleuri, scutellaria baicalensis, saposchnikovia divaricata, bighead atractylodes rhizome, astragalus mongholicus, pinellia ternata, cassia twig, white peony, ginseng, liquorice, magnolia, ephedra, platycodon grandiflorum, inula, schizonepeta, ligusticum wallichii are often used.

2) Asthenia Taiyang syndrome

If one is wind injured, defensive Qi instability, nutrient Qi and Yin fluid being damaged, nutritive Qi and defensive Qi disharmony syndrome, then he/she will show in asthenia Taiyang syndrome. The main syndrome include paroxysmal sneezing, discharging a lot of clear mucus, nasal congestion, nasal itching, accompanying aversion to wind and cold, sweating, and with floating and slowing pulse. At this time, cinnamon twig soup is a better choice to harmonize Ying-Qi and defensive Qi.

3) Taiyang disease with stagnate

With the development of disease, the exterior pathogenic factors invade into the interior and enters Taiyang bladder channel of foot, which causes abnormal water transportation. Clinically, patients show continuous sneezing, large amount of clear water like mucus, nasal congestion and itching, with thirst, aversion to drinking, and white and greasy coated tongue, e.f., syndrome of fluid retention stagnating in the interior.

The deficiency of Yang Qi causes the failure of activate functioning of Qi for promoting diuresis, which leads the water and dampness retent and spill out of nose, e.f., AR. It'd better to treat by Wuling powder to strengthen Qi and warming Yang and promoting diuresis, which can eliminate the cause of disease fundamentally and improve the curative effect.

2.1.2. Treatment from the Perspective of Yangming Disease

If the exterior pathogenic factors have not been resolved in Taiyang meridians, and the endogenetic stagnant heat occurs, then AR shows both the syndromes of Taiyang meridians and Yangming meridians. The clinical characteristics are nasal congestion, itching, desiring to drink due to thirst, greasy and yellow coating of tongue. The practical choice is to induce sweating to dispel exopathogens, expel

pathogenic factors from muscles for clearing heat. The representative recipe is modified Gegen decoction [7].

Gegen decoction, mainly made of Kudzu, enters Yangming meridians to remove the heat in it and also remove the superficial pathogenic factors in Taiyang meridians, in this way to care AR. Liu [8] thought that AR is due to obstruction of insidious pathogen and adverse flow of turbid Qi, so he treated AR presenting as the excess syndrome of Yangming fu-organs by Xiao Chengqi decoction. Xiao Chengqi decoction has the function of purgating heat and bowels, and removing stagnancy and obstruction of the fu-organs, so it can care AR with the syndrome of gastrointestinal excess heat.

2.1.3. Treatment from the Perspective of Shaoyang Syndrome

Shaoyang meridian is located at half exterior and half interior. It is the core of Qi movement. If the pathogenic factors affect the Shaoyang meridians, then the movement of Qi must be disorderly, which leads that Qi can neither remove the pathogenic factors out of the body nor warm the body. Struggle between healthy Qi and pathogenic causes AR. The clinical characteristics are nasal congestion, runny nose, itching nose, accompanying alternating chill and fever, thoracic and hypochondrium fullness, swimming, and bitter tasting etc. The Xiaochaihu decoction is the appropriate choice for AR in this case because it can reconcile Shaoyang meridians and free the nasal orifices. For example, Wang *et al.* [9] adopted modified Xiaochaihu decoction to treat 50 children with AR, the total effective rate is 94%.

2.1.4. Treatment from the Perspective of Taiyin Syndrome

Taiyin is the first of the three Yin. The corresponding site of lesion locates mainly at spleen and stomach. The invasion of cold and dampness and the deficiency of health Qi causes the weakness of spleen and stomach. The spleen is the source of phlegm. The cold and damp attacking causes the weakness of spleen. Fluid retention overflows to nostrils and causes the rhinorrhea for a long time, often accompanying heaviness in the head, abdominal fullness and pain, inappetence, loose stool etc. This syndrome should be harmonized by warming medicine. Ling Gui Zhu Gan decoction is a representative prescriptions.

