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Study on the Clinical Efficacy of Kidney-tonifying and Qi-reinforcing Method in Intervening on Pulmonary Function and Quality of Life in Patients with Stable Chronic Obstructive Pulmonary Disease

Baotao Wang*

Ganma Town Health Center, Lianyungang 222124, Jiangsu, China

Author to whom correspondence should be addressed.

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Abstract: *Objective:* To explore the application value of the traditional Chinese medicine method of nourishing the kidney and nourishing Qi in stabilizing patients with chronic obstructive pulmonary disease (COPD), consolidating the root cause, and delaying the progression of the disease. *Methods:* The research period began in October 2024 and ended in May 2026. The selected subjects of investigation were patients with stable chronic obstructive pulmonary disease who were treated in our hospital. 110 cases were screened and divided into 2 groups according to the random number table method. 55 cases were matched in each group. The control group was given a conventional Western medicine intervention, and the observation group was given a combined TCM prescription intervention of nourishing the kidney and nourishing Qi. Comparisons were made regarding differences in lung function, quality of life, TCM syndrome scores, and clinical efficiency of the patients in each group. *Results:* After the intervention, the pulmonary function indicators of both groups showed an upward trend, and the improvement of each pulmonary function indicator of the observation group was better than that of the control group ($P < 0.05$); the scores of various TCM syndrome scores and various aspects of life quality of the patients in the observation group were lower than those of the control group ($P < 0.05$); after adopting different intervention modes, the total effective rate achieved by the observation group was higher than that of the control group, and the difference value $P < 0.05$. *Conclusion:* For patients in the stable phase of COPD, the intervention of the TCM kidney-tonifying and Qi-enhancing method can effectively improve the patients' pulmonary ventilation function, reduce the residual clinical symptoms in the stable phase, and optimize the quality of patients' daily life, which is worthy of clinical adoption.

Keywords: Chronic obstructive pulmonary disease; Stable phase; Kidney-tonifying and Qi-tonifying method; Lung function; Quality of life

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1. Introduction

Chronic obstructive pulmonary disease (COPD) is a chronic progressive airway disease with high incidence in clinical respiratory medicine departments. It has persistent airflow limitation, chronic non-specific inflammation of the airway, and progressive decline of lung function as its core pathological characteristics. This disease mostly occurs in middle-aged and elderly smokers and people exposed to dust and harmful gases for a long time. The course of the disease is protracted and recurrent. In the acute exacerbation period, symptoms such as worsening cough and asthma, difficulty breathing, and lung infection may occur. In severe cases, it can induce critical complications such as respiratory failure and corpus pulmonale. It is one of the major respiratory diseases that endangers the physical and mental health of middle-aged and elderly people, reduces their quality of life, and increases the medical burden on families and society [1]. Modern Western medicine mainly focuses on the treatment of stable COPD with bronchodilators, glucocorticoids, oxygen therapy, respiratory function exercises, smoking cessation and lifestyle intervention. It can relax the airways, relieve airway spasm, control chronic inflammation and reduce the number of acute exacerbations to a certain extent. However, long-term simple Western medicine intervention has certain limitations. Some patients still have symptoms such as shortness of breath and fatigue, wheezing when moving, intolerance to exertion, and repeated susceptibility during the stable period. The annual decline in lung function cannot be effectively curbed. Moreover, long-term Western medicine application has certain risks of drug resistance and minor adverse reactions, and the overall long-term prognosis improvement effect is limited. In the theoretical system of traditional Chinese medicine, COPD falls into the categories of “pulmonary distension”, “asthma syndrome” and “cough”. Traditional Chinese medicine classics of the past dynasties record that the disease is mainly located in the lungs, and if the disease persists for a long time, the spleen and kidneys will be affected. The core pathogenesis is deficiency in origin and excess in excess. The stable stage is characterized by deficiency of internal organs and deficiency of healthy Qi, and is characterized by phlegm, blood stasis, and Qi stagnation. The lungs govern Qi and respiration, while the kidneys govern reception and are the root of Qi. In patients with long-term COPD, the lung Qi is deficient for a long time, the kidney Qi is unable to absorb Qi, and the Qi does not return to its original state. Therefore, typical symptoms of kidney deficiency and inability to receive Qi occur, such as asthma with movement, shallow shortness of breath, persistent cough, soreness and weakness in the waist and knees, and mental fatigue [2]. Therefore, the core of the treatment of COPD in the stable phase should be based on the basic principles of tonifying the kidneys and strengthening the essence, absorbing Qi and relieving asthma, and supporting healthy Qi. By replenishing the kidney Qi in the lower burner and fixing the lung Qi in the upper burner, the treatment goals can be achieved by taking into account both the root cause and the branch cause, consolidating the root cause and preventing recurrence [3]. Based on this, a randomized controlled study model was launched to systematically observe the clinical efficacy of the kidney-tonifying and Qi-tonifying method combined with Western medicine intervention, and provide real data support for the prevention and treatment of COPD through the combination of traditional Chinese and Western medicine.

