

Research Progress of Traditional Chinese Medicine and Western Medicine in Stable Phase of Chronic Obstructive Pulmonary Disease

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Abstract: COPD is a serious respiratory disease with an increasing incidence and mortality worldwide. Public awareness of COPD is low compared with other common diseases such as cerebrovascular disease, cancer and diabetes. At present, the focus of prevention and treatment of chronic obstructive pulmonary disease (COPD) is to take measures to further delay the decline of lung function and progression of the disease, and improve the quality of life of patients. The management and treatment of COPD in stable stage in modern medicine are still being explored and perfected. And the results of clinical research and systematic evaluation have shown that TCM treatment significantly improves the clinical symptoms, quality of life and exercise tolerance of patients with COPD on the whole. Especially in the stable treatment process, Chinese medicine shows great potential and is well tolerated for long-term use. For the comprehensive diagnosis and treatment of COPD, the clinical symptoms of the patient, the risk of acute exacerbation and the severity of lung function need to be comprehensively considered. The goal of treatment is to reduce the risk of disease by controlling symptoms, improving the quality of life and preventing and reducing acute exacerbations. In conclusion, TCM treatment plays an important role in patients with COPD, in that it can effectively improve the symptoms and quality of life, and shows the potential to prevent acute exacerbation. The combination of traditional Chinese medicine and modern medicine will be an important choice for the treatment of COPD.

Keywords: Chronic obstructive; Pulmonary diseases; Stable period; Traditional Chinese and Western medicine; Research progress

1. The progress of modern medical research in stable phase of COPD

1.1 Status of disease

GOLD2023 more specifically states that chronic obstructive pulmonary disease (COPD) is a heterogeneous pulmonary disease characterized by persistent and progressively worsening airflow obstruction, primarily due to abnormalities of the airways and/or alveolar abnormalities, which is clinically manifested as chronic respiratory symptoms such as dyspnea, cough and expectoration^[1]. COPD is a common chronic respiratory disease, which has become the three major burden of infectious diseases in the world, the fourth leading cause of death in the world^[2], with the highest incidence and huge economic burden on patients. Based on the statistical data of China's adult lung health survey in 2018, the current total number of people with chronic obstructive pulmonary disease in China is about 100 million, and the prevalence rate among people aged over 40 is about 13.7%, while the prevalence rate among people aged over 60 has increased significantly, reaching 27%^{[3][4]}. In the late stage of COPD, the prognosis is poor, and the disease state will seriously affect the patient's ability to work and quality of life, and impose a huge burden on the family and social medical resources. Therefore, its early prevention and control and standardized treatment are of great significance.

1.2 Condition Assessment

In the diagnosis of COPD, comprehensive evaluation of disease severity is the first task, which is the key point to note. At present, in the domestic and foreign guidelines, the tendency for reference basis is relatively consistent, that is, the lung function value after the use of bronchodilators is used as a

reference. At present, it has become the reference basis for the new guidelines at home and abroad. Although FEV1 as a percentage of the estimate is useful for assessing the health of the patient and the severity of COPD, it does not provide a complete picture of the severity of COPD^[5]. At present, comprehensive dyspnea classification, 6-minute walk distance, and patient body mass index are usually used for evaluation to guide the prevention and treatment of COPD. In addition, the number of acute exacerbations of COPD and quality of life evaluation are also important indicators^[6].

1.2.1 Lung function test

The presence of persistent airflow limitation was evident by measuring a fraction of a second (FEV1/FVC) less than 0.70 after inhalation of bronchodilator, which contributed to the diagnosis of COPD. In addition, based on the percentage of forced expiratory volume in the first second (FEV1%Pred), physicians can determine the extent of airflow limitation and evaluate the severity of the condition [7]. Pulmonary function test is a non-invasive, simple and convenient examination method that can be repeated, is acceptable to patients, and has high sensitivity.

