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The Impact of Buzhong Yiqi Decoction Combined with Xuefu Zhuyu Decoction on Cardiac Function and Quality of Life in Patients with Coronary Heart Disease and Heart Failure

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Abstract: *Objective*: To explore the improvement effect of implementing Buzhong Yiqi Decoction combined with Xuefu Zhuyu Decoction on cardiac function and quality of life of patients during the treatment of coronary heart disease complicated with heart failure. *Methods*: Eighty cases were included in the study, and they were equally divided into a control group (n=40, treated with basic western medicine) and a study group (n=40, treated with Buzhong Yiqi Decoction combined with Xuefu Zhuyu Decoction) according to random sampling grouping method. The intervention index results of the two groups were compared. *Results*: The improvement of cardiac function index, TCM syndrome score, and quality of life in the study group was more prominent, with a statistical value of $P < 0.05$. *Conclusion*: Buzhong Yiqi Decoction combined with Xuefu Zhuyu Decoction and conventional western medicine treatment can effectively improve the cardiac function of patients with coronary heart disease complicated with heart failure and enhance their quality of life. It is worthy of clinical promotion and application.

Keywords: Coronary heart disease; Heart failure; Buzhong Yiqi Decoction; Xuefu Zhuyu Decoction; Impact effect

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1. Introduction

The emergence of coronary heart disease is due to atherosclerosis of the coronary arteries, which leads to narrowing or even blockage of blood vessels, triggering myocardial ischemic necrosis [1]. Heart failure is a manifestation of heart disease in its end stage, and coronary heart disease is precisely one of its more common predisposing factors. When these two conditions coexist, the overall condition becomes quite complex, the prognosis is poor, and it can have a severe impact on the patient's living situation. Although conventional Western medicine treatment can achieve certain therapeutic effects, it has limitations such as significant side effects and the easy recurrence of the disease [2]. In the treatment of cardiovascular diseases, traditional Chinese medicine has accumulated rich experience. Buzhong Yiqi Decoction can replenish Qi, elevate Yang, and lift the sinking Qi,

while Xuefu Zhuyu Decoction has the effects of promoting blood circulation to remove blood stasis, facilitating Qi and blood circulation, and relieving pain [3]. Given this situation, this study focuses on observing the improvement effects of the combined use of these two decoctions on patients' cardiac function and quality of life.

2. Materials and methods

2.1. General information

Eighty cases are included in the study, selected from January 2023 to January 2025. They are randomly divided into two groups, with 40 patients in each group. The control group consisted of 24 males and 16 females, with an average age of (62.89 ± 2.23) years. The study group consisted of 25 males and 15 females, with an average age of (62.56 ± 2.37) years. The baseline characteristics are balanced between the two groups, with $P > 0.05$. The study is approved by the medical ethics committee.

2.2. Inclusion and exclusion criteria

2.2.1. Inclusion criteria

(1) Clinically diagnosed with coronary heart disease and heart failure [4].

(2) Patients were aware of the relevant content and details of the study and actively cooperated.

2.2.2. Exclusion criteria

(1) Combined with malignant tumors.

(2) Patients with blood diseases.

(3) Those with allergies to the study medication.

(4) Those who had used other drugs or treatments affecting heart function within the past month.

2.3. Methods

2.3.1. Control group

Treated with conventional Western medicine, specifically including furosemide tablets, perindopril tablets, metoprolol sustained-release tablets, and isosorbide mononitrate tablets. The dosage is adjusted according to the patient's individual condition, and the treatment course is 12 weeks.

2.3.2. Study group

In addition to the above treatment, patients in this group are also given Buzhong Yiqi Decoction and Xuefu Zhuyu Decoction. The former consisted of 30g of Huangqi, 15g each of Baizhu, Dangshen, and Danggui, 10g of Chenpi, and 6g each of Shengma, Chaihu, and Zhigancao. The latter consisted of 12g of Taoren, 9g each of Honghua, Danggui, Shengdihuang, and Niuxi, 6g each of Chishao and Zhiqiao, 5g each of Chuanxiong and Jugen, and 3g each of Chaihu and Gancao [5]. The decoctions are uniformly prepared by the hospital's Chinese medicine dispensary, with one dose per day, taken in the morning and evening, 200ml each time. The treatment course is the same as the control group, 12 weeks.

