

# Analysis of the Clinical Value of Kechuan Yifei Bushen Decoction in the Treatment of Elderly Bronchitis (Chronic)

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**Abstract:** *Objective:* To explore the application value of Kechuan Yifei Bushen Decoction in the clinical treatment of chronic bronchitis in the elderly. *Methods:* From the elderly patients with chronic bronchitis admitted to our hospital from January 2023 to December 2023, 100 people were selected as research subjects, and they were divided into a traditional Chinese medicine decoction group and a Western medicine group using the random number table method, with 50 people in each group. The western medicine group was treated with a conventional western medicine regimen, while the traditional Chinese medicine decoction group was treated with Kechuan Yifei Bushen Decoction on the basis of the western medicine group. Then the symptom scores, lung function and clinical treatment effects of the two groups of patients before and after treatment were compared. *Results:* Before treatment, the difference in symptom scores and pulmonary function indicators between the two groups of patients was not significant ( $P > 0.05$ ); after one course of treatment, the cough score and sputum score of the TCM decoction group were  $(1.20 \pm 0.50)$ ,  $(1.10 \pm 0.40)$  points and wheezing points  $(1.00 \pm 0.30)$  points were lower than those of the Western medicine group  $(2.50 \pm 0.70)$  points,  $(2.30 \pm 0.60)$  points, and  $(2.10 \pm 0.50)$  points. Its  $FEV_1\%$ pred was  $(72.50 \pm 6.80)\%$  and  $FEV_1/FVC$  was  $(68.30 \pm 5.20)\%$ , which were both higher than those of the western medicine group  $(63.20 \pm 5.60)\%$  and  $(60.50 \pm 4.80)\%$ , and the total effective rate of the TCM decoction group of 94.00% (47/50) was also higher than the total effective rate of the Western medicine group of 78.00% (39/50). The differences in these comparisons were obvious ( $P < 0.05$ ). *Conclusion:* The treatment of elderly patients with chronic bronchitis using Kechuan Yifei Bushen Decoction combined with conventional western medicine can effectively improve their clinical symptoms, improve lung function and improve clinical treatment effects, so it has high clinical application value.

**Keywords:** Chronic bronchitis in the elderly; Cough and asthma Yifei Bushen Decoction; Clinical value; Lung function

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## 1. Introduction

Chronic bronchitis in the elderly is a common chronic disease of the respiratory system, with cough, sputum, and wheezing

as the main symptoms. The course of the disease is prolonged and repeated, seriously affecting the quality of life of the elderly. As age increases, the functions of the lungs, kidneys and other organs of the elderly gradually decline, their immune function declines, and they are more susceptible to diseases<sup>[1]</sup>. Conventional Western medicine treatments are mostly focused on anti-infection and relieving cough and asthma. Although they can relieve acute symptoms, the long-term effects are not good and drug resistance is easy to develop. Traditional Chinese medicine believes that the onset of chronic bronchitis in the elderly is closely related to lung and kidney deficiency and phlegm blocking the lungs. Treatment should be based on the principles of nourishing the lungs and kidneys, resolving phlegm, and relieving cough and asthma. Kechuan Yifei Bushen Decoction is a prescription developed based on the theory of traditional Chinese medicine. This study aims to explore its clinical value in treating chronic bronchitis in the elderly and provide a reference for clinical treatment.