However, there are some limitations in relying solely on pulmonary function tests to assess the severity of COPD. First, age has a strong influence on FEV1/FVC, which easily leads to over-diagnosis for elderly patients. For young and middle-aged patients, it is easy to lead to missed diagnosis. Second, pulmonary function examination needs the mutual cooperation of professional and technical personnel and patients. If the cooperation is not good, and the patients cannot carry out respiratory movement according to the instruction requirements, this will lead to a large deviation of the results, which may cause clinical missed diagnosis and even misdiagnosis [8].

Therefore, in the assessment of the severity of COPD patients' condition, the results of lung function tests alone are not completely accurate, and comprehensive examination needs to be conducted with the help of other assessment tools to more accurately reflect the patient's condition and guide the clinical treatment.

1.2.2 St. George Respiratory Questionnaire (SGRQ)

SGRQ is one of the accepted gold standards for assessing the health-related quality of life (HRQL) of chronic respiratory diseases. The questionnaire consists of three parts, covering the effects of symptoms, activity capacity and disease on the life of patients [9].

In the symptom assessment section, patients are required to describe the timing, frequency, and duration of cough, expectoration, and wheezing. The Activity Assessment section covers limitations on activities of daily living such as washing, dressing, housework, and exercise. In the third part, the impact of the disease on patients is assessed in terms of social activities, psychological status and health expectations [10].

SGRQ is widely used to assess the health status of patients with chronic obstructive pulmonary disease (COPD) and is considered to be one of the most comprehensive comprehensive assessment criteria. However, the disadvantages of this questionnaire lie in the fact that it has many evaluation items and is complex to calculate. It takes a long time to complete the questionnaire, so it is not very convenient for outpatient evaluation and clinical implementation. This does not preclude the use of SGRQ as an effective tool for gaining insight into our patient's quality of life related to respiratory disease.

1.2.3 COPD Assessment Test (CAT)

Professor Jones, a specialist in COPD, developed a scale called CAT to assess the symptoms and associated factors in patients with COPD. CAT scale not only focuses on the symptoms of dyspnea, but also includes the evaluation of psychological condition, activity ability and mental state. Through CAT scale, we can understand the life status and quality of life of patients comprehensively.

The CAT scale was designed to better assess the symptoms of patients with COPD and their impact on daily life. It provides a comprehensive evaluation tool that can help doctors and researchers to better understand the patient's condition and the effect of treatment. Each item on the CAT scale is closely related to the health status and quality of life of patients with COPD. For example, the assessment of dyspnea symptoms can reflect the patient's disease control; The assessment of exercise tolerance can reflect the patient's physical activity ability; Assessment of the psychological condition and mental state reveals the emotional and psychological state of the patient.

With the CAT scale, we can get a more comprehensive understanding of the situation of patients with COPD, including the severity of the disease, physical function, mental health and other conditions.

Such assessment can not only provide a reference for doctors to develop personalized treatment options, but also help patients to better manage their condition and improve the quality of life. In conclusion, CAT scale is a comprehensive evaluation tool that can be used to assess the symptoms, activity capacity, and psychological status of patients with COPD, so as to reflect the comprehensive situation of their life state and quality of life [11].

1.2.4 Modified British Medical Research Council Dyspnea Scale (mMRC)

MMRC is one of the commonly used evaluation tools in the epidemiological study of chronic respiratory diseases. It has the advantages of simple operation, good clinical repeatability and high sensitivity. It has a unique advantage in the evaluation of the degree of dyspnea, and can reflect the clinical treatment effect and predict the mortality rate.

The mMRC scale, which is divided into five grades, is used for evaluating the severity of dyspnea by evaluating the respiratory condition of patients with COPD under different intensities of daily activities. A higher grade indicated more severe dyspnea, which indirectly reflected airway obstruction and could be used as a predictor of acute exacerbation risk of COPD.

However, mMRC only assesses the degree of dyspnea and has a single indicator, so it may differ from CAT and SGRQ in the assessment of the patient's ability to live. The CAT score and the SGRQ score can comprehensively consider more factors such as cough, fatigue, and anxiety, thereby more comprehensively evaluating the life ability of the patient.

Therefore, the comprehensive use of tools such as mMRC scale, CAT score and SGRQ score can more comprehensively assess the degree of dyspnea and life ability of patients with chronic respiratory diseases, and provide more valuable information for clinical treatment and prognosis evaluation.