2. Materials and methods

2.1. General information

The research subjects included all patients with stable COPD who were treated in our hospital from October 2024 to May 2026. 110 cases were screened and assigned to 2 groups according to the random number table method. There were 55 cases in the control group, and the sex ratio was entered = 30 cases: 25 cases, aged

between 48 and 78 years old, with an average of (64.28 ± 5.33) years; the disease period ranged from 1 to 11 years, with an average of (6.28 ± 1.44) years; observation There were 55 cases in the observation group, with a male to female ratio of 31:24, with the oldest being 80 years old and the youngest being 46 years old, with an average of (63.88 ± 5.28) years; the duration of the disease was 1-12 years, with an average of (6.33 ± 1.46) years. The above two sets of data were balanced and verified by statistical software, and there was no difference between them ($P > 0.05$).

Inclusion criteria: (1) Relevant standards of the "Guidelines for Diagnosis and Treatment of Chronic Obstructive Pulmonary Disease (2021 Revised Edition)" [4] and in a stable stage; (2) Age 45 to 80 years old, disease duration ≥ 1 year; (3) No use of kidney-tonifying traditional Chinese medicine preparations and immunomodulatory drugs in the past 2 months; (4) Voluntary participation and signed informed consent. Exclusion criteria: (1) People with other respiratory diseases; (2) People with substantial organ failure; (3) People with allergies to traditional Chinese medicine and unable to tolerate oral treatment of traditional Chinese medicine; (4) People with recent acute exacerbation and severe pulmonary infection; (5) Mental abnormalities and poor compliance; (6) People who dropped out of the study midway.

2.2. Method

Control group: those in the stable stage of COPD were given conventional and standardized treatment with Western medicine. The patient was given long-acting bronchodilator inhalation therapy, treated symptomatically as needed, and was guided to quit smoking and stay away from dust and irritating gas environments. The patient was given nutritional support, abdominal breathing, pursed-lip breathing and other respiratory function rehabilitation training, and low-flow home oxygen therapy was reasonably carried out. The intervention period lasted for 3 months, during which no traditional Chinese medicine intervention was used.

Observation group: On the basis of the same conventional Western medicine treatment and rehabilitation guidance as the control group, combined with the oral intervention of a traditional Chinese medicine decoction to tonify the kidney and nourish Qi. The basic recipe consists of: Rehmannia glutinosa, dogwood, yam, wolfberry, dodder, schisandra, walnut meat, cordyceps (substitute cordyceps flower), astragalus, dangshen, perilla seed, and licorice. Add and subtract according to the syndrome: For those with excessive phlegm and turbidity, add Poria, tangerine peel, and pinellia; for those with obvious blood stasis and dark purple lips and nails, add Salvia miltiorrhiza and Chuanxiong; for those prone to spontaneous sweating, add Atractylodes and Fangfeng; for those with frequent nocturia and severe kidney deficiency, add Yizhiren and Eucommia ulmoides. Take 1 dose per day, boil 400mL of juice in water, take it warm twice in the morning and evening, and continue the intervention for 3 months.

2.3. Observation indicators

(1) Before the intervention and 3 months after the intervention, patients were tested using our hospital's pulmonary function tester, and three core ventilatory function indicators were recorded: forced expiratory volume in 1 second (FEV1), forced vital capacity (FVC), and forced expiratory volume in 1 second as a percentage of predicted value (FEV1% pred).

(2) The patient's six symptoms of wheezing, shortness of breath, soreness of the waist and knees, fatigue, spontaneous sweating, and coughing are graded and scored. The maximum total score is 36 points. The higher the total score, the more serious the TCM symptoms.

(3) Refer to the COPD-specific quality of life rating scale, score physical function, daily activity ability, psychological emotion, and social interaction, and calculate it on a hundred-point scale. The score is negatively correlated with the living standard.