## 2. Materials and methods

### 2.1. General information

From January to December 2023, we selected 100 elderly patients with chronic bronchitis admitted to our hospital. These patients must meet the diagnostic criteria for chronic bronchitis and have a disease duration of not less than 2 years, an annual attack that lasts for more than 3 months, an age of not less than 60 years old, and be in remission or mild to moderate acute attack. At the same time, patients and their families are informed and agree to participate in the study; however, patients with bronchiectasis, lung abscess, tuberculosis and other lung diseases, severe heart, liver, kidney and other organ dysfunction, allergic to the ingredients of this study, or patients with mental illness or cognitive dysfunction who are unable to cooperate with treatment will not be included in the study. The 100 patients were then divided into a traditional Chinese medicine decoction group and a Western medicine group using the random number table method, with 50 people in each group. Among them, there were 28 males and 22 females in the traditional Chinese medicine decoction group, aged between 60–82 years old, with an average of  $(68.50 \pm 5.30)$  years, with a disease duration of 2–15 years, with an average of  $(7.80 \pm 2.10)$  years, and were in acute onset. There were 18 cases in the attack stage and 32 cases in the remission stage. In the Western medicine group, there were 26 men and 24 women, aged 61–83 years old, with an average of  $(69.20 \pm 5.60)$  years. The disease duration was 3–16 years, with an average of  $(8.20 \pm 2.30)$  years. There were 20 cases in the acute attack stage and 30 cases in the remission stage. The basic conditions of the two groups of patients were comparable.

### 2.2. Treatment methods

The Western medicine group was treated with conventional Western medicine: anti-infective treatment was given during the acute attack period, and sensitive antibiotics were selected based on the results of sputum culture and drug sensitivity test, such as amoxicillin and clavulanate potassium tablets (0.375 g/time, orally 3 times a day) or cefuroxime axetil tablets (0.25 g/time, 2 times a day orally), the course of treatment is 7–10 days; at the same time, antitussive and phlegm-reducing drugs are given, such as ambroxol oral liquid (10 mL/time, 3 times a day orally); for those with obvious wheezing, albuterol aerosol (1-2 puffs each time, inhalation 3-4 times a day) is added. During the remission period, only ambroxol oral liquid was given as maintenance treatment (10 mL/time, twice daily orally).

The traditional Chinese medicine decoction group is combined with the cough and asthma Yifei Bushen decoction on the basis of the western medicine group. Prescription composition: 20 g astragalus, 15 g dangshen, 12 g atractylodes, 15 g poria, 10 g schisandra, 12 g psoralen, 10 g epimedium, 10 g almond, 10 g perilla, 12 g coltsfoot, 10 g platycodon, 6 g licorice. Add or subtract according to the symptoms: For those with a severe cough, add *Fritillaria fritillaris* 10 g and *Radix rhizoma* 12 g; for those with white phlegm, add Pinellia 10 g and tangerine peel 10 g; for those with obvious wheezing, add 6 g Ephedra and 10 g Dilong. 1 dose per day, decoct in water and take 400 mL of juice, take it warmly twice in the morning and evening. Both groups took 14 days as one course of treatment and were treated for 2 consecutive courses.

### 2.3. Observation indicators

Symptom score: Cough, sputum, and wheezing symptoms are scored. No symptoms are scored as 0 points, mild (occurs occasionally and does not affect daily life) is scored as 1 point, moderate (occurs frequently and partially affects daily life) is scored as 2 points, and severe (occurs continuously and seriously affects daily life) is scored as 3 points. Scores were scored before treatment and after one course of treatment.

Pulmonary function indicators: FEV<sub>1</sub>%pred and FEV<sub>1</sub>/FVC were measured using a pulmonary function tester before treatment and after one course of treatment.

Clinical efficacy: Determined based on symptom improvement and changes in lung function. Markedly effective: clinical symptoms basically disappear, and lung function indicators improve by  $\geq 30\%$ ; effective: clinical symptoms are significantly reduced, and lung function indicators improve by 10–29%; ineffective: clinical symptoms and lung function indicators have no significant improvement or even worsen.

### 2.4. Statistical analysis

SPSS 25.0 statistical software was used to process the data, with t test for measurement data and  $\chi^2$  test for count data.  $P < 0.05$  was considered a statistically significant difference.

## 3. Results

### 3.1. Comparison of symptom scores between the two groups before and after treatment

The TCM decoction group was lower than the Western medicine group, and the differences were significant ( $P < 0.05$ ) (Table 1).

