

Study on the theory and prescription of pulmonary interstitial fibrosis in Traditional Chinese Medicine

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Abstract: Pulmonary interstitial fibrosis (PIF) is a chronic progressive fibrotic interstitial inflammatory lung disease. The pathogenesis and pathogenesis of PIF are still unclear and there is a lack of effective treatment. As the incidence of PIF increases year by year, the mortality of PIF is not optimistic. This paper will summarize the TCM theories related to pulmonary interstitial fibrosis excavated from HowNet database and draw the following conclusions: the theoretical understanding of pulmonary interstitial fibrosis includes the following: lung collaterals, toxic damage to lung collaterals, fire subduing yin collaterals, triple energizer gasification, yin deficiency and blood stasis, Xuanfu theory, yang transforming qi and yin forming, lung being blood viscera; Study on single medicine of traditional Chinese medicine, such as Hongqi, earthworm, Astragalus, Polygonum cuspidatum and other ancient prescriptions, such as Maimendong Decoction, Xiefei Decoction and Yang, and Tang physician prescriptions, such as Qidong Huoxue Yin Feixian Prescription, can effectively delay pulmonary interstitial fibrosis.

Pulmonary interstitial fibrosis is a mixed lung damage caused by various causes, which can be divided into secondary pulmonary interstitial fibrosis (SPF) and idiopathic pulmonary interstitial fibrosis (IPF), and IPF is more common^[1]. The prognosis is poor due to the lack of progressive and harmful effective treatment methods. There is no record of the corresponding disease name in ancient Chinese medicine literature. According to its clinical manifestations, progressive dyspnea, wheezing, dry cough with little phlegm or a small amount of white sticky sputum, etc., various doctors have "cough", "lung swelling", "lung impediment", Recognition of TCM disease names such as "lung impotence" and "asthma syndrome"^[2], and the pathogenesis and treatment are not limited to the pathological mechanism of "lung impotence" and "lung impediment", but are based on the symptoms and syndrome types in stages, such as Zhang Yaoyi et al. The pathogenesis evolution of "lung heat and collateral stasis" in the acute exacerbation period of pulmonary fibrosis and "lung deficiency and collateral stasis" in the chronic remission period^[3].

1. Study on TCM Theory of Pulmonary Interstitial Fibrosis.

1.1 Lung collaterals.

The theory of lung-collateral mass includes the theory of "gathering and dispersing lung-collateral mass" and the theory of "micro-lung-collateral mass". The basic pathogenesis proposed by the two is similar^[4]. According to the theory of "the accumulation and dispersion of lung collaterals", the pathological factors of PIF are phlegm, heat, blood stasis and toxin, etc., which are caused by various reasons, and the lung collaterals are damaged, and the lung collaterals are not smooth, so that the accumulation and dispersion of qi activities are biased, and the excessive accumulation of qi causes the stagnation of fluid blood to produce phlegm, blood stasis and toxin, etc. These pathological products accumulate together for a long time, resulting in a disease, blocking the lung collaterals, affecting the operation of qi activities, and the lung qi deficiency is unable to promote the movement of qi activities. If it is lost and mistreated, it will be difficult to get sick^[5].

1.2 Toxic pathogen theory.

According to the theory of toxic pathogen, in the pathogenesis of PIF, many pathogenic pathogens, such as external pathogen, eating disorder, emotional disorder, physical deficiency, fatigue, etc., accumulate in the body for a long time to become toxic, which affects the function of viscera, while stagnation in the lung is unfavorable to lung qi, blood delivery is abnormal, phlegm and blood stasis are stagnant in the lung, resulting in pulmonary interstitial fibrosis, while accumulation of internal pathogen and phlegm and blood stasis in the lung and viscera is damaged for a long time, which promotes the progress of the disease and aggravates the degree of pulmonary interstitial fibrosis^[6]. When evil spirits invade collaterals or enter collaterals for a long time, the function of lung governing qi and circulating blood will be blocked, which will lead to collaterals being stagnated by blood stasis, qi stagnation, phlegm, dampness, heat and toxin^[7]. No matter what kind of toxic pathogen stagnation will affect the gas exchange between the lung and the outside world, resulting in lung ventilation function and diffusion function and lung fibrosis.

"Toxic pathogen" runs through the occurrence of pulmonary interstitial fibrosis. Through detoxification and detoxification, the tangled toxic pathogen is decomposed in the theory of toxic pathogen, guiding toxic pathogen according to the situation, notifying healthy qi and resisting pathogen, so that toxic pathogen can be separated from fur, sweat, urine and feces. Toxic pathogen has its dependence and conformability, or heat, phlegm and blood stasis, which should be treated by identifying the disease trend^[8].

