

Research Progress in Integrated Chinese and Western Medicine Health Management for School-Age Children with Asthma

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Abstract: *Objective:* The purpose of this study is to investigate the application of Chinese and Western medicine in the health management of school-age children with asthma and its research progress, with a view to providing a more comprehensive and effective management strategy for the clinic. *Methods:* Using the method of literature review, this study systematically searched and analyzed the relevant studies on the combination of Chinese and Western medicine in the health management of school-aged children with asthma in recent years, focusing on Chinese medicine treatment, Western medicine treatment, and the combined health management of Chinese and Western medicine. *Results:* Chinese medicine treatment, Western medicine treatment, and the health management mode of combining Chinese and Western medicine showed unique advantages in school-age asthmatic children. Through the comprehensive use of Chinese medicine's diagnosis and treatment, Chinese medicine conditioning, Chinese medicine characteristic therapy, and Western medicine's modern medical methods, it not only effectively relieved asthma symptoms but also significantly improved the quality of life of the children. At the same time, this management mode also focuses on the psychological guidance and family care of the children, forming an all-round and multi-level health management system. *Conclusion:* The health management strategy of combining Chinese and Western medicine has a broad application prospect in school-age asthmatic children, and its specific interventions and mechanisms of action should be further studied to provide more scientific and systematic guidance for clinical practice.

Keywords: School-age children with asthma; Chinese medicine treatment; Western medicine treatment; Health management

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1. Introduction

Asthma is a chronic inflammatory disease involving multiple cells and molecules, which can recur repeatedly. The prevalence of asthma in children in China is about 1% to 3%, and the trend is increasing year by year. Long-term high-dose inhaled glucocorticosteroid treatment is the main means to control asthma symptoms, but due to its many side effects, patients' compliance is poor, and the ideal therapeutic effect cannot be achieved.

Therefore, it is urgent to seek new treatment methods. Combined Chinese and Western medicine treatment has unique advantages, such as regulating the respiratory system, immune system, and systemic organs, enhancing body immunity, and reducing adverse drug reactions. This article reviews the research progress of combined Chinese and Western medicine health management in school-aged children with asthma by reviewing relevant literature, with a view to providing a clinical reference basis and further improving the quality of life of children with asthma.

2. Chinese medicine treatment

Chinese medicine believes that asthma is “lung paralysis,” “croup,” “wheezing,” etc., and its etiology and pathogenesis are mostly related to exogenous influences, dietary disorders, emotional disorders, and inappropriate work and rest. Jin Dynasty *Key to Therapeutics of Children’s Diseases* recorded: “A prolonged cough damages the lungs; when there is a deficiency, it stirs up wind, which leads to wheezing. Wind and phlegm interact, causing this condition.” Qingren Wang put forward in *Correction of Errors in Medical Classics* that phlegm and dampness obstructing the flow of vital energy is the basic pathogenesis of asthma.

Modern medicine believes that airway hyperresponsiveness is an important pathogenesis of asthma in children, i.e., a specific and non-specific inflammatory response caused by a combination of factors, manifested as airway spasm. Classified according to different etiologies, asthma can be divided into exercise-induced asthma, allergic asthma, and other types. Among them, allergic asthma accounts for more than 90% of all childhood asthma. Chinese medicine’s understanding of pediatric allergic asthma has evolved from the simple concept of “allergic asthma” to different levels such as “phlegm retention and internal accumulation with external evil fighting.” It has proposed various syndromes including “lung and spleen qi deficiency,” “spleen and kidney yang deficiency,” “liver fire attacking the lung,” “internal obstruction by phlegm turbidity,” “lung and kidney yin deficiency,” “qi and yin deficiency,” and “phlegm and blood stasis interlocking”^[1].

Yellow Emperor’s Classic of Internal Medicine mentioned “The sage does not treat an illness that has already developed but prevents illness before it occurs; he does not address chaos that has already erupted but prevents chaos before it happens. This is the principle. To treat an illness after it has developed or to address chaos after it has erupted is like digging a well when one is already thirsty or forging a weapon when one is already in battle. Is it not too late?” It can be seen that prevention is better than cure. Early intervention and treatment are more effective than dealing with problems after they arise. Early prevention and treatment are key to reducing the occurrence and severity of chronic diseases and are the best ways to prevent repeated exacerbations of allergic asthma.