2.4. Observation indicators

(1) Cardiac function indicators

Using color Doppler echocardiography equipment, the left ventricular end-diastolic diameter (LVEDD), end-systolic diameter (LVESD), and left ventricular ejection fraction (LVEF) are measured at the beginning and end of the 12-week treatment course [6].

(2) TCM syndrome scores

Before and after treatment (baseline and 12 weeks later), typical symptoms such as shortness of breath and fatigue, chest pain and tightness, palpitations, and spontaneous or night sweats were graded and scored. Each symptom is divided into four levels: none, mild, moderate, and severe, corresponding to scores of 0, 1, 2, and 3. A higher total score indicated more prominent syndrome manifestations.

(3) Quality of life indicators

The Minnesota Heart Failure Quality of Life Questionnaire (MLHFQ) was used before and after treatment (baseline and 12 weeks later). It included three dimensions: physiological function, psychological emotions, and social function. The score range for each dimension was 0–35, and the total score range is 0–105. A higher score indicated poorer quality of life for the patient [7].

(4) Statistical methods

The count data and measurement data involved in the study are entered into SPSS 23.0 software. The former is tested using the χ^2 test and expressed as (n,%); the latter is tested using the t-test and expressed as (x±s) if it followed a normal distribution. If $P < 0.05$, the comparison is considered statistically significant.

3. Results

3.1. Comparison of cardiac function indicators

As shown in **Table 1**, after treatment, the LVEDD and LVESD values were lower in the study group, while the LVEF value was higher. There were significant differences in these indicators between the two groups ($P < 0.05$).

Table 1. Comparison of cardiac function indicators between the two groups [$\bar{x} \pm s$]

Group	Sample size (n)	LVEDD (mm)		LVESD (mm)		LVEF (%)	
		Before Tx	After 12w Tx	Before Tx	After 12w Tx	Before Tx	After 12w Tx
Study group	40	59.41 ± 3.23	52.45 ± 2.21[a]	47.28 ± 2.12	39.55 ± 2.42[a]	41.67 ± 3.21	59.41 ± 3.23
Control group	40	59.45 ± 3.28	55.78 ± 2.18[a]	47.26 ± 2.16	41.67 ± 2.45[a]	41.62 ± 3.26	59.45 ± 3.28
t	-	0.055	6.784	0.042	3.894	0.069	0.055
P	-	0.956	0.001	0.967	0.001	0.945	0.956

Note: $Pa < 0.05$ for comparisons before and after treatment within the group.

3.2. Comparison of TCM syndrome scores

According to the data in **Table 2**, after treatment, the scores for each item of the TCM syndrome in the study group were lower, showing a significant difference between the groups ($P < 0.05$).

Table 2. Comparison of TCM syndrome scores between groups [$\bar{x} \pm s$ /score]

Group	Sample size (n)	Shortness of breath and fatigue		Chest pain and tightness		Palpitations and heart throbbing		Spontaneous and night sweating	
		Before Tx	After 12w Tx	Before Tx	After 12w Tx	Before Tx	After 12w Tx	Before Tx	After 12w Tx
Study group	40	25.67 ± 2.15	10.45 ± 2.11[c]	24.56 ± 2.27	11.67 ± 2.23[c]	26.89 ± 2.02	11.67 ± 2.24[c]	25.67 ± 2.15	10.45 ± 2.11[c]
Control group	40	25.65 ± 2.18	13.28 ± 2.13[c]	24.34 ± 2.24	14.78 ± 2.29[c]	26.78 ± 2.11	13.89 ± 2.27[c]	25.65 ± 2.18	13.28 ± 2.13[c]
t	-	0.041	5.970	0.436	6.154	0.238	4.403	0.041	5.970
P	-	0.967	0.001	0.664	0.001	0.812	0.001	0.967	0.001

Note: $P^b < 0.05$ for comparisons before and after treatment within the group.

3.3. Comparison of quality of life scores

As shown in **Table 3**, after treatment, the quality of life scores for each item in the study group were lower, indicating a notable disparity between the groups ($P < 0.05$).