1.2.5 6-minute walk test (6MWT)

Exercise test, which is widely used in clinical evaluation, is suitable for the evaluation of the treatment effect and rehabilitation of patients with severe heart or lung diseases. It is simple, safe, economical, practical and repeatable. 6MWT had a good correlation with the maximum oxygen consumption and maximum work measured by cardiopulmonary exercise testing test (CPET), and it was also of some value for the evaluation of exercise hypoxia in patients with chronic obstructive pulmonary disease. When gas exchange monitoring is not available, a work assessment of 6MWT is more appropriate to assess the health of patients with chronic obstructive pulmonary disease. However, it should be noted that the application of 6MWT was affected by a variety of factors including the subject's age, gender, ability to understand and cooperate, cognitive level, and nutritional status. Therefore, results at 6MWT are lack of specificity and have relatively limited reference value. Therefore, it can only be used as a supplementary means to evaluate the condition of patients with chronic obstructive pulmonary disease^[12].

1.3 Clinical treatment of chronic obstructive pulmonary disease in stable phase

The main goals of treatment in stable COPD are to relieve current symptoms and reduce future risks. Two major types of treatment, pharmacological and non-pharmacological, are commonly used. Bronchodilators, anti-inflammatory drugs and antioxidants were mainly used in drug therapy. Non-drug therapy covers a variety of treatments.

1.3.1 Bronchodilators

(1) Anticholinergic drugs

Anticholinergic drugs are a class of drugs used to treat breathing difficulties. They are divided into short-acting preparations and long-acting preparations. Among them, ipratropium bromide is a short-acting preparation with a short efficacy duration of about 6-8 hours and less adverse reactions. This makes ipratropium bromide an effective drug for rapid relief of breathing difficulties.

Long-acting anticholinergic drugs such as tiotropium bromide, adiammonium bromide, and glycopyrrolate are characterized by selective action on the cholinergic system. Among them, tiotropium bromide is the earliest applied long-acting anticholinergic drug (inhalation type), its efficacy lasts for more than 24 hours, and has high pharmaceutical activity. Studies have shown that tiotropium bromide in patients with early chronic COPD can significantly delay disease progression, reduce the risk of acute exacerbation and improve the quality of life. This confirms the therapeutic effect of tiotropium bromide in patients with early COPD^{[13][14]}.

Ardionium bromide is another long-acting anticholinergic drug whose efficacy and safety have been demonstrated in clinical trials. Compared with tiotropium bromide, Ardionium bromide has a faster onset, which is close to ipratropium bromide, and the efficacy lasts for 24 hours [15]. The study also found that glonium bromide and adonium bromide had a significant improvement in patients with severe and very severe COPD at stable stages. They can reduce lung residual volume, the volume of gas in the chest, and airway resistance, reducing symptoms of dyspnea. In addition, ardibromide is currently the only drug that can alleviate the uneven pulmonary ventilation^[16]. The different characteristics of these drugs give them some advantages in different situations, but both can effectively alleviate the symptoms and improve lung function.

(2) Beta-2 receptor agonists

COPD, as one of the main drugs for maintenance therapy in stable patients, is a β_2 receptor agonist. It can be divided into two types: short-acting (SABA) and long-acting (LABA), which have different efficacy retention times. Albuterol and terbutaline belong to SABA and have the characteristics of quick effect and short curative effect, which can quickly relieve clinical symptoms. Salmeterol and formoterol are short-acting preparations compared with LABA, which have the advantages of reducing drug use times and improving drug compliance. In addition, the long-acting preparation can reduce severe changes in drug concentration and the risk of side effects of drugs, and is suitable for long-term maintenance treatment of COPD. A variety of novel bronchodilators have been developed and applied with the advancement of the study. As two novel highly selective β_2 -receptor agonists, indene Dutrow and Audat are gradually being applied in clinical practice due to their rapid onset, long acting time, and less adverse reactions.

