

# *The role of traditional Chinese medicine in the treatment of chronic heart failure*

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**Keywords:** Chronic heart failure; Internal and external treatment of traditional Chinese medicine; Summary

**Abstract:** Chronic heart failure (CHF), as a serious cardiovascular disease with high morbidity and mortality, is a serious or late stage of various heart diseases, and has become an important public health problem affecting the health of our people. Great progress has been made in the clinical understanding and treatment of chronic heart failure, but the economic burden of the patients is heavy and there is no significant improvement. At present, western medicine treatment is the main method of its treatment. Traditional Chinese medicine therapy has the advantages of multi-target, low price, high efficiency and low toxicity, and plays an important role in the treatment of chronic heart failure. This article will elaborate from the two aspects of internal treatment and external treatment of traditional Chinese medicine, in order to provide guidance for the clinical treatment of chronic heart failure.

Chronic heart failure (CHF) is not only the final stage of the development of a variety of cardiovascular diseases and the cumulative result of various cardiac abnormalities, but also an important reason for the decline of the quality of life and death of patients with cardiovascular diseases. With the increasing pressure of social competition and the trend of aging population in China, the number of patients with chronic diseases such as coronary heart disease, diabetes, hypertension and so on has reached a record high. Most of these diseases will affect the cardiac function of patients at the end of the disease, and then develop into CHF. In recent years, the number of CHF patients caused by various diseases is also increasing. China Cardiovascular Health and Disease report 2020 shows that health problems caused by cardiovascular problems are the current focus. In China, the number of people suffering from various cardiovascular diseases is about 290 million and the number of patients with heart failure is about 4.5 million. At the same time, the mortality rate of patients with heart failure is also proportional to age. Frequent cardiovascular diseases make the social medical pressure and people's economic burden increasing day by day. In recent years, traditional Chinese medicine plays an indelible role in the auxiliary treatment of CHF because of its unique theoretical system and treatment methods. The role of adjuvant therapy of traditional Chinese medicine is summarized as follows.

## 1. Understanding of etiology and pathogenesis of CHF in traditional Chinese medicine

In the Yellow Emperor's Internal Classic, "the husband cannot lie down, but if he lies, he will be wheezing, and the water vapor will be the guest." <sup>[1]</sup>It is the earliest record of heart failure in traditional Chinese medicine. Its description of the symptoms of heart failure is "do not lie flat, lie down is wheezing cough", the cause of heart failure is "water drink stop, moisture overflowing the heart". This symptom and etiology is the same as the modern analysis of the mechanism of heart failure. Exogenous six sex, diet loss, internal injuries of seven emotions, internal injuries of viscera can all cause heart failure. In the Yellow Emperor's Internal Classic, the wind, cold and dampness are mixed and become arthralgia. Pulse arthralgia, return to the evil, give up in the heart. "The name of "pulse arthralgia" is put forward. According to modern research, the cause and clinical manifestation of "pulse arthralgia" in traditional Chinese medicine are similar to those of rheumatic heart disease in modern medicine, and its main causes are exogenous wind, cold, dampness and heat. According to the theory of traditional Chinese medicine, "the heart is the official of the monarch", the internal injury of emotion first affects the heart and spleen. "Lingshu mouth asked the twenty-eighth." the heart is the master of the internal organs. When you are sad, you are moved by sorrow and sorrow. "It shows that emotional illness is another important cause of heart failure. The lack of emotion leads to the loss of heart qi, which leads to the deficiency of righteousness, and the deficiency of heart qi leads to the disease by taking advantage of deficiency. The tenth chapter on the formation of the five Zang organs is red, and the pulse is also wheezing and firm. The name is called heart arthralgia, outside the disease, thinking and guilty, so evil follow it. "It records the cause of "heart arthralgia", which is caused by thinking too much, affecting qi, qi stagnation and blood stasis. Heart disease caused by emotional factors is similar to stress cardiomyopathy in modern clinic. "When you work, you gasp and sweat, both on the outside and inside, so your breath is consumed." It describes the injury of qi for a long time, the loss of congenital and acquired, leading to Zang-fu qi deficiency and heart failure. Internal Medicine of traditional Chinese Medicine[2]the pathogenesis of central failure is the deficiency of heart qi and blood yin and yang, mainly qi and yang deficiency, turbid phlegm, blood stasis, stagnation of water drinking, and evil of water drinking. Zhang Zhongjing recorded in the synopsis of the Golden Chamber that the fundamental pathogenesis is the failure of heart and kidney yang, the disorder of water drinking, the treatment of warming yang and promoting diuresis as the basic rule, and the classic Fangzhen Wu decoction, Ling Gui Shu Gan Tang and Wuling Powder for the treatment of heart failure. Still has a very good clinical effect. Academician Chen Keji[3]believes that "deficiency", "blood stasis" and "water" are the basic pathological factors leading to heart failure. He believes that the deficiency of heart qi and yang leads to the accumulation of blood stasis, water drink, phlegm and turbid phlegm, which leads to edema, palpitation, wheezing cough and other symptoms. Zhang Yan believes that heart failure is located in the heart, which is related to spleen and kidney. The pathogenesis is deficiency of qi promoting powerlessness, and deficiency of qi and blood stasis for a long time. Guo Weiqin[4]believes that the cause of heart failure is qi deficiency, which gradually evolves into deficiency of both qi and yang, and consumes yin fluid at the same time, the disease is located in the heart and spleen, involving liver and kidney for a long time. In the whole development process of the disease, yang deficiency and water flooding, qi deficiency and blood stasis are the basic pathogenesis.