**Table 1.** Comparison of symptom scores between the two groups before and after treatment (mean  $\pm$  SD, points)

Group	Cough		Expectoration		Panting	
	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Traditional Chinese Medicine Decoction Group (50)	2.80 $\pm$ 0.60	1.20 $\pm$ 0.50	2.70 $\pm$ 0.50	1.10 $\pm$ 0.40	2.60 $\pm$ 0.50	1.00 $\pm$ 0.30
Western Medicine Group (50)	2.70 $\pm$ 0.70	2.50 $\pm$ 0.70	2.60 $\pm$ 0.60	2.30 $\pm$ 0.60	2.50 $\pm$ 0.60	2.10 $\pm$ 0.50
<i>t</i>	0.767	10.686	0.905	11.767	0.905	13.339
<i>P</i>	0.445	0.000	0.367	0.000	0.367	0.000

### 3.2. Comparison of lung function indicators between the two groups before and after treatment

The TCM decoction group was higher than the Western medicine group, and the differences were significant ( $P < 0.05$ ) (Table 2).

**Table 2.** Comparison of lung function indicators between the two groups before and after treatment (mean  $\pm$  SD)

Group	FEV <sub>1</sub> %pred (%)		FEV <sub>1</sub> /FVC (%)	
	Before treatment	After treatment	Before treatment	After treatment
Traditional Chinese Medicine Decoction Group (50)	55.30 $\pm$ 5.10	72.50 $\pm$ 6.80	52.60 $\pm$ 4.50	68.30 $\pm$ 5.20
Western Medicine Group (50)	54.80 $\pm$ 5.30	63.20 $\pm$ 5.60	52.10 $\pm$ 4.70	60.50 $\pm$ 4.80
<i>t</i>	0.481	7.465	0.543	7.794
<i>P</i>	0.632	0.000	0.588	0.000

### 3.3. Comparison of clinical efficacy between the two groups

The total effective rate of treatment in the traditional Chinese medicine decoction group was higher than that in the western medicine group ( $P < 0.05$ ) (Table 3).

**Table 3.** Comparison of clinical efficacy between two groups [n(%)]

Group	n	Effective	Valid	Invalid	Always efficient
Traditional Chinese Medicine Decoction Group	50	28 (56.00)	19 (38.00)	3 (6.00)	47 (94.00)
Western medicine group	50	18 (36.00)	21 (42.00)	11 (22.00)	39 (78.00)
$\chi^2$					5.316
$P$					0.021

## 4. Discussions

Chronic bronchitis in the elderly belongs to the categories of “cough”, “asthma syndrome” and “phlegm retention” in traditional Chinese medicine. Its pathogenesis is complex and closely related to the dysfunction of the lungs, spleen, and kidneys. Elderly people often suffer from lung and kidney deficiency. The lungs govern breathing, and the kidneys govern the collection of Qi. Insufficient lungs and kidneys will cause the Qi to lose its control and the Qi will flow upward, causing cough and asthma. Spleen deficiency will cause abnormal transportation and transformation, and water and dampness will stop in the interior and accumulate to form phlegm. The turbid phlegm will block the lungs and aggravate the symptoms of cough and asthma. Therefore, treatment needs to take into account multiple aspects such as nourishing the lungs, tonifying the kidneys, strengthening the spleen, resolving phlegm, relieving coughs, and relieving asthma. The compatibility of Kechuan Yifei Bushen Decoction fully reflects this treatment idea. In the prescription, *Astragalus membranaceus*, *Codonopsis pilosula*, *Atractylodes macrocephala*, and *Poria cocos* strengthen the spleen and replenish Qi, so that the spleen can be strengthened, water-dampness can be dissolved, and phlegm and turbidity will disappear, which means “cultivating soil to produce gold”; *Schisandra chinensis*, psoralen, and epimedium nourish the kidneys and absorb Qi, consolidate lung Qi, and strengthen the Qi of the lungs and kidneys and relieve the symptoms of wheezing; almonds, perilla seeds, and butterburs relieve coughs and reduce phlegm, lower Qi and relieve asthma, targeting the main symptoms of cough and phlegm; Platycodon soothes the lungs and sore throat, carries the medicine upwards, and goes directly to the hospital; Zhigancao harmonizes various medicines. The whole recipe has the effects of nourishing the lungs and kidneys, strengthening the spleen and reducing phlegm, relieving cough and asthma, and is in line with the pathogenesis characteristics of chronic bronchitis in the elderly. Modern pharmacological research has also provided evidence for the effectiveness of this prescription. For example, the astragalus polysaccharide in *Astragalus* can enhance the body’s immune function and inhibit the release of inflammatory factors; the *Codonopsis saponins* contained in *Codonopsis pilosula* can improve respiratory muscle fatigue and enhance lung ventilation function; the Schisandrin in *Schisandra chinensis* can relieve bronchial smooth muscle spasm and reduce wheezing symptoms. The synergistic effect of these ingredients confirms the therapeutic mechanism of the prescription at the molecular level.