(3) Methylxanthine drugs

Theophylline is the most classical methylxanthine drug, which has been widely used in clinical practice due to its low cost and effectiveness in alleviating the respiratory symptoms of patients with COPD. Some studies have shown that theophylline can play an anti-inflammatory and antitussive role when the blood concentration is maintained within the range of 5–20 mg/L. However, excessive use of theophylline often leads to serious adverse reactions, such as nausea and vomiting, arrhythmia, epilepsy, and even death^[17]. According to the results of real-world studies, theophylline as an additional treatment to the conventional medication regimen for COPD does not further improve the clinical efficacy, but rather increases the overall risk of deterioration in the patient. Therefore, theophylline may not be beneficial to patients with COPD as an additional treatment.

1.3.2 Anti-inflammatory drugs

(1) Glucocorticoid

Chronic airway inflammation plays a central role in the development of COPD. In order to control the symptoms of stable COPD, it becomes very important to inhibit airway inflammation. Therefore, inhaled glucocorticoids (ICS) have become one of the widely used drugs in clinical treatment, especially playing a key role in the treatment of COPD.

Numerous studies have confirmed that ICS have a significant therapeutic effect and are widely used to improve the symptoms of patients with COPD and slow the progression of the disease. The drug is effective in alleviating dyspnea and airway stenosis in patients with COPD by reducing inflammatory response and controlling airway spasm.

However, inappropriate treatment of ICS may lead to some serious complications, such as pneumonia, osteoporosis and diabetes [19]. Therefore, how to make better use of ICS has become the focus of attention of researchers. Although ICS cannot prevent lung function decline, multiple studies have shown that whether ICS is used alone or in combination with bronchodilators, it can effectively delay the rate of lung function decline in patients with moderate to severe COPD and improve lung function.

In summary, ICS play an important role in the treatment of COPD. However, caution is required in the use of ICS to avoid potential complications. Further studies are still needed to find better ways to use ICS to maximize the quality of life of patients with COPD^{[20][21]}.

(2) Leukotriene receptor antagonist

Montelukast is a leukotriene receptor antagonist and a drug that blocks the leukotriene receptor. It can reduce inflammatory reaction and has potent anti-inflammatory activity. Studies have shown that montelukast can significantly reduce the level of leukocyte infiltration and inflammatory factors such

as leukotrienes and TNF- α in the airway. The drug is widely used in patients with COPD, especially in patients who respond poorly to glucocorticoid therapy.

In addition, montelukast sodium has been found to improve the quality of life in patients with moderate to severe COPD at stable stages. Our patients had a reduced SGRQ score with montelukast, which meant a significant improvement in their respiratory symptoms and quality of life. In addition, the use of emergency medications has decreased. These results indicate that montelukast is effective in alleviating the symptoms of patients with COPD.

In the previous comprehensive management strategies for stable COPD, patients were specifically assessed and grouped by assessing the severity of their symptoms and their risk of experiencing acute exacerbation, and corresponding initial drugs and drug treatment during the follow-up period were formulated, which is also known as the ABCD evaluation plan. GOLD 2023 was updated from the ABCD evaluation plan to the ABE evaluation plan in a breakthrough way. The grouping of patients in Groups A and B remained the same. In terms of initial treatment, LABA and LAMA is recommended for group B in combination, while in Group A, Bronchodilator therapy was continued. In addition, the former Groups C and D are now classified as Group E. It should be clarified that the evaluation of Group E was not related to dyspnea and CAT symptom scores, but was specifically and uniformly managed for high-risk populations who experienced ≥ 2 moderate acute exacerbations and/or ≥ 1 hospitalization. For the selection of initial treatment, the combination of long-acting β_2 receptor agonist (LABA) and long-acting anticholinergic drug (LAMA) or the combination of long-acting β_2 receptor agonist (LABA) and long-acting anticholinergic drug (LAMA) can be considered, and inhaled steroids (ICS) can be added as the treatment plan of triple drug. At the same time, triple therapy may be considered as the preferred treatment for patients with blood EOS $\geq 300/\mu\text{L}$. During follow-up, rational adjustment of inhalation devices and medications should be selected according to the patient's symptoms and whether acute exacerbations occur.