1.3 Theory of fire subduing yin collaterals.

The theory of "fire subduing yin collaterals" believes that after external evils invade the human body, the evolution of the disease will tend to be "stagnant and hot" over time. For example, "The True Story of Medicine" says: "If the disease lasts for a long time, it will become stagnant, and stagnant will become hot." However, PIF, as the common outcome of many chronic persistent lung diseases, has the characteristics of "heating" with the passing of time. Heat stagnation generates fire, leading to "endogenous yin fire"; It is serious, and the level of yin and collateral diseases is deep, scattered in the viscera^[9], so the disease lies in the "yin collaterals", combining the disease and the pathogenesis of "endogenous Yin fire" to form the evolution of the pathogenesis of "fire in the Yin collaterals"^[10].

Its evolution starts from the evil qi invading the lungs, and the loss of lung circulation leads to

the disorder of qi movement, the stagnation of the lung collaterals, the stagnation of body fluid and blood, and the coagulation of phlegm and blood stasis, which becomes the pathogenic factor of PIF and provides the material basis of "heat transformation"; The lungs are yang organs, governing qi, and qi belongs to yang. If it is stagnant, it will turn heat into fire, while phlegm dampness and blood stasis are tangible evils. If stagnation persists for a long time, it will also accumulate heat. In the collaterals, it damages the lungs and collaterals, and also damages the lung qi. For example, "Fever Disease Tiaodian" says: "The lung governs qi and belongs to metal. If fire overcomes metal, the qi dominated by the lung will be injured." Lung qi is damaged, phlegm and blood stasis. The cementation is more difficult to dissipate, and it hinders the transfusion of body fluid and blood, and even hurts Yin and body fluid. Dryness of body fluid can lead to dryness of the lungs, and even scorching of the lung lobes, resulting in failure of the lung body and ending in PIF.

Miao Xiyong said: "If there is more than qi, it means that fire will fall, that is, fire will fall, but qi will not rise." He thinks that if yang goes up, it will be good to reduce fire by reducing qi^[11]; And the treatment of fire subduing lung collaterals should also be nourished by nourishing lung, nourishing spleen and nourishing kidney, which is to restore yin and reduce fire; There is also Li Dongyuan's method of "sweetening and removing heat" to treat spleen and stomach to raise yang and disperse fire.

1.4 Triple Coke Gasification Theory.

The theory of Sanjiao Qihua believes that the pathogenesis of PIF is difficult to define as the deficiency of a certain viscera and certain Qi. The deficiency of Yuan Qi, Zong Qi, Wei Qi, and Ying Qi is collectively referred to as "Qi Yang Deficiency", which is more serious than lung, spleen, and kidney deficiency. Wide inclusiveness^[12], so The pathogenesis is deficiency of qi and yang, phlegm, blood stasis, and toxins intertwined, and the root cause is that the Qi mechanism of the triple energizer is unfavorable, which leads to the generation and dysfunction of the Qi mechanism of the whole body. Dampness gathers to form phlegm, the lungs face the hundred channels, and if the flow of qi is abnormal, the blood cannot be driven along the meridians, and the blood flows outside the meridians, causing dead blood to form stasis; Phlegm; the gasification function of the lower energizer kidney is abnormal, and if the water does not melt, drinking will stop and phlegm will be retained; due to dysfunction of the viscera, metabolic wastes will accumulate and produce toxins in the lungs, forming lung toxins, which together with phlegm and blood stasis constitute the cause of the disease pathological factors^[13].

According to the root of its pathogenesis, which lies in the unfavorable gasification of triple energizer, the treatment principle has been established. In the early stage of this disease, dry cough often occurs, or is accompanied by a little white foam phlegm. The "Wenfei Huaxian Drink" derived from the method of warming yang and dispelling cold and regulating triple energizer Zhongjing, which has the effect of benefiting temperature and dispelling cold, has achieved good clinical results^[14]. In the evolution of pathogenesis, the triple energizer's qi activity is the basis, and the principle of triple energizer's division and treatment is to purge the upper energizer's lung qi and warm transport the middle energizer's spleen and stomach and sink the lower energizer's kidney qi^[15].