Liu *et al.* [10] thought that spleen cannot control fluid in the body if the spleen Yang is damaged. Additionally, if the heart Yang is deficient at the upper Jiao, then the water pathogen will upshot to cause nasal mucus is sneezed out violently, and is often fuzzy-headed. Linggui Zhugan decoction is suitable for this case to warm spleen-Yang, excessive fluid and restrain the uprush of water pathogen.

2.1.5. Treatment from the Perspective of Shaoyin Syndrome

Shaoyin meridian governs the two channels of heart and kidney. If the kidney Yang is deficient, then the lung and spleen must be lack of warmth and cannot transform body fluid. Accordingly the cold water will overwhelm the nose to cause AR. At the first stage of Shaoyin syndrome, the main pathogenesis is that

the kidney Yang deficiency causes the dysfunction of warmth in transformation. Clinically, patients often show the syndromes of continuous clear mucus, edema, inadequate urination, heavy limbs. The Zhenwu decoction is often used in this case. Duan *et al.* [11] treated AR by using Shenqi Wan combined with Chlorphenamine Maleate Tablets. The effect is satisfied.

The case of kidney Yang deficiency accompanying wind-cold disease involves both Taiyang and Shaoyang. Clinical Features are that wind-cold locates at the surface of body and the Yang deficiency of Shaoyang locates at the internal. Ephedra Fuzi Asarum decoction is suitable for treat this kind of patients by improving Yang and relieving exterior syndrome.

2.1.6. Treatment from the Perspective of Jueyin Syndrome

Jueyin is the final stage of the six meridians and governs the liver and pericardium. The liver is in charge of ascending and the lung is in charge of descending of Qi. If the pathogenic factors invade the Jueyin meridian, then the liver will be in disorder state, so the functions of ascending and descending will be failure. The phlegm turbidity will invade nostrils to reduce AR. In this case, Angelica Sini decoction is often used to warm meridian and dispel cold, and Wumei pill is used to warm liver and kidney.

AR is located in the Taiyang meridians. The disease is related to the unfavorable Qi of Taiyang meridians, weakened defensive Qi, and the invasion of wind-cold. There are also factors that lead to abnormal body fluid metabolism. The treatment of AR can be performed with the classic prescription of Wuling powder and its modified version [12].

Yuchan Weifei pill can reduce the recurrence rate of seasonal AR, and the effect of using it before the onset of AR is better. The preventive effect of patients taking lunch break is better than that of patients not taking lunch break. The preventive effect of patients without family history is better than that of patients with family history. The preventive effect of patients with spring break is better than that of patients with autumn break or both [13].

Many doctors use Zhongjing classic prescription to treat AR with good effect, including: Ling Gui Shu Gan decoction, Xiao Qing Long decoction, Guizhi decoction, Mahuang Forsythia Chixiaodou decoction, Mahuang Xixin Fuzi decoction, Jinkui Shenqi Pill etc [14].

“Lingshu: Xieqi Zangfu Bingxing” said: “cold body and cold-rheum injure lung because the lung can be invaded from the interior and exterior by cold, and the Qi will go upstream.” This point can also be adopted to guide the treatment of AR [15].

The pathogenic cold is the main cause of pulmonary disease. Nowadays, people often spend the whole summer in air-conditioned rooms, have too much cold drink and eat too much out of season fruits and vegetables, which is the main reason of cold body. The prevention of AR should be guided by having correct habits of food, clothing, housing and transportation.

If the patients use Buzhong Yiqi decoction for treatment, the total effective

rate is high, the degree of adverse reactions is relatively low, and most of them can be alleviated by themselves. The total clinical effective rate of AR treated with Buzhong Yiqi decoction alone or combined with western medicine is better than that treated with western medicine alone [16].

Xiaoqinglong decoction can inhibit NF- κ B nuclear gene expression to regulate gene transcription by interfering with AGE-RAGE signal pathways, and further regulates Th1/Th2 balance by mediating IL-17 cytokines to regulate Th17 cell differentiation to achieve anti-inflammatory and immune regulation [17].

