

# Research Status of TCM Rehabilitation in Chronic Obstructive Pulmonary Disease (COPD)

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**Abstract** This paper mainly analyzes the application status of TCM rehabilitation in chronic obstructive pulmonary disease (COPD), hoping to provide support and help for clinical staff through this study, and promote the further development of COPD rehabilitation program.

**Key words** Chronic obstructive pulmonary disease (COPD), TCM, Rehabilitation, Diagnosis and treatment

## 1 Introduction

The symptoms of the chronic obstructive pulmonary disease (COPD) are closely related to harmful gases and abnormal inflammation in the lungs, and the development of pulmonary airflow is progressive. COPD is characterized by airway obstruction, ventilation dysfunction and reversible cough and expectoration, which seriously affects the quality of life of patients. At present, COPD has become a main cause for chronic diseases in the world, and its morbidity and mortality are still rising. With the improvement of people's living standards and the increase of social pressure, COPD has attracted more and more attention from the medical community and has become one of the important diseases endangering human health worldwide<sup>[1]</sup>. Relevant medical survey data show that the incidence of chronic obstructive pulmonary disease over 40 years old in China is about 8.2%, of which the proportion of men is about 12.4%, and the prevalence rate of women is 5.1%. Because COPD is a major public health problem, it has ranked fifth in the global economic burden of disease by 2020. Due to the low level of economic development, social culture, medical and health conditions and other factors, many patients can not get effective treatment or timely and correct diagnosis and treatment<sup>[2]</sup>. Therefore, it is necessary to select scientific and reasonable methods to carry out nursing for COPD patients in clinic. This paper mainly analyzes the application status of TCM rehabilitation in COPD, hoping to provide support and help for clinical staff through this study, and promote the further development of COPD rehabilitation program.

## 2 Understanding of modern medicine about COPD

The morbidity and mortality of patients with serious complications such as chronic bronchitis, bronchial asthma, chronic obstructive pulmonary emphysema and chronic pulmonary heart disease may

be seriously affected. At present, the prevalence of COPD in China is increasing year by year, and it has become one of the important diseases that endanger people's physical and mental health. Once COPD develops into obstructive pulmonary emphysema, the pathological changes will enter an irreversible stage and show a trend of gradual aggravation. With the acceleration of population aging and the improvement of people's living standards in China, the number of COPD patients is increasing year by year. The pathogenesis of COPD is characterized by repeated acute exacerbation and remission. In the early stage of the disease, patients will not have obvious symptoms, but their lung function will continue to decline. In the middle or late stage of COPD, patients will have frequent shortness of breath, cough and sputum. In the late stage, patients will show obvious symptoms of shortness of breath, including mild activity and progressive shortness of breath, which may indicate the presence of emphysema. If accompanied by hypoxemia, respiratory failure and even death are more likely to occur. According to the 2024 *Report from the Global Initiative for Chronic Obstructive Lung Disease (GOLD)* for the diagnosis, management, and prevention of COPD, the definition, diagnosis, assessment and treatment of COPD are generally the same as those of the 2023 GOLD, but revised/expanded in 10 aspects, including expansion of the concept of Preserved Ratio Impaired Spirometry (PRISm), addition of a section on lung hyperinflation, addition of instructions for pulmonary function testing prior to inhaling bronchodilators, addition of a section on screening the target population for COPD, instructions for updating the blood eosinophil count, update of the interstitial lung abnormalities section, revision of the smoking cessation section, update of recommended vaccine for patients with COPD, expansion of the management component of inhaled therapy, and addition of drug therapy for smoking cessation<sup>[3]</sup>.