According to the research on the pathogenesis of heart failure by doctors of previous dynasties, it can be roughly summarized that the disease of heart failure is located in the heart, which can involve the four internal organs of liver, spleen and kidney over a long period of time, with the main cause of deficiency of both qi and yang, and the pathogenesis of deficiency of both yin and yang, stagnation of phlegm and blood stasis.

## 2. The role of internal administration of traditional Chinese medicine in the treatment of chronic heart failure

In the theory of the formation of the five Zang organs, it is said that all the people with blood belong to the heart. It can be known that the qi line is the blood line. If the heart qi, heart yang and heart yin are deficient, then they are unable to transport blood and can become blood stasis. If the heart and kidney yang deficiency, then the heart qi deficiency, not only can not warm the kidney water, but also can not help the heart fire, resulting in yang deficiency, lack of water and fire, further lead to qi deficiency and blood stasis, resulting in cardiac function damage. Therefore, replenishing qi and warming yang, activating blood circulation and promoting diuresis are the key to the treatment of CHF with traditional Chinese medicine<sup>[5]</sup>. Tan Feng<sup>[6]</sup> 100 patients with CHF were randomly divided into two groups: control group (n = 50) and observation group (n = 50). The left ventricular ejection fraction (LVEF), cardiac index (CI), mitral flow ratio (E / A), clinical efficacy, adverse reactions, quality of life and rehospitalization rate were observed. The results showed that the LVEF, CI and Eram An in the observation group were better than those in the control group, and the rate of adverse reaction in the observation group was lower than that in the control group. Therefore, <sup>[7]</sup>the use of Yiqi Yang Huoxue Lishui recipe combined with western medicine routine treatment can improve the clinical efficacy, reduce the recurrence, death and adverse reaction rate of CFH patients, and then improve the quality of life of patients.

Studies have shown that Qi deficiency and blood stasis syndrome is the most common in patients with CFH, and qi deficiency and blood stasis is the most basic pathogenesis. Zhang Bo<sup>[8]</sup> divided 215 patients with CHF of qi deficiency and blood stasis into the control group and the treatment group. The control group was treated with routine western medicine. The treatment group was treated with Shenqi Yiqi Huoxue capsule on the basis of the control group. The level of NT-proBNP, TCM syndrome scores and cardiac function parameters before and after treatment were observed to determine the curative effect. Adverse cardiac events (MACE) and the safety of treatment were observed. The results showed that the scores of 6min walking test and TCM syndrome of qi deficiency and blood stasis in the treatment group were improved, and the improvement in the treatment group was better than that in the control group, and the NT-proBNP level and echocardiographic parameters in the treatment group were significantly improved, and the improvement in the treatment group was better than that in the control group. The total effective rate of cardiac function classification was 91.67% in the treatment group and 78.50% in the control group. The incidence of MACE in the treatment group (4.63%) was significantly lower than that in the control group (13.08%). Conclusion Shenqi Yiqi Huoxue capsule is effective and safe in the treatment of CFH patients with qi deficiency and blood stasis.

## 3. Application of external therapy in the treatment of chronic heart failure

### 3.1 Acupoint application of traditional Chinese medicine

Acupoint application of traditional Chinese medicine is based on the theory of meridians and collaterals of traditional Chinese medicine, and acts on the whole body through chronic stimulation of selected acupoints of traditional Chinese medicine, so as to achieve the purpose of expelling evil and supporting vital qi<sup>[9]</sup>. <sup>[10]</sup>Huang Huojian et al, 128 patients with CFH were divided into two groups: control group (n = 64) and experimental group (n = 64). Acupoint application of traditional Chinese medicine ingredients include Radix Astragali, Atractylodes macrocephala, Poria cocos, Salvia miltiorrhiza, Yujin and so on. Select acupoints: Xinchu, Gaozhong, Guanyuan, Fenglong, Qihai, Xuehai, etc.), to observe the therapeutic effect and safety of the two groups. The results showed that the experimental group could increase the levels of 6MWT and LVEF and further improve the cardiac function of the patients. Therefore, acupoint application of traditional Chinese medicine can effectively improve the left ejection fraction of the heart, reduce the serum markers of

heart failure and ensure the smoothness of the treatment.