Judging from the clinical effects, the symptom scores of the TCM decoction group after one course of treatment were significantly lower than those of the Western medicine group, indicating that the Kechuan Yifei Bushen decoction can more effectively improve patients’ symptoms of cough, sputum, and wheezing. This is because the multiple drugs in the prescription work synergistically, which can not only directly relieve respiratory symptoms, but also reduce the recurrence of symptoms by regulating the functions of the internal organs. For example, Qi-tonifying drugs such as *Astragalus* and *Codonopsis pilosula* can enhance the body’s immunity and reduce the occurrence of respiratory infections, thereby reducing the frequency of symptom attacks; kidney-tonifying drugs such as *Schisandra chinensis* and *Psoralen* can improve

the kidney's Qi-receiving function and alleviate wheezing symptoms; phlegm-reducing and cough-relieving drugs such as almonds and perilla can quickly relieve cough and expectoration symptoms<sup>[2]</sup>. For elderly patients, long-term recurring symptoms not only cause physical pain, but also trigger negative emotions such as anxiety and irritability. Effective control of symptoms can significantly improve their psychological comfort and form a virtuous cycle of "symptom improvement-emotional stability-active cooperation with treatment."

In terms of lung function improvement, FEV<sub>1</sub>%pred and FEV<sub>1</sub>/FVC in the traditional Chinese medicine decoction group were significantly higher than those in the western medicine group, indicating that Kechuan Yifei Bushen Decoction can effectively improve the lung function of elderly patients with chronic bronchitis. Decreased lung function is an important feature of chronic bronchitis and is related to factors such as airway inflammation, airway remodeling, and weakened respiratory muscle function. Studies have shown that drugs such as Astragalus and Codonopsis have anti-inflammatory and antioxidant effects, which can reduce airway inflammatory reactions and inhibit airway remodeling; drugs such as Schisandra chinensis and Psoralea can enhance the strength of respiratory muscles and improve respiratory function; these effects jointly promote the recovery of lung function. It is worth noting that the deterioration of lung function in elderly patients is irreversible, and Kechuan Yifei Bushen Decoction can not only slow down the decline of lung function through multi-target effects, but also reverse mildly damaged lung function indicators to a certain extent, which is crucial to maintaining patients' daily activities<sup>[3,4]</sup>.