## 3 Understanding of TCM about COPD

In TCM, although there is no term related to COPD, according to its specific pathogenic mechanism, it can be summarized into the category of diseases related to the lung. In the stable phase of COPD, the clinical symptoms of patients show relatively stable

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characteristics, so its pathogenic mechanism generally shows a trend of deficiency and excess. The most common pathological manifestation is lung deficiency, and other viscera can also have different degrees of pathological changes. This disease initially poses a threat to the lungs, but over time, it leads to lung deficiency, which in turn affects the function of the lungs, resulting in damage to the spleen and kidneys. If the disease affects the spleen, the spleen will lose its function of transportation and transformation, which will lead to the decline of the function of the lung and spleen. Clinically, it is believed that the lung governs qi, qi originates from the kidney, and the kidney is damaged by the lung, which eventually leads to deficiency of both the lung and the kidney. In addition, this disease can also involve the heart, liver and other organs, leading to a series of clinical manifestations of deficiency of the five viscera and deficiency of qi and blood. Therefore, according to relevant experts, the dysfunction of lung, spleen, kidney and other organs caused by this disease shows certain rules of change. In the early stage, the main manifestation is the state of lung deficiency; in the middle stage, the situation of spleen and lung deficiency appears; with the passage of time, the symptoms gradually evolve into the performance of kidney deficiency. Furthermore, it can also be observed that patients in different periods have concurrent symptoms such as blood stasis syndrome and phlegm retention syndrome, and can be treated according to their characteristics. In the pathological analysis of stable COPD, it is found that the main manifestation of the disease is the damage of the lung, spleen and kidney, which leads to the comprehensive appearance of various symptoms such as blood stasis, sputum and weakness, thus prolonging the course of the disease and worsening the condition <sup>[4]</sup>.

## 4 TCM rehabilitation of COPD

**4.1 Abdominal breathing** Because this breathing mode can effectively control the pressure in the thoracic cavity, it is often used to treat dyspnea caused by various reasons in clinic. This breathing movement is called diaphragmatic breathing, which mainly relies on the contraction of abdominal muscles and diaphragmatic muscles. In the time of the exercise, the patient is required to lie on his back on the bed, with his head back, his upper limbs drooping naturally and his body parallel to the bed surface as far as possible, so as to reduce the curvature of the spine and prevent back pain. It is essential to coordinate the cooperation of the abdominal muscles and the diaphragm in the breathing movement. When exhaling, inhale through the mouth, clear the secretions in the mouth through the nose, and then exhale slowly. The patient should take a standing position (for the weak, sitting or semi-reclining position can be adopted), the left and right hands are placed on the abdomen and chest separately, the muscles of the whole body are relaxed, and the resting state breathing is carried out. When inhaling, inhale through the nose and try to

lift the abdomen as much as possible so that the abdomen bulges and the chest is still; abdominal breathing is different from regular backstroke breathing. When exhaling, exhale through the mouth, while contracting the abdomen, maintaining the minimum range of motion of the thorax, and inhaling slowly and deeply. Abdominal breathing can effectively promote the recovery of lung function. In the initial stage, abdominal breathing exercises are carried out for 7–8 times per minute, lasting 10–20 min each time, twice a day. With the continuous improvement of skills, patients can be trained at any time in their daily life, whether walking or sitting, so that abdominal breathing becomes a daily breathing mode. In addition, patients can also take abdominal breathing exercises with diaphragm as the main part. On the basis of slowly assisting respiratory muscles to improve unreasonable breathing patterns and increase tidal volume, patients can be helped to increase alveolar ventilation, reduce oxygen consumption and total work to be overcome during ineffective cavity and inhalation, and improve gas distribution in patients, so as to achieve the purpose of alleviating shortness of breath symptoms.

**4.2 Pursed lips breathing (PLB) training** In the process of carrying out this training task, patients can choose to lie down, sit or stand according to their own needs. Patients constantly adjust their breathing patterns, inhaling through the nasal cavity and exhaling through the mouth. It should be noted that in the process of exhaling through the mouth, the lips need to be contracted into a fish-mouth shape, while the abdomen needs to be contracted, so that the gas can be slowly exhaled through the narrow mouth. After each nasal inhalation, breathing should be suspended, and then exhaled after a short rest. At this time, the ratio of inhalation to exhalation should be 1 : 2, and continue to practice for 5 min. Exhalation through pursed lips can prolong the exhalation time, increase the resistance of the external orifice of the airway, increase the pressure in the airway by about 0.5 kPa, and make the isobaric point move to the central airway, thus avoiding the premature closure of the small airway, which is conducive to the discharge of the residual volume of the lung, and can also increase the tidal volume and improve the ventilation function <sup>[5]</sup>.