### 3.2 Moxibustion method

Moxibustion therapy, referred to as moxibustion or moxibustion, stimulates the selected acupoints through the warm heat of the moxa strips, so that the meridians and qi and blood can be changed, so as to regulate the yin and yang of the human body, make the internal and external balance, and improve the symptoms of the patients<sup>[11]</sup>. According to traditional Chinese medicine, CHF belongs to the category of "edema" and "chest arthralgia". Due to deficiency of heart and kidney yang, dampness and blood stasis are stopped inside, and then warming yang and tr<sup>[12]</sup>ansforming qi and water are carried out. A large number of clinical studies have shown that moxibustion acupoints can play the role of warming the heart and kidney, transforming qi and promoting water, and this method can achieve good results. Deng Nengzong et al, in the clinical study, 60 patients with CHF were randomly divided into two groups: the control group was treated with western medicine, and the observation group was further treated with moxibustion on the basis of the control group.

The final results showed that the total effective rate of the observation group after treatment was 95.00%, which was significantly higher than that of the control group (75.00%), and the difference was statistically significant ( $p < 0.05$ ). Therefore, this method can improve cardiac function and enhance the movement of the body, and the clinical effect is remarkable.

### 3.3 Acupuncture method

Acupuncture mainly stimulates the relevant meridians and adjusts the viscera so as to regulate endocrine and balance yin and yang. Studies have found that acupuncture can treat patients with myocardial hypertrophy and impaired cardiac function caused by essential hypertension through many mechanisms to slow down the process from hypertension to myocardial hypertrophy to heart failure<sup>[13]</sup>. Zhang Miao et al,<sup>[14]</sup>in the clinical study, 116 patients were divided into western medicine treatment group and combined treatment group. The treatment group was treated with acupuncture (acupoints: Mingmen point, Neiguan point, kidney acupoint) combined with Fumai decoction, while the control group was treated with western medicine alone. The results showed that the total effective rate of the combined treatment group was significantly higher than that of the western medicine treatment group ( $p < 0.05$ ). Therefore, the combination of acupuncture and moxibustion is effective in the treatment of CHF, which can effectively relieve the pain of patients and improve the quality of life.

### 3.4 Foot bath method of traditional Chinese medicine

Foot bath therapy with traditional Chinese medicine can fully reflect the advantages of traditional Chinese medicine in prevention, health care, treatment and rehabilitation. Under the guidance of meridian theory and Zang-fu transport theory, the prescription is directly absorbed by physical stimulation through skin, acupoints, orifices, etc., and transmitted to the whole body to adjust the focus, and then play its efficacy. 76 patients with CHF were randomly divided into control group ( $n = 38$ ) and study group ( $n = 38$ ). On the basis of traditional Chinese medicine foot bath prescription: safflower, Radix Paeoniae rubra, Ligusticum chuanxiong 30g, cassia twig, raw moxa leaf 20g, aconite 10g). The results of this study show that the total and efficiency of cardiac function improvement is 94.7%, which is higher than that of 73.7% in the control group, so traditional Chinese medicine foot bath therapy can significantly improve the cardiac function of patients with CHF. Traditional Chinese medicine foot bath has the effect of dispersing knots and detumescence, dredging channels and collaterals, and can be used as an adjuvant treatment of CFH.

## 4. Summary

With the continuous development of the field of traditional Chinese medicine, the advantages of internal and external treatment of traditional Chinese medicine in the treatment of chronic heart failure are becoming more and more obvious. It can obviously improve the curative effect, enhance the ability of self-immunity and reduce the side effects. However, there are still some limitations, first of all, a complete syndrome differentiation and treatment system has not yet been formed, and secondly, lack of innovation. Therefore, in the future, we still need to conduct more in-depth research on the clinical efficacy and mechanism of chronic heart failure drugs, in order to provide a theoretical basis for the treatment of chronic heart failure and lay a foundation for the development of traditional Chinese medicine.

## Acknowledgement

2024 Municipal Traditional Chinese Medicine hospital scientific research ability improvement project (SZY-NLTL-2024-014)

Scientific research project of Shaanxi Provincial Science and Technology Department (2018SF-278)

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