The effect treated by Tongdu moxibustion method is obviously good in improving nasal symptoms, accompanying symptoms of rhinitis, quality of life of nasal conjunctivitis, reducing serum LgE level in patients with AR [18].

Zhou [19] took Mahuang Fuzi Xixin decoction combined Mahuang decoction as the base prescription to treat AR. If the patients have slightly greasy tongue coating, then the power of expelling cold and damp from the body should be strengthened, and the power of tonifying should be reduced slightly, so the oyster and Kudzuin should be cancelled, the dosage of Codonopsis pilosula, Astragalus membranaceus and Licoricethe should be decreased and Gallnut, Beehive, Loquat leaf, Agrimonyoriginal prescription should be added.

Treatment of AR by either Zhenwu decoction combined with modified Yupingfeng powder or fumigation of TCM shows good effect [20] [21].

2.2. Acupuncture and Moxibustion Treatment

Acupuncture and moxibustion have significant curative effect on AR. AR can be treated by simple acupuncture, or combining acupuncture with medicine, moxibustion, acupoint application, acupoint catgut embedding, special acupuncture and combination of other therapies to stimulate corresponding meridians and acupoints, inhibit cholinergic nerve excitation, regulate immune function, and so on [22].

Acupuncture and moxibustion have the advantages of simple operation, green safety and considerable curative effect; At the same time, there are also deficiencies in clinical syndrome differentiation, acupoint selection and efficacy evaluation. For example, there is no unified standard for clinical syndrome differentiation and acupoint selection, and the research of evidence-based medicine is lacking, so the authority is poor. The evaluation indicators are subjective indicators, lacking objective indicators, so the evaluation of its efficacy is not enough convincing.

The effects are significant in treating AR by acupuncturing the points of sphenopalatine ganglion (both sides), Zusanli (both sides), Fengmen (both sides), Feishu (both sides), Spleen Shu (both sides), and Qihai, especially for AR due to deficiency in Qi of Lung and Spleen. The long-term effect is good and the recurrence rate is low. "Buring wire method" is better than "acupuncture method" in improving patients' nasal symptoms, especially nasal congestion and itching, treatment frequency, medical expense and time cost.

Therapeutic effect of "nasal three needles" combined with bird pecking moxibustion at Dazhui point on AR of Qi deficiency type is good after treatment for

some time. “Nasal three needling” is currently widely used in clinical practice. The main points are “Yinxiang, Upper Yinxiang, Yintang”. Yinxiang point is an important point for treating nose diseases, which has the functions of facilitating nose orifices and dispersing wind-heat. Upper Yinxiang, also known as “Bitong”, “Chuanbi”, etc., has the functions of promoting nostrils and clearing away heat and wind. Yintang point can stimulate and raise the body’s Yang Qi. It has the effect of clearing the nose, brightening the eyes, congealing the heart and calming the nerves. It is mainly used to treat rhinorrhea, headache, insomnia and other diseases [23].

Moxibustion can achieve the effects of anti autoimmunity and anti allergic reaction by regulating the imbalance of immune function in the body. Governor Vessel Moxibustion is a kind of indirect moxibustion, which has the characteristics of wide moxibustion area, large moxibustion force and strong warming and unblocking force. Its action sites are all over the Du meridian (Dazhui-Yaoshu) on the back, the back Shu point on both sides of the Jiaji, and the first lateral line of the bladder meridian [24].

Acupuncture of cervical Jiaji point has a significant effect on AR. Compared with oral loratadine, it can effectively improve the nasal symptoms, nasal concomitant symptoms and quality of life of patients [25].

Take Yintang, Fengchi (both sides), Zusanli (both sides), Upper Yinxiang (both sides), Yinxiang (both sides), Ganshu (both sides), Qimen (both sides), Taichong (both sides). The results show that both liver based treatment and conventional acupuncture have clinical efficacy, and the difference between the two is also significant. The former is more significant in the improvement of the emotional part of RQLQ than that of conventional acupuncture, and the improvement of clinical efficacy and quality of life are also more significant [26].