(4) Clinical efficacy judgment: Markedly effective: the patient's symptoms of coughing, wheezing and shortness of breath have basically disappeared, the lung function indicators are close to normal, and there is no recurrence of the disease; effective: the symptoms have been relieved, the lung function has been significantly improved, and there is no obvious asthma in daily activities; ineffective: the symptoms and lung function have not improved or even worsened. The total effective rate of each group has been calculated.

2.4. Statistical methods

The software SPSS 28.0 was used for verification. Measurement data were presented as mean ± standard deviation (SD), and the t-test was used. Count data were described as percentages (%). The χ^2 test was used. $P < 0.05$ means the difference is significant.

3. Results

3.1. Comparison of lung function indicators

After the intervention, the pulmonary function indicators of both groups of patients improved, and the improvement of each indicator in the observation group was more prominent; the difference was statistically significant ($P < 0.05$) **Table 1**.

Table 1. Comparison of lung function indicators (mean ± SD)

Group	n	FEV1(L)		FVC (L)		FEV1% pred(%)	
		Before intervention	After intervention	Before intervention	After intervention	Before intervention	After intervention
Observation group	55	1.41 ± 0.37	2.04 ± 0.52	1.85 ± 0.28	2.69 ± 0.56	52.04 ± 3.32	62.75 ± 5.17
Control group	55	1.43 ± 0.36	1.67 ± 0.44	1.88 ± 0.27	2.37 ± 0.41	52.15 ± 3.25	56.44 ± 4.88
t	-	0.287	4.028	0.572	3.419	0.176	6.582
P	-	0.774	0.000	0.569	0.001	0.861	0.699

3.2. Comparison of TCM syndromes and quality of life scores

Before the intervention, the baseline levels of the scoring indicators of the two groups were similar. After the intervention, the TCM syndrome scores and quality of life scores of the observation group were lower than those of the control group ($P < 0.05$), **Table 2**.

Table 2. Comparison of TCM syndromes and quality of life scores (mean ± SD)

Group	n	TCM syndrome score		Quality of life score	
		Before intervention	After intervention	Before intervention	After intervention
Observation group	55	20.38 ± 3.27	7.11 ± 1.52	70.55 ± 3.12	30.75 ± 1.46
Control group	55	20.51 ± 3.64	12.44 ± 2.35	70.88 ± 3.33	48.77 ± 2.77
t	-	0.197	14.124	0.536	42.679
P	-	0.844	0.000	0.593	0.000

3.3. Comparison of clinical efficacy

The total effective rate obtained by the intervention in the observation group was higher than that in the control group, and the difference was $P < 0.05$, see **Table 3**.

Table 3. Comparison of clinical efficacy (n, %)

Group	n	Effective	Valid	Invalid	Always efficient
Observation group	55	45	9	1	54(98.18)
Control group	55	40	8	7	48(87.27)
χ^2	-	-	-	-	4.853
P	-	-	-	-	0.028

4. Discussions

The core treatment goal of stable chronic obstructive pulmonary disease is not to simply relieve immediate symptoms, but to delay the progressive decline of lung function, reduce the frequency of acute exacerbations, improve long-term quality of life, and reduce the risk of long-term complications. Standardized interventions of modern Western medicine can effectively control chronic inflammation of the airways and improve airway ventilation status, but they cannot fundamentally correct the inherent physical defects of patients with long-term illness, physical weakness, and lack of healthy Qi. Most patients with long-term illness still have a physical state of kidney deficiency and lung Qi deficiency, which manifests as asthma when moving, intolerance to work, low resistance, and repeated colds and coughs, which have become important internal causes of frequent relapses of the disease.