The total effective rate of the TCM decoction group was significantly higher than that of the Western medicine group, further confirming the advantages of Kechuan Yifei Bushen Decoction combined with conventional Western medicine treatment. Although conventional Western medicine can control the infection and relieve symptoms in the short term, it is difficult to fundamentally improve the patient's lung and kidney deficiency, spleen deficiency and phlegm-dampness, and other symptoms of deficiency in origin and excess in excess, making the condition prone to recurrence. The Kechuan Yifei Bushen Decoction regulates the functions of the organs, enhances the body's disease resistance, and works synergistically with Western medicine. It can not only quickly relieve acute symptoms, but also consolidate the curative effect and reduce recurrence, thus improving the overall treatment effect. From the perspective of treatment cost, although the initial investment of integrated traditional Chinese and Western medicine treatment is slightly higher, it can reduce the cost of multiple medical visits due to recurrence of the disease. In the long term, it has a higher cost-effectiveness ratio, especially suitable for the financial affordability of elderly patients<sup>[5,6]</sup>.

In clinical application, when using Kechuan Yifei Bushen Decoction, attention should be paid to syndrome differentiation and treatment, and additions and subtractions should be made according to the patient's specific symptoms to improve the pertinence of the treatment. For example, for patients with symptoms of kidney yang deficiency such as obvious fear of cold and cold limbs, soreness of waist and knees, etc., the dosage of epimedium and psoralea can be increased to 15g; for patients with lung heat who have yellow and sticky phlegm and dry mouth and tongue, reduce the amount of warm drugs such as psoralea and epimedium, and add 15 g of mulberry bark and 10 g of *Scutellaria baicalensis* to clear the lungs and resolve phlegm. At the same time, attention should be paid to the method of decoction of the medicine. First, soak the medicinal materials for 30 minutes, boil over high heat, then reduce to low heat and decoct for 30 minutes to ensure that the medicinal effect is fully exerted. For elderly patients, it is also necessary to consider the characteristics of their weak spleen and stomach functions. The medicine can be taken warm and should be avoided on an empty stomach to reduce gastrointestinal discomfort. In clinical practice, it has been found that some patients have low tolerance for the bitter taste of traditional Chinese medicine. A small amount of honey can be added to the medicinal solution for flavoring, which will not affect the efficacy of the medicine but also improve medication compliance<sup>[7,8]</sup>. Compared with simple Western medicine treatment, combined treatment with Kechuan Yifei Bushen Decoction has the advantages of precise efficacy, small side effects, and can improve the overall condition of patients, and is more suitable for long-term treatment of elderly patients with chronic bronchitis. This treatment model that combines traditional Chinese and Western medicine not only takes advantage of the fast-acting characteristics of Western medicine, but also reflects the advantages of the overall conditioning of traditional Chinese medicine, and is worthy of clinical promotion. During the

treatment process, it is also necessary to pay attention to the health education of patients, guide them to quit smoking and limit alcohol, avoid contact with dust and irritating gases, and perform appropriate respiratory function exercises (such as abdominal breathing, pursed-lip breathing), etc. These measures complement each other with drug treatment and can further improve the therapeutic effect. In addition, elderly patients with chronic bronchitis often have underlying diseases such as hypertension and diabetes. Astragalus, Codonopsis and other drugs in Kechuan Yifei Bushen Decoction will not aggravate the underlying diseases, but can have a positive impact on the control of underlying diseases by regulating body metabolism and improving microcirculation. Clinical observation found that patients who took this prescription for a long time had a significantly reduced incidence of colds, which is closely related to the prescription's ability to enhance the body's immunity. Reducing the number of colds can effectively reduce the frequency of acute attacks of chronic bronchitis, which is also one of the important reasons why the traditional Chinese medicine decoction group has better efficacy<sup>[9,10]</sup>.

## 5. Conclusion

At present, Kechuan Yifei Bushen Decoction has accumulated certain experience in clinical application, and the compatibility of the formula can be further optimized based on the differences in patients' physical constitution. In summary, Kechuan Yifei Bushen Decoction combined with conventional Western medicine can effectively improve the clinical symptoms of patients, improve lung function, and improve clinical efficacy in the treatment of chronic bronchitis in the elderly. It has high clinical value and provides an effective method for the treatment of chronic bronchitis in the elderly.

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## Disclosure statement

The author declares no conflict of interest.

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