1.3.3 Non-pharmacological treatment

Non-pharmacological treatment of patients with COPD is also very important and cannot be ignored. These therapeutic methods include oxygen therapy and non-invasive ventilation, respiratory rehabilitation treatment, internal medicine intervention treatment and surgical treatment including lung transplantation and lung volume reduction. Reasonable selection according to the patient's own condition and severity of the disease can improve the dyspnea of COPD patients to a certain extent, thereby improving exercise tolerance and quality of life.

1.4 Conclusion

COPD is a serious respiratory disease with an increasing prevalence and mortality worldwide. Public awareness of COPD is low compared to other common conditions, probably because conditions such as cerebrovascular disease, cancer, and diabetes receive more attention.

The increase of morbidity and mortality of COPD is closely related to the deterioration of natural environment and the increase of smoking rate. With the deepening of scientific research, we also have more understanding on the treatment of COPD. There are currently a variety of treatment options, which can effectively alleviate the clinical symptoms of patients, delay disease progression and improve the quality of life. However, despite the existence of these treatments, no one can completely prevent the progressive decline of lung function. At present, the focus and focus of prevention and treatment of COPD is to take measures to further delay the decline of lung function and progression of the disease, and improve the quality of life of patients.

2. TCM clinical research progress in stable phase of chronic obstructive pulmonary disease

Although the disease name of COPD is not explicitly mentioned in the ancient medical literature of China, according to the typical clinical manifestations and development process of COPD, TCM can classify it into different categories for diagnosis and treatment, including "cough", "asthma", and "lung distension". COPD has a long course of disease, which is mainly manifested as cough and expectoration at first. With the progression of the disease, symptoms and signs such as shortness of breath, chest tightness, dyspnea and barrel chest appear gradually. According to the viewpoint of traditional Chinese medicine, lung distension is gradually developed from a variety of chronic lung diseases which recur and cannot be cured after long treatment. Lung distension can be manifested as cough and expectoration in the early stage. With the further aggravation of the disease, a series of

typical manifestations such as cough, sputum, asthma, fullness and stuffiness will appear gradually. COPD and lung distension have similarities in clinical manifestations, disease staging and course development^[23].

2.1 Disease name and clinical manifestations

Pulmonary disease first appeared in the Yellow Emperor's Canon of Internal Medicine, and its clinical manifestations were described in detail in the ancient literature. According to the records in Lingshu Jingmai and Lingshu Zhanglun, the main characteristics of lung distension include chest tightness, wheezing, cough and other symptoms, and the disease is located in the lung. In addition to the lung-related symptoms, Zhang Zhongjing, a physician from the Eastern Han Dynasty, further described the systemic symptoms in Synopsis of the Golden Cabinet, such as "coughing back to rest", "eyes like exfoliation", "shape like swelling". In addition, Shoushibao Yuan Tanchuan also mentions the symptoms of lung distension disease, such as high chest and short of breath, incitement in both flanks, stuffy disorderly cough and thirst.

It can be seen that the description of atelectasis in the ancient literature is in high consistency with the understanding of COPD in modern medicine. COPD is a respiratory disease characterized by chronic bronchitis and emphysema, with clinical manifestations including cough, wheeze, and shortness of breath, which is consistent with the description of lung bulge disease in the ancient literature.

The above is an expansion of the correspondence between the description of atelectasis in the ancient literature and its recognition in modern medicine of COPD. This information helps us to understand the ancient cognition of atelectasis and its connection with modern medicine.

2.2 Pathogenesis characteristics

Lung distension is a disease that cannot be quickly cured due to repeated invasion of exogenous pathogens into the body, and gradually leads to lung weakness. Its basic pathogenesis is mainly manifested as the dysfunction of lung, spleen and kidney. Phlegm-dampness and blood stasis are intertwined as the main manifestations. Pulmonary weakness and pathological manifestations interact as causes and consequences. The disease can alternately appear in the "pathogen falling" stage and "pathogen moving" stage, thus gradually aggravating the disease. The Lingshu Zhanglun is an article dedicated to exploring the etiology, pathogenesis, diagnosis, treatment and classification of bulge disease. It is pointed out that the causes of lung distension are different from those of cold and heat. The lung distension lesions are mainly located in the lungs, revealing that lung distension is mainly characterized by "deficiency", which is often accompanied by "fullness, asthma, cough" and other symptoms.