Chen *et al.*^[2] found that Yangyin Qingfei Decoction combined with montelukast can significantly improve lung function, reduce the frequency of acute exacerbations and hospitalization rate, and improve the quality of life of children with asthma. Qin *et al.*^[3] found that Yiqi Bushen Zhichuan Decoction could effectively control asthmatic children’s symptoms and had a good safety profile. Meng^[4] observed the differences between the Xiaoqinglong Decoction combined with Xie Bai San and its modified version in relieving asthma symptoms in children. The study found that both groups of children experienced varying degrees of efficacy, but the traditional Chinese medicine group had better outcomes compared to the Western medicine group. Li^[5] utilized a modified Dingchuan Decoction combined with montelukast sodium for treating cough-variant asthma in school-age children. The results showed that after 4 weeks of treatment, the total efficacy rate was 85.73% in the traditional Chinese medicine group, compared to 72.12% in the Western medicine group. This suggests that the combination of Dingchuan Decoction and montelukast sodium is effective in treating cough-variant asthma.

Li *et al.* [6] used the Yupingfeng Powder as an adjunct to Western medicine for treating 48 children with allergic rhinitis complicated by asthma. The results indicated that the total efficacy rate was 95.57% in the Yupingfeng Powder adjunct group, compared to 81.32% in the conventional Western medicine group. Both groups showed good clinical outcomes, with the adjunct therapy demonstrating a superior effect.

The above studies fully demonstrate that the advantages of Chinese medicine in the treatment of asthma lie in its approach of strengthening the body's vital energy and expelling pathogens, addressing both the symptoms and root causes of the condition. Chinese medicine can regulate the body's immune function, improve the frequency of asthma attacks, enhance the quality of life for patients, and shorten the duration of treatment. However, due to issues such as drug costs and insurance reimbursement, further research and improvement in this field are still needed.

3. Western medical treatment

Currently, the main treatment for asthma is the use of drugs such as inhaled glucocorticoids, bronchodilators, and immunomodulators [7]. Inhaled hormones work by acting on local receptors in the nucleus of mast cells or eosinophils, reducing airway smooth muscle cell proliferation, increasing collagen synthesis, and decreasing ciliated epithelial cell shedding, thus relieving asthma symptoms. However, repeated inhaled hormone therapy over a long period of time can lead to undesirable consequences, such as osteoporosis, increased risk of infections, gastrointestinal ulcers, etc. [8]. Therefore, researchers have improved the existing inhaled hormone therapy by combining it with other adjuvant therapies so that the therapeutic effect can be improved.

Yu [9] included a study of 100 children with asthma and found that glucocorticoids given by nebulized inhalation in combination with β_2 receptor stimulants effectively reduced the incidence of nocturnal and daytime wheezing, hospitalization and overall mortality, and had a high degree of safety. Huang *et al.* [10] applied vitamin A preparations supplemented with fluticasone propionate inhalation aerosol in the treatment of asthma in children and showed that this regimen significantly improved the symptoms of the children, reduced the degree of lung function damage, decreased the frequency of coughing, and at the same time significantly reduced the dosage of bronchodilators and hormone dosage, which has significantly enhanced the children's lung function and quality of life. Li *et al.* [11] used salbutamol sulfate nebulized inhalation combined with montelukast to treat children with acute exacerbations of asthma, the results showed that this program can not only significantly improve the symptoms of the children, but also effectively reduce their white blood cell counts, erythrocyte sedimentation rate, and the level of C-reactive protein. Hua [12] used vitamin D combined with glucocorticoids to treat children with bronchial asthma, the results showed that vitamin D combined with glucocorticoids group of children had significantly reduced serum interleukin-4 and interleukin-5 levels, while interleukin-10 levels were increased. This indicates that vitamin D combined with glucocorticoid therapy can effectively regulate the immune response in children and inhibit the release of inflammatory mediators, thus reducing airway inflammation.

It can be seen that the above improved inhaled hormone treatment programs have a definite efficacy and are worth promoting and applying in the clinic.

4. Combined Chinese and Western medicine health management

Chinese medicine believes that "the lung is a delicate organ," making it susceptible to external pathogens. Children, being in a period of growth and development, have delicate organs and tissues, insufficient physical and qi development, and weak defensive mechanisms, making them more vulnerable to external invasions [13].

For children with wind-heat invading the lungs, there is often a history of a cold or the consumption of seafood before the onset of symptoms. The tongue may appear red, with a yellow or greasy coating, and the pulse may be rapid and strong. Treatment with medications that clear the lungs, release the exterior, and disperse wind can achieve good therapeutic effects. Additionally, strengthening health education and management for children with asthma is also crucial for improving their quality of life.