Table 3. Comparison of quality of life scores between groups [$\bar{x} \pm s$ /score]

Group	Sample size (n)	Physiological function (score)		Psychological well-being (score)		Social function (score)	
		Before Tx	After 12w Tx	Before Tx	After 12w Tx	Before Tx	After 12w Tx
Study group	40	25.67 ± 2.15	10.45 ± 2.11c	24.56 ± 2.27	11.67 ± 2.23c	26.89 ± 2.02	11.67 ± 2.24c
Control group	40	25.65 ± 2.18	13.28 ± 2.13c	24.34 ± 2.24	14.78 ± 2.29c	26.78 ± 2.11	13.89 ± 2.27c
t	-	0.041	5.970	0.436	6.154	0.238	4.403
P	-	0.967	0.001	0.664	0.001	0.812	0.001

Note: $P^c < 0.05$ for comparisons before and after treatment within the group.

4. Discussion

With the deepening of population aging and changes in lifestyle, the incidence of coronary heart disease combined with heart failure has been increasing year by year, becoming a major cause of cardiovascular disease deaths worldwide [8]. Buzhong Yiqi Tang (Decoction for Tonifying the Middle and Boosting Qi) originates from "Pi Wei Lun" written by Li Dongyuan. This formula, consisting of various herbs such as Huangqi (Astragalus) and Baizhu (Atractylodes), adheres to the principle of "eliminating heat with sweet and warm herbs". It has the effects of strengthening the spleen, nourishing Qi, and lifting Yang, regulating the body's Qi and blood circulation holistically [9]. Xuefu Zhuyu Tang (Decoction for Removing Blood Stasis from the Chest) is derived from "Yi Lin Gai Cuo" by Wang Qingren. It mainly consists of herbs with the function of promoting blood circulation and removing blood stasis, such as Taoren (Peach Kernel) and Honghua (Safflower). It can dredge blood vessels, disperse blood stasis, and improve heart blood circulation [10].

The results of this study show that patients in the study group had more prominent improvement effects in terms of cardiac function indicators, TCM syndrome scores, and quality of life. When evaluating cardiac function indicators, it was found that after corresponding treatment, the left ventricular ejection fraction of patients in the study group increased, and parameters such as left ventricular end-diastolic diameter and end-systolic diameter

also showed significant optimization. Buzhong Yiqi Tang focuses on nourishing Qi and lifting Yang. In this formula, various medicinal herbs such as Huangqi and Renshen can cultivate the body's righteous Qi, thereby enhancing the potential function of the heart. Xuefu Zhuyu Tang excels in promoting blood circulation and removing blood stasis, allowing coronary blood flow to remain unobstructed and reducing myocardial ischemia. These two decoctions, along with western medication, exert a synergistic effect, improving heart function through multiple pathways and targets. This is consistent with the research conclusions of Wang [11]. In terms of TCM syndrome scores, the improvement in the study group surpassed that of the control group. The combined use of Buzhong Yiqi Tang and Xuefu Zhuyu Tang can precisely target the pathogenesis, harmonize the body's yin and yang balance through nourishing Qi and blood and dispersing blood stasis, thereby effectively relieving clinical symptoms. Research conducted by Zhang Qiang and others also indicates that treating such patients with Xuefu Zhuyu Tang combined with Zhenwu Tang can not only reduce TCM syndrome scores but also improve cardiac function indicators, achieving superior results compared to monotherapy with Western medication [12]. Simultaneously, patients in the study group showed significant improvement in quality of life scores across multiple dimensions. This combined treatment approach not only effectively optimizes patients' cardiac function and relieves clinical symptoms but also reduces the pain and suffering experienced by patients through holistic conditioning. It helps patients better integrate into social life, significantly improving their quality of life.

5. Conclusion

In summary, the combined use of Buzhong Yiqi Tang and Xuefu Zhuyu Tang in the treatment of patients with coronary heart disease and heart failure has high clinical value and promotion potential. In subsequent studies, expanding the sample size and extending the follow-up duration can provide deeper insights into the long-term efficacy and safety of this combined therapy, further supporting its clinical application.

Disclosure statement

The author declares no conflict of interest.

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