Analyzing the pathogenesis of COPD, chronic obstructive pulmonary disease (COPD) with coughing and wheezing, long-term depletion of lung Qi, and lung Qi deficiency affects the kidneys. Deficiency of kidney Qi means that there is no power to absorb and the Qi does not return to its roots. This is the fundamental pathogenesis of the prolonged and difficult recovery in the stable period. The lungs are the masters of respiration, and the kidneys are the root of respiration. Deficiency of lung Qi will result in weak breathing, and insufficiency of kidney Qi will result in air floating upward. Therefore, symptoms such as shortness of breath, wheezing, and shallow breathing will remain in the stable period [5]. At the same time, kidney deficiency can lead to decreased organ function, weak external defenses, decreased disease resistance of the body, and easy invasion of exogenous evil spirits, inducing an acute exacerbation of the disease. Therefore, the treatment in the stable period should abandon the idea of simply relieving cough, resolving phlegm, and relieving asthma. The focus should be on tonifying the kidney and strengthening the root, absorbing Qi and returning the original essence, and tonifying the lungs and strengthening the defense. By replenishing the kidney Qi and fixing the root, the kidney's Qi-receiving function can be restored, and the lung's vitality can be enriched, so as to strengthen the body, eliminate evil, and treat both the root cause and the branch cause [6]. The basic formula of nourishing the kidney and nourishing Qi is carefully formulated and closely linked to the core pathogenesis. Rehmannia glutinosa, dogwood, yam, wolfberry, and dodder are specially used to nourish kidney essence, replenish kidney Qi, replenish the lower burner root, and solve the problem of kidney deficiency and Qi floating; Schisandra chinensis and walnut are good at astringing the lungs and absorbing Qi, relieving cough and asthma, and directly treating asthma. The core of the pathogenesis: Astragalus and Codonopsis pilosula replenish the Qi of the spleen and lungs, cultivate soil and

generate metal, enhance the body's righteousness, and improve the ability to defend the outside world; Perilla seed lowers Qi and relieves asthma, resolves phlegm and relieves the diaphragm, taking into account both symptoms and root causes; Zhigancao harmonizes various medicines, replenishes Qi and harmonizes the body [7]. The whole prescription is tonifying but not stagnant, astringent but not pathogenic. It can not only nourish the kidney and strengthen the root to restore the power of Qi, but also nourish the lungs and replenish Qi to strengthen and defend the external root. At the same time, it can take into account mild phlegm and Qi stagnation and indicate evil. It is consistent with the pathogenesis characteristics of COPD in the stable stage where deficiency is the main factor and slight evil remains [8].

Comparative data confirmed that the pulmonary ventilation function indicators of the observation group were better than those of the control group, indicating that the combined intervention of traditional Chinese and Western medicine can effectively improve the pulmonary ventilation reserve capacity and delay the decline of pulmonary function. At the same time, the patient's TCM syndromes related to kidney and lung deficiency were improved, and typical symptoms such as wheezing, soreness in the waist and knees, fatigue, and susceptibility to spontaneous sweating were significantly alleviated, indicating that this treatment method can effectively correct the patient's pathological constitution of chronic illness and physical weakness. The patient's daily activity ability, psychological state and social function have been significantly improved, greatly improving the patient's living conditions of long-term disease survival. From the perspective of clinical efficacy, the total effective rate of the observation group was better than that of the control group, which fully confirmed that the kidney-tonifying and Qi-enhancing method has definite advantages in consolidating the curative effect and preventing recurrence in the stable phase of COPD. The kidney-tonifying and Qi-reinforcing method has unique traditional Chinese medicine advantages in intervening in the stable phase of COPD. This treatment method is based on overall syndrome differentiation and body adjustment. It regulates the functions of the lungs, spleen, and kidneys, improves the weak internal environment of the body, and fundamentally reduces the recurrence of illness caused by external factors and deficiency of righteousness, making up for the shortcomings of simple Western medicine treatment that cannot improve physical fitness and curb the progression of the disease [9]. Moreover, the pure traditional Chinese medicine decoction is highly safe and well tolerated when taken orally, with no obvious toxic or side effects, and is suitable for long-term stable conditioning of middle-aged and elderly patients.

5. Conclusion

Based on the above, TCM intervention with the kidney-tonifying and Qi-reinforcing method can improve patients' pulmonary ventilation function, effectively relieve clinical symptoms in the stable phase, and comprehensively improve the quality of daily life of patients. This TCM treatment closely follows the core pathogenesis of COPD in the stable phase, takes into account both the symptoms and root causes, and consolidates the root cause and prevents recurrence. It is an excellent treatment plan that combines traditional Chinese and Western medicine to slow down the progression of the disease and reduce recurrence.

About the author

Wang Baotao, male, 1985.03, Han, Ganyu District, Lianyungang City, Jiangsu Province, undergraduate, deputy director of traditional Chinese medicine. Research directions: internal medicine of traditional Chinese

medicine, lung diseases, spleen and stomach diseases, and gynecological miscellaneous diseases.

Disclosure statement

The author declares no conflict of interest.

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