**4.3 Whole body breathing gymnastics** Whole body breathing exercises can not only improve lung function, but also promote blood circulation and immune function of lung tissue. The whole body breathing gymnastics is a combination of abdominal breathing, lip breathing, chest expansion, bending, squatting and other systemic movements, as well as breathing Qigong and other similar training methods. After receiving the support of the National Eighth Five-Year Plan, the COPD Prevention and Treatment Research Group recommended a set of breathing gymnastics to the patients and medical staff. The step 1 is to carry out the stability of breathing; step 2 is to inhale in a standing position and exhale in a forward leaning position; step 3: lift with one arm, take a deep breath, press the abdomen with both hands, and exhale; step 4: lift upper limbs, take a deep breath, droop arms natural-

ly, and exhale slowly; step 5: stretch the limbs, take a deep breath, gently press the abdomen with both hands, and exhale; step 6: hold the head and inhale, turn the body and exhale; step 7: breathe with the upper limbs raised in the standing position and exhale in the squatting position; step 8: abdominal contraction breathing. The purpose of whole-body exercises is to promote the recovery of lung function and the rehabilitation of respiratory diseases through muscle strength training. The whole body breathing gymnastics can improve the pressure in the airway and the activity of the diaphragm, thus promoting the gas exchange in the alveoli, improving the type of breathing and improving the efficiency of breathing.

**4.4 Simplified Taijiquan** Simplified Taijiquan was compiled in 1956 by the General Administration of Sports of China and organized Taijiquan experts to absorb the essence of Taijiquan, including 24 postures, such as Part the Wild Horse's Mane, White Crane Spreads Its Wing, Brush Knee, *etc.* The movements are gentle, emphasizing consciousness to guide breathing, and cooperating with the whole body movements. These movements are mainly characterized by Ward off, Roll back, Press and Push <sup>[6]</sup>. In the process of exercise, it is necessary to keep our thoughts quiet and concentrated, while focusing on guiding movements, so that breathing is smooth, deep and natural, rather than holding our breath reluctantly. In addition, it is necessary to pay attention to observe whether there is discomfort or discomfort in your whole body. Gradually, it can realize the natural relaxation of the body, coordinate breathing and shape, make breathing gradually become deep and even, soft and slow, and gradually exercise the coordination of breathing and movement. In addition, COPD patients can do some rhythmic and orderly dances to enhance the absorption of oxygen and nutrients.

**4.5 Five-animal exercises (Wuqinxi)** As the most widely used form of traditional Chinese Qigong, five-animal exercises have been used to improve physical and mental health for thousands of years. By imitating the postures, movements and postures of animals, as well as the corresponding breathing regulation, these exercises can smooth the airway and blood flow of the whole body, strengthen the internal organs and activate the joints, which is a comprehensive human movement. These exercises include forward, backward, sideways bending and twisting movements, which have a good stretching effect on the muscles, ligaments, waist and legs of the chest, waist and legs. As a complementary and alternative medical model, five-animal exercises are used in many parts of the world to treat various diseases, such as musculoskeletal diseases, psychosomatic diseases, insulin resistance and respiratory diseases.