The most frequently used acupoints, such as Yinxiang and Yintang, are located around the nose. Anatomically, Yinxiang acupoints have suborbital branches of trigeminal nerve at the superficial layer and facial nerve at the deep layer; The supratrochlear nerve, a branch of the frontal nerve, is distributed at Yintang point [27].

2.3. Other Acupoint Therapies

2.3.1. Acupoint Injection Therapy

Zhou *et al.* [28] treated AR by using point injection once a day. After 30 days of continuous injection, the symptoms improved. From the perspective of long-term therapeutic effect, the effect of point injection is obviously better than that by WMM Li [29] took acupuncture treatment for AR patients, plus Yinxiang point injection, once every other day, for 4 consecutive weeks, the symptoms of nasal congestion and sneezing were alleviated.

2.3.2. Acupoint Application Therapy

Lu *et al.* [30] treated AR patients by acupoint application combined with steam

fumigation, making the symptoms of patients improved significantly, the curative effect was definite, and the quality of life improved. Gu *et al.* [31] treated AR by acupoint application and Shenque point flash cupping, which can significantly reduce nasal symptoms, and effectively enhance human immunity and reduce the expression of IgE. Guo *et al.* [32] used acupoint application and electroacupuncture to treat AR. The symptoms improved significantly, and the number of disease attacks decreased.

Either ear acupuncture alone or acupuncture alone has a certain effect on AR, but the combination of the two is more effective [33]. Li [34] used auricular plaster to treat AR patients with lung and spleen deficiency, the effective rate arrived at 80.56%. The effects of treatment of AR with needle embedding and blood letting [35] are also very obvious. Zhou *et al.* [36] adopted acupuncture combined with micro needle knife release to treat AR. The clinical symptoms improved significantly. The recurrence rate was 7.10% after 1 year of follow-up.

“Xinwu point” combined with umbilical cord therapy has a significant effect on AR, which can be popularized and applied in clinical practice as a treatment mode [37].

Acupuncture combined with invigorating Qi and warm Yang recipe can improve the symptoms of lung Qi deficiency-cold type [38].

2.4. Treatment by Acupuncture and Moxibustion Combined with TCM

Li Yan studied three kinds of treatment for AR: The acupuncture plus Chinese medicine group was given intranasal acupuncture at both sides of the inner Yinxiang point and the Biqu point, and the self prepared Chinese medicine AR No. 1 was given in combination; Chinese medicine group was treated with Chinese medicine alone; The Loratadine group took Loratadine tablets daily. It is shown that the scores of total symptoms and signs in acupuncture combined with TCM group were lower than those in TCM alone and loratadine group. After treatment, the total effective rate of acupuncture combined with TCM group was 96.0%, which was higher than 76.0% of TCM alone group and 72.0% of loratadine group. Therefore, the therapeutic effect of intranasal acupuncture combined with TCM is obviously better than that of TCM alone [39].

The self prepared AR No. 1 is mainly used to treat AR with lung Qi deficiency-cold. In the prescription, the *Herba asari*, *Schizonepeta tenuifolia*, *Saposhnikovia divaricata* can dispel wind and cold; *Codonopsis pilosula*, *Astragalus membranaceus*, *Chebula chebula*, *Licorice* can invigorate lung and Qi; *Xanthium sibiricum* and *Magnolia flower* can both dispel the cold and open the nostrils; Schisandra is an astringents and can stop perspiration; *Atractylodes macrocephala* and *Poria cocos* are beneficial to Qi and warm spleen and stomach; Earthworm and Cicada slough can dispel wind and relieve itching.

Nasal irrigation has obvious effect on improving airway reaction and clinical symptoms of AR patients, which is worth popularizing [40].

There are also some deficiencies in TCM for AR, such as long course of treatment and slow response. At present, there is no unified standard for the evaluation of the actual efficacy of TCM. It is difficult to unify the objective standards of individualized treatment, diagnosis and efficacy of TCM in clinical practice. The specific mechanism of TCM for AR is still unclear, and the experimental research needs to be further deepened [41].