Lung distension is initially caused by pathogens attacking the lungs. If the disease is not treated promptly and effectively, it will gradually spread to the spleen and kidney and produce various uncomfortable symptoms. The lung acts as a barrier in the human body to protect us from outside pathogens. However, when the vital qi is insufficient, the pathogenic qi will have the opportunity to invade our body from the outside, usually affecting the lungs first, leading to asthma, cough and other symptoms. The long-term development of lung disease will lead to Lung-Qi deficiency, and the continuous invasion of six exogenous pathogens makes the disease worse and difficult to cure. Lung deficiency causes that the clear Qi cannot be declared and the turbid Qi cannot be discharged. These gases are trapped in the lungs, leading to the symptoms of flatulence. The spleen is the acquired foundation of our body, which is responsible for supplying nutrition and energy to other organs. The lung and the spleen are related. If the "son" of the lung steals the Qi and blood nutrients of the "mother" of the spleen, it will lead to the deficiency of Qi and blood and the loss of nourishment for the zang-fu organs, thus gradually aggravating the disease. The lung is in charge of respiration, while the spleen is the source of production of qi and blood. The interaction between the lung and the spleen formed the Zongqi. When the lung and spleen are deficient in Qi, the Zongqi will also weaken, thus affecting the supply of Qi and blood throughout the body.

The essence of lung distension is lung deficiency and spleen deficiency. In the long-term development, it will spread to the kidney. And then the disease will change from deficiency to excess, manifested as the combination of Tanshi and Duxie. The two interact with each other and run through the whole process of disease development. Lung is the upper source of water and liquid. When the lung loses its normal function of declaration and reduction, the water and liquid will be disorderly

distributed in the body and endogenous Tanshi will be easily produced. The spleen is the source of Tanshi. If the spleen is weak and the diet cannot be properly digested and absorbed, it will lead to moisture accumulation and Tanshi generation. Kidney is the lower source of water and liquid, responsible for the metabolism of water and liquid in the whole body. If the metabolism of water and liquid is abnormal, Tanshi is easy to form. Tanshi is a tangible pathogen that will stay in the meridians or zang-fu organs for a long time in the development of the disease, resulting in poor blood circulation and obstruction of the pulse path, and eventually forming blood stasis. To sum up, the condition of lung distension is complex, including the interaction of multiple factors such as Lung-Qi deficiency, Tanshi stagnation, and blood stagnation, which aggravates the disease progression.

2.3 Clinical treatment

In stable COPD, there are many TCM syndromes, which mainly revolve around the lung, spleen and kidney, with the changes of Qi deficiency and Yin deficiency, as well as phlegm and blood stasis^[24]. According to the different syndrome types, the internal treatment in traditional Chinese medicine mainly focuses on tonifying the lung, invigorating the spleen and tonifying the kidney, or combines the functions of resolving phlegm, activating blood, dredging collaterals and expelling toxin. Multiple studies have shown that^{[25][26][27]}, traditional Chinese medicine treatment of chronic lung diseases, especially in stable COPD has a unique advantage, can significantly reduce the number of patients with acute exacerbation, alleviate symptoms and improve the prognosis.

2.3.1 Tonifying lung and spleen

In the early stage of COPD, the disease starts from the lung, which is based on the deficiency of Lung-qi. If the lung is declared to descend without proper regulation, then cough will appear; if the lung qi is deficient, and the guard qi is not firm, then external pathogens can be easily felt repeatedly; therefore, lung qi should be replenished. Prescriptions for tonifying lung qi are represented by Yupingfeng Powder. Multiple studies have shown that^{[28][29][30][31]}, Yupingfeng Granule can significantly reduce the acute exacerbation rate, improve the patient's lung function, reduce hypoxia, regulate immune function, and reduce CAT score, and has good safety.