**4.6 Sanfutie for treating winter ailments in summer** Sanfutie is an external therapy for treating and preventing diseases by applying drugs on specific acupoints of the human body in the dog days of summer. The medicament comprises White Mustard Seed, Corydalis Rhizoma, Kansui Radix, Asari Radix Et Rhizoma, and

Zingiberis Rhizoma Recens as a basic prescription, the combination medicines are common such as Moschus, Ephedrae Herba, Cinnamomi Cortex, Foeniculi Fructus, *etc.* Feishu is the basic acupoint for application, and the main compatible acupoints are Danzhong, Dazhui, Dingchuan and Gaohuang, and Xinshu, Geshu, Shenshu and Pishu can be selected based on syndrome differentiation <sup>[7]</sup>.

**4.7 Moxibustion** Moxibustion is a therapeutic technique of Traditional Chinese Medicine (TCM), which uses pure Moxa rolls (made from a plant called *Artemisia Vulgaris*, or mugwort) to apply heat therapy on acupuncture points. During moxibustion treatment, the moxa needs to be burned now, and if the temperature is appropriate, the moxa needs to be heated directly on the acupoints of the human body. If the temperature is high, the acupuncture points of the human body can be heated in an indirect way, so that the moxibustion medicine can enter the human body with the help of the burning heat, and then pass through the traditional action of the meridians of the human body and the focus. For COPD patients in stable stage, moxibustion treatment needs to be aimed at Zusanli, Fenglong, Dazhui, Dingchuan and Feishu acupoints. Moxibustion treatment on the above acupoints can not only enhance the immunity of patients, but also enhance their exercise endurance and improve their quality of life.

**4.8 Chinese herbal foot bath** In the process of TCM rehabilitation treatment for COPD patients, besides external application and internal use, external washing is also a common way of TCM administration. Through the way of soaking or fumigating and washing with Chinese herbs, patients do not need to take any drugs to avoid the toxicity of taking drugs to the liver. In addition to local fumigation by Chinese herbal foot bath, most diseases are usually fumigated by Chinese herbal foot bath. In Chinese herbal fumigation and washing treatment, foot bath is commonly used mainly because the foot distributes a large number of meridian systems, which can play a positive role in stomach, gallbladder, bladder, kidney, spleen, liver and other body organs.

In the TCM rehabilitation theory, besides the ear, there is also an important part of the body's reflex area, which is the foot. Therefore, in the rehabilitation treatment of Chinese herbal fumigation and washing, the use of Chinese herbs to fumigate and wash the feet will be important to penetrate into the skin, and the foot has more meridians and collaterals, which can send the Chinese herbs into the whole body more quickly, so as to achieve the effect of regulating yin and yang. In the TCM rehabilitation treatment, Chinese herbal foot bath for patients with chronic diseases can reduce the burden of long-term medication on the body, improve the quality of life of patients, reduce the incidence of acute and severe COPD, and enhance the walking endurance of patients.

**4.9 Five-element music therapy** In Chinese traditional music, the tone of music theory is divided into five kinds, namely Gong, Shang, Jiao, Zhi and Yu. In the TCM rehabilitation treatment in China, the development of five-element music therapy can

improve the emotions of patients and help patients achieve the resonance of music and emotions. Five-element music therapy is of great significance for improving the lung function of COPD patients. From the point of view of modern clinical medicine, music therapy can help patients release dopamine in the body, thus helping patients to alleviate pain to the greatest extent.

## 5 Conclusions

In conclusion, the TCM treatment of COPD can mainly play a role in treating both symptoms and root causes. For the acute stage of COPD, we can choose to treat the symptoms urgently, that is, cough, expectoration, dyspnea, and choose some drugs for resolving phlegm, relieving cough and asthma. For example, *Armeniacae Semen Amarum*, *Platycodonis Radix*, *Stemona Radix* and other related expectorant and antitussive drugs are often used in clinic. Besides, for the remission period, that is, the chronic period, we can choose some drugs to strengthen the treatment. This is also an advantage of traditional Chinese medicine in the treatment of COPD, mainly through the long-term application of traditional Chinese medicine, play a better prevention and treatment effect. Relatively speaking, Chinese medicine is safer and does not have as many side effects as Western medicine, but also can restrain some of the toxic side effects of Western medicine.

(From page 55)

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