3. Treatment by WMM

3.1. Treatment by Environmental Control

This method is to avoid or control environmental containing allergens which can trigger AR. Allergens can be avoided by wearing glasses, masks, installing air filtration systems, cleaning the surroundings, etc. The efficacy and quality of life of patients receiving environmental control education are better than those of patients without education, and adverse drug reactions and complications can be reduced.

3.2. Treatment by Medicine

Medicine therapy is the key means to treat AR at present. There are mainly the following medicines adopted for treatment of AR.

Nasal hormone: Glucocorticoid is a common hormone medicine used to prevent and treat AR in clinical practice. It is a nasal hormone commonly used to treat non infectious AR, such as Nesuna and Renault. Nasal hormones can reduce the formation of histamine, inhibit the expansion of blood vessels and improve the swelling of nasal mucosa by suppressing the release of a variety of inflammatory cells and cytokines, thus improving nasal runny nose, sneezing, nasal congestion and other symptoms. Adverse reactions such as burning, dry nose, nose bleeding may occur.

Antihistamine: Antihistamines is applicable to all types of AR. In the pathogenesis of AR, histamine reacts with the receptor, and antihistamines can block the binding of the receptor with histamine, rapidly relieve nasal symptoms. But during the use of antihistamines, you may suddenly feel throat irritation and bitter taste [42]. For example, Leukotriene receptor antagonists inhibit capillary permeability by blocking cysteine LTs (Cys LTs), reducing the release of inflammatory factors [43], and reducing the infiltration of local inflammatory cells to achieve the effect of symptom relief. The adverse reactions of leukotriene receptor antagonists are few, and the symptoms can be dry mouth and slightly mild pharyngitis [44].

Most of the first-generation H1 receptor antagonists can pass through the blood-brain barrier. It has different degrees of central inhibition, manifested as lethargy, fatigue, sedation, etc., and can combine with choline receptors to cause dry discomfort of mouth, nose, eyes, etc. The second generation H1 receptor antagonist is not easy to pass through the blood-brain barrier, so it has no central inhibition effect. It is more widely used in AR at present.

Glucocorticoids can increase the tension of blood vessels, reduce the permeability of capillaries and the release of various inflammatory factors, accordingly reduce the symptoms of AR. However, the effect of glucocorticoid alone is relatively slow. Generally, it needs to be used continuously for one month to achieve satisfactory results, and local irritation of nasal mucosa may occur and mild nasal mucosal bleeding increases the risk of local *Candida albicans* infection and other adverse reactions [45].

3.3. Immunotherapy

Immunotherapy is a treatment method that artificially enhances or suppresses the immune function of the body which can achieve desensitization to allergens in order to achieve the goal of treating diseases due to the low or high immune status of the body.

Immunotherapy can induce the body to generate immunity, inhibit T cells corresponding to allergens, block reactions, and inhibit the aggregation of eosinophils, mast cells, etc. When the allergen is encountered for the second time, the symptoms will be significantly relieved or disappeared.

Currently, the relatively mature immunotherapy is desensitization therapy for mites. Acarid preparations are injected subcutaneously or dripped under the tongue for oral administration to stimulate the patient's immune tolerance and in this way the patient can gradually adapt to allergens, and ultimately achieve the effect of no allergic reactions or reducing allergic reactions when re-contacting allergens.

However, the treatment cycle of immunotherapy for AR is relatively long.

3.4. Surgical Treatment

Patients with severe AR who failed to respond to various treatments often choose surgery to improve their symptoms. This method is chosen often when the following conditions occur: after medication or immunotherapy, the symptoms of nasal congestion have not improved, and there are obvious physical signs that affect the quality of life; there are significant anatomical variations in the nasal cavity, accompanied by dysfunction; complication with chronic rhinosinusitis and nasal polyps; or drug treatment is ineffective.

At present, the most commonly used surgical methods are: inferior turbinate mucosa surgery, neurectomy, and radiofrequency therapy. The treatment can only relieve symptoms, and the more disadvantageous is the damage to nasal mucosa [46]. For this method, surgical indications and contraindications should be strictly followed and an appropriate surgical method based on the patient's anatomy, severity, and complications should be chosen.