1.5 Yin deficiency and blood stasis theory.

The normal respiratory function of lung governing qi and kidney governing qi is the synergistic effect of lung and kidney in suppressing, lowering and absorbing qi. Lung qi goes up and down, cough, shortness of breath, dyspnea, etc. When kidney fails to absorb qi, there will be shortness of breath, dyspnea, etc. When qi activity is unfavorable, chest tightness. According to its main clinical

manifestations, PIF is located in different pathogenesis characteristics of lung and kidney yin deficiency and blood stasis. PIF is consistent with "lung flaccidity" and "lung arthralgia" in different stages. Its essence is that qi and blood are not filled and collaterals are not glorious, resulting in lung lobe atrophy without lung collaterals being blocked by evil qi, qi and blood are blocked, and the pathogenesis of deficiency and excess is generally yin deficiency and blood stasis^[16].

1.6 Xuanfu Theory.

Liu Wansu believes that Xuanfu is a fine structure that exists universally in all things, and it is related to the ups and downs of qi. From then on, the theory of Xuanfu believes that Xuanfu is smooth with opening and reverse with closure. Circulation, permeation of blood and gas, and the operation of divine machines. The Xuanfu theory believes that interstitial pulmonary fibrosis is caused by the blockage of Xuanfu caused by a variety of lung diseases that are protracted and unhealed, resulting in abnormal movement of Qi and blood. The divergence and ventilation of medicines and insect medicines can open the stagnant and closed Xuanfu, so that Qi and blood can run smoothly, the movement of Qi can rise and fall in an orderly manner, and cough, wheezing, shortness of breath, and dyspnea can be solved^[17].

1.7 Theory of "Yang Transforming Qi and Yin Forming".

Discuss the pathogenesis of PIF from the perspective of "yang transforming qi, yin forming" and regard the insufficiency of "yang transforming qi" as the basis of the disease, while the disorder of "yin forming" leads to pathological pathologies such as phlegm turbidity, water retention, blood stasis, and stagnation of toxins. Factors blocking the lung collaterals are superficial, and the two are mutually causal. If the function of yang's qi transformation and warming is insufficient, water and dampness will stop gathering, and blood vessels will condense into phlegm and stasis. The formation of phlegm and stasis is the manifestation of excessive yin formation, and vice versa. Phlegm and blood stasis block the movement of yang qi, which further aggravates the condition. Therefore, insufficient yang qi and excessive yin formation are one of the pathogenesis of PIF. Water drinking phlegm turbidity and blood stasis are both yin evils, so it should be used to warm yang. Qi is the principle of treatment, so that it not only targets the cause of yang deficiency, but also dissipates the accumulation of tangible and real evils, strengthens the body and eliminates evils, and treats both symptoms and root causes^[18]. In clinical practice, various doctors used Yanghe Decoction^[19], Wenfei Huaxian Decoction^[20], Xiaoqinglong Decoction^[21] and other prescriptions are effective in treating PIF patients.

1.8 "Lung is blood dirty" theory.

The theory of "lungs are blood organs" believes that blood stasis runs through the pathology of PIF from beginning to end, and the formation of blood stasis is closely related to the theory that lungs are blood organs. The theoretical basis is that modern research has found that the lungs store a variety of hematopoietic progenitor cells, and most platelets in animals come from the lungs^[22], so there is a saying that the lungs generate blood, and if the lungs can generate blood, the lungs will have more blood, and the imbalance of lung qi mechanism will easily lead to blood stasis. Blocking the lung collaterals is lung stasis; while the lungs are in charge of the meridians, the circulation and distribution of blood in the whole body depends on the driving effect of the lungs governing the qi. If the driving force is weakened or out of control, the blood stasis in the lungs will also produce stasis blocking the lung collaterals; PIF has no clear name and pathogenesis in traditional Chinese medicine. Many doctors believe that collateral deficiency and blood stasis or phlegm coagulation

and blood stasis are its basic pathogenesis. The theory of "lungs are blood" also believes that blood stasis is the pathological basis of its formation. Therefore, in the treatment, blood circulation promoting and blood stasis dispelling are used throughout the end of junior high school. Pharmacological studies have proved that astragalus, Chuanxiong, Angelica, Danshen and other medicines for promoting blood circulation and removing blood stasis can inhibit the fibrosis of PIF to varying degrees^[23]. Only when blood stasis and collaterals are cleared can the function of Qi and blood in the lungs be restored, and when the lungs are nourished by Qi and blood, the disease can be healed^[24].

The above-mentioned TCM theories on pulmonary interstitial fibrosis are based on different theoretical bases, such as toxic damage to lung collaterals, fire subduing yin collaterals, triple energizer gasification, and "yang transforming qi and yin forming". Their common characteristics are as follows: (1) phlegm, blood stasis and toxin alone or mutually become pathological factors for PIF; (2) The pathological changes of PIF are all imbalance of movement and distribution of qi, blood, fluid and fluid; (3) The location of the disease is small structure of the lung; the location of the disease is deep and the course of the disease is long; (4) The smooth regulation of qi and blood highlights the method of promoting qi and blood circulation in treatment.