Good health management is conducive to reducing the risk of acute asthma exacerbation and improving the prognosis. Wang *et al.* ^[14] found that after 12 weeks of combined Chinese and Western medicine health management (once a week), the frequency and severity of asthma symptoms in children and adolescents decreased significantly. Liu *et al.* ^[15] found that dividing patients into a control group and a combined group, with the latter receiving meridian point massage in addition to standard treatment, showed significantly better improvement in clinical symptoms, lung function indicators, and quality of life scores in the combined group compared to the control group after 6 months, the differences were statistically significant ($P < 0.05$). It can be seen that the combination of Chinese and Western medicine can reduce the symptoms of children with asthma, delay the progress of the disease, and reduce the recurrence of the disease. In addition, the development of a healthy lifestyle, the enhancement of environmental adaptability, and the adjustment of psychological and emotional states also play an important role in improving the quality of survival of children with asthma ^[16]. Therefore, we should focus on the individualized treatment of children, pay attention to the health status of children in a timely manner, and formulate the treatment plan in a rational assessment and step-by-step manner.

5. Frequently asked questions

- (1) For children with asthma, how can adherence be increased given the significant side effects of medication treatment? Gu *et al.* ^[17] pointed out that the long-term use of traditional Chinese medicine may cause liver and kidney function damage in children, so clinicians need to ask children about their past medical history in detail before prescribing and review them regularly.
- (2) Current studies on the use of Chinese and Western medicine health management models for children with asthma have focused on children, are they applicable to children of other ages? Jia ^[18] found that the model was equally effective in 68 elderly patients with asthma who underwent combined Chinese and Western medicine health management. Therefore, a comprehensive assessment of the age and condition of the child can be used as a major reference factor in selecting the mode and dose of medication.
- (3) No studies on the mental health of children with asthma were seen in this study; what is its impact on disease prognosis and quality of life? Yang *et al.* ^[19] provided comprehensive health services for children with asthma by establishing an asthma community management team, and the results showed that this method can improve the quality of life of children with asthma, reduce the mental stress of children with asthma, and improve anxiety, which is beneficial to the physical and mental health of children with asthma.
- (4) The occurrence and development of asthma are related to genetic factors, but there is no clear evidence that there is a causal relationship between the two, which is one of the challenges facing the medical field at present. Qiu ^[20] pointed out that the incidence of asthma in the offspring of mothers with respiratory diseases during pregnancy was significantly higher than that of the normal pregnancy population. It was also found that when the father suffered from allergic rhinitis, the incidence of asthma in his offspring was significantly higher than in those whose fathers had no nasal symptoms.
- (5) Allergic predisposition among family members can easily lead to the onset or exacerbation of asthma.

In urban areas of China, children have limited opportunities to interact with pets, and most parents are unwilling to have their children wear masks. These factors may contribute to the increasing incidence of asthma year by year.

6. Summary

As a chronic airway disease, clinical signs and symptoms of asthma are often similar to those of other diseases, and a comprehensive examination is required. Western medicine treats asthma mainly by using inhaled glucocorticosteroids, but there are disadvantages such as many side effects and poor compliance, which are inconducive to long-term stable control of the disease. Chinese medicine has certain advantages in relieving asthma symptoms and reducing hormone dependence, and can effectively improve lung ventilation and body immune function, so the combination of Chinese and Western medicine health management for asthmatic children can help to improve their adherence to treatment.

Currently, there are fewer reports in the literature on integrated health management of asthma in school-aged children, and most of them are small-sample studies. In the future, randomized controlled trials should be strengthened to further explore the clinical efficacy, safety, and cost-effectiveness of combined Chinese and Western medicine health management for school-aged children with asthma, as well as to analyze its possible mechanisms of action. Additionally, some scholars suggest that Chinese Medicine emphasizes the concept of “preventing disease before it occurs,” known as “preventive treatment of disease.” Therefore, it is recommended to integrate this approach into asthma health management. This involves focusing on the overall well-being of the patient to promote health and achieve a shift from “treating existing disease” to “preventing disease.” In addition, family environmental factors also affect the onset and regression of asthma, therefore, it is recommended that asthma prevention and management be incorporated into the community health service system. For example, health education, distribution of publicity materials, and health counseling activities can improve the self-care awareness and ability of the children and their parents, and reduce the incidence of asthma, so as to achieve the purpose of combining traditional Chinese and Western medicine in the prevention and treatment of asthma.

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