3.5. Understanding of Modern Medicine on AR

The western medicine pathogenesis of AR is that after the allergen enters the atopic individual as a specific antigen, the body will produce corresponding

immunoglobulin E (IgE) antibodies, which attach to the surface of the medium cells (mast cells, basophils), making the body in a sensitized state. When the body touches the same antigen again, the antigen and the immunoglobulin on the surface of the mediator cell have hypersensitivity reaction, secrete histamine, bradykinin and other bioactive substances, causing pathological changes such as nasal vasodilation, increased vascular permeability, increased gland secretion, and thus producing nasal reactions such as itching, sneezing, and clear nose.

At present, it is believed that AR is the result of the interaction between genes and environment. Due to the different environment and exercise mode, the impact on AR is also different. Endurance outdoor land sports can increase the prevalence of AR among the population, while swimming and indoor land sports will not increase the prevalence of AR among the population. In addition, endurance outdoor land sports, speed and strength outdoor land sports and cold air sports will definitely aggravate the symptoms of AR patients. However, domestic AR guidelines do not give clear guidance on exercise [47].

4. Combination Treatment of TCM and WMM

According to the above viewpoints, TCM cure patients mainly by changing patients' own constitution to defense the diseases. The starting point of WMM is to eliminate the pathogen. In other words, Even if the pathogen is known, the disease can be partly or totally cured by TCM after the patients' own constitution is strengthened. If we both eliminate the pathogen and improve physical fitness, the disease will be surely cured easily.

In practice, the clinical effect of Chaihu Guizhi decoction plus cetirizine hydrochloride tablets in treating AR is significant, which can quickly eliminate the corresponding symptoms and signs, and eliminate inflammatory reactions [48].

Thunder-Fire moxibustion for AR treatment is superior in improving the symptoms of nasal itching and congestion to the Cetirizine Hydrochloride Tablets.

While using WMM to improve the clinical symptoms of patients, the compatibility of TCM with expectorant and resuscitation effects can better assist WMM to improve nasal congestion caused by hypertrophy of turbinate and congestion of nasal mucosa [49].

The combination of TCM and WMM is a treatment worthy of clinical application and promotion. It is safer than WMM or TCM alone, and patients have fewer adverse reactions. For example, budesonide nasal spray combined with Xinling granule oral preparation can effectively alleviate the symptoms of children with allergic rhinitis, and desloratadine combined with Yupingfeng granule can effectively reduce the adverse reactions of patients, and the treatment efficiency is higher than that with TCM or WMM alone.

5. Conclusions

Clinical cases of children and adolescents with AR have also increased year by year. This paper summarized the advances on the treatment of AR by TCM and

WMM to provide references for further study.

The main means of TCM for treatment of AR is to regulate the patients' health Qi and Yang Qi. Drugs, acupuncture, psychology and other means of treatment are all used and the effects of treatment are very well. There are also some deficiencies in TCM for AR, such as long course of treatment, slow response, and lack of unified standard for the evaluation of the actual efficacy of TCM etc.

WMM mainly relieves the infiltration of local inflammatory cells, expands local capillaries, improves nasal permeability and alleviates the occurrence of allergic graduation by using kinds of drugs or surgery. WMM can treat AR by surgery. However, there are some adverse reactions and limitations in the treatment of AR with WMM alone. For example, the course of desensitization therapy and sublingual immunotherapy is long; Local application of corticosteroids can stabilize the epithelial and vascular endothelial barrier of nasal mucosa, reduce the sensitivity of stimulating receptors, but can induce epistaxis and dry nasal mucosa, etc. meantime.

Though both TCM and WMM are effective and have some common characteristics and each has its own characteristics, the combination of TCM and WMM is a treatment worthy of clinical application and promotion. It is safer and with higher treatment efficiency than WMM or TCM alone, and patients have fewer adverse reactions.

Conflicts of Interest

There are no interests or disputes of this article.

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