2. Study on Traditional Chinese Medicine and Prescription for Delaying PIF.

In recent years, Chinese medicine has played an irreplaceable role in the treatment of various chronic and persistent refractory diseases, which has been circulating for thousands of years. With the increase of the morbidity and mortality of pulmonary interstitial fibrosis, there are more and more studies on delaying pulmonary fibrosis with traditional Chinese medicine without specific drugs.

2.1 Study on Single Traditional Chinese Medicine.

There are numerous experimental studies on the effective components of traditional Chinese medicine in treating PIF, such as Astragalus membranaceus, Chuanxiong, Ginseng, Angelica sinensis, Salvia miltiorrhiza, turmeric, licorice, safflower and Panax notoginseng^[25].

Wang Yi^[26] et al. Animal research experiments have confirmed that each extract of Radix Astragali can reduce alveolar inflammation and pulmonary fibrosis in model rats, and collagen fiber deposition in lung tissue of rats in Radix Radix Radix, indicating that red qi can play a role in anti-alveolar inflammation and collagen fiber deposition. Lumbrokinase is the main active ingredient of Earthworm, which has anticoagulant and fibrinolytic activities. Earthworm extract also has anti-inflammatory, anti-oxidation, and anti-apoptotic effects^[27].

2.2 Study on Classical Prescriptions.

Zhu Mingting^[28] confirmed that Maimendong Decoction can regulate oxidative stress response; Liu Bao et al.^[29] The experimental study found that Maimendong Decoction can resist fibrosis by inhibiting the expression of soluble collagen and reactive oxygen species injury.

Xiefei Decoction is composed of five drugs: Lepidium seed, Rehmannia glutinosa, rhubarb, bamboo leaves and licorice. It is found that Xiefei Decoction may delay fibrosis by alleviating inflammatory reaction and blocking the production of free radicals by damaging epithelial cells^[30].

Based on the academic theory of Professor Hong Guangxiang, a master of Chinese medicine, Liu Xiangyu and others put forward that the application of "Jiang Du Moxibustion" combined with oral Yanghe Decoction to treat PIF can obviously improve the symptoms and signs of patients, the ventilation function of lung can obviously improve the index of pulmonary fibrosis, and the internal

and external combined treatment of moxibustion and medicine has application prospects for the treatment of PIF^[31].

Mufangji Decoction is derived from the chapter "Synopsis of the Golden Chamber" on phlegm, drink and cough. Although it is composed of only four herbs, Mufangji, Guizhi, Ginseng and Gypsum, it has the four methods of warming, clearing, nourishing and benefiting. It can effectively improve cough, wheezing, shortness of breath and other symptoms. Song Dongsheng^[32] et al. have proved that it combined with traditional Chinese medicine iontophoresis can reduce the inflammatory response of PIF patients and improve the lung function.

In today's vigorous modern medicine, there are still many Chinese medicine practitioners who seek more effective and less side effects to alleviate patients' pain. They and their predecessors have created new prescriptions and have been verified by experiments to have good curative effects Such as Qidong Huoxue Drink founded by professor Wang Huishang^[33], professor Jiang Liangduo's effective prescription Feixian Prescription^[34], Professor Li Kuiguo Fang Sang Su Er Chen Tang^[35], etc.

3. Summary

To sum up, the common understanding of the pathology of pulmonary interstitial fibrosis is that the pathological products such as phlegm, blood stasis and toxin accumulated in the lungs become pathogenic factors, which hinder the normal ventilation function of the lungs and cause people to have asthma, shortness of breath and dyspnea In the treatment, we hold the viewpoint of "strengthening body resistance and eliminating pathogenic factors", or take warming yang as the method or invigorating qi, yin, lung, kidney, spleen and lung as the method to help healthy qi, clear away heat, eliminate phlegm, remove blood stasis and detoxify, etc., and take eliminating pathogenic factors as the standard specimen.

Western medicine commonly used immunosuppressants, anti-fibrosis preparations, glucocorticoid cytokine activity blockers and other drugs to treat this disease, but the therapeutic effect is not accompanied by more side effects^[36]. Therefore, it is necessary to combine traditional Chinese medicine for treatment. Besides oral administration, traditional Chinese medicine decoction combined with iontophoresis proposed by modern clinic can make the drug components reach the disease site with remarkable curative effect^[37]. It is expected that it will be widely used in clinic This article excavates the pulmonary interstitial fibrosis related theory and the prescription medicine research anticipates may for the pulmonary interstitial fibrosis patient delays the disease slightly to do the modest strength .

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