The method of reinforcing soil and generating gold is a method for treating patients in stable stage of chronic obstructive pulmonary disease (COPD). It is based on the theory of five zang-organs generating each other, takes the tonifying spleen as the core, and through strengthening the spleen and stomach, makes the essence and nuances of Shui Gu normalized, and fills and nourishes the zang-fu organs, so as to restore the physiological function of the lung. Studies have shown that LiuJunzi Decoction is an effective drug to alleviate the clinical symptoms of patients with stable COPD, reduce the risk of acute exacerbation and improve exercise tolerance^{[32][33]}. In addition, it can also reduce the level of inflammatory mediators, such as IL-6 and IL-8, reduce the inflammatory response and increase blood oxygen content.

Buzhongyiqi Decoction is another treatment suitable for stable COPD. It can reduce the TCM syndrome scores and improve the degree of dyspnea, and has a good effect in increasing the six-minute walk distance (6MWD) and delaying the decline rate of lung function [34]. In addition, the study also found that the use of Shenling Baizhu Powder, a drug with the efficacy of invigorating spleen and replenishing qi, could reduce oxidative stress response and delay the progression of the disease [35].

In summary, the therapeutic methods of "reinforcing soil and generating gold" therapy include LiuJunzi Decoction, Buzhong Yiqi Decoction, and Shenling Baizhu Powder. These methods can effectively alleviate the symptoms of patients with stable COPD, reduce the risk of acute exacerbation, and improve the degree of dyspnea. In addition, they can inhibit the inflammatory response and increase the blood oxygen content. These results provide a promising treatment option for patients with stable COPD.

2.3.2 Promoting blood circulation and eliminating phlegm

According to the theory of collateral disease, some scholars^[36]It was proposed that the disease site in stable stage of COPD was mainly in the lung and collaterals, and that "lung deficiency and collaterals stasis" was the pathogenesis key, and that "tonifying lung and dredging collaterals" should be taken as the treatment principle. In stable stage of COPD, the root is visceral deficiency, and the mutual association of phlegm and blood stasis is the criterion. Therefore, the general principle of treatment should be "supplementing and dispersing herbs, treating both manifestation and root cause of the disease"^[37]. Research shows^{[38][39]}, Yiqi Huatan Huoxue method can regulate Rho kinase signaling

pathway in COPD rats, inhibit pulmonary vascular remodeling, can also improve the high secretion of airway mucus, and can reduce symptom scores and inhibit the expression of serum IL-8 inflammatory factor when used in patients with stable COPD. Many research findings on treatment of COPD with the method of benefiting lung, resolving phlegm and activating blood circulation^{[40][41]}, which can significantly improve the following aspects of SGRQ in patients, including clinical symptoms, activity, disease effects, lung function, hypoxia, etc. In summary, under the guidance of principle of treatment based on syndrome differentiation, the method of activating blood and resolving phlegm is given to patients with stable COPD in the process of tonifying vital qi.

2.4 Summary

For the comprehensive diagnosis and treatment of COPD, the clinical symptoms of the patient, the risk of acute exacerbation and the severity of lung function need to be comprehensively considered. The goal of treatment is to reduce the risk of disease by controlling symptoms, improving the quality of life and preventing and reducing acute exacerbations. The management and treatment of COPD in stable stage in modern medicine are still being explored and perfected. And the results of clinical research and systematic evaluation have shown that TCM treatment significantly improves the clinical symptoms, quality of life and exercise tolerance of patients with COPD on the whole. Especially in the stable treatment process, Chinese medicine shows great potential and is well tolerated for long-term use. In patients with moderate to extremely severe COPD, TCM treatment can be based on the TCM concept of "prevention before disease, prevention of disease and change". TCM has significant advantages in this regard and has become a key link and breakthrough point for the effective treatment of COPD. Chinese medicine has shown significant advantages in this regard, and has become a key link and breakthrough point for the effective treatment of COPD. In conclusion, TCM treatment plays an important role in patients with COPD, in that it can effectively improve the symptoms and quality of life, and shows the potential to prevent acute exacerbation. These advantages make TCM become one of the important options for the treatment of COPD.

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