

# The Application Value of Shexiang Baoxin Pills in the Treatment of Microcirculation Disorders after Coronary Intervention

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**Abstract:** *Objective:* To explore the practical application value of Shexiang Baoxin Pills in the treatment of microcirculation disorders after coronary intervention. *Methods:* 60 patients who developed microcirculation disorders after undergoing coronary intervention in the hospital from May 2022 to May 2025 were selected and divided into a conventional group and an observation group using the random number table method, with 30 cases in each group. The conventional group only adopted the conventional treatment plan after coronary intervention, and the observation group added Shexiang Baoxin Pills on the basis of conventional treatment. The therapeutic effects of the two groups were compared. *Results:* Compared with the conventional group, the observation group had better improvement in cardiac function-related indicators, higher overall treatment effectiveness, and lower complication rate ( $P < 0.05$ ). *Conclusion:* In the treatment of patients with microcirculation disorders after coronary intervention, the addition of Shexiang Baoxin Pills can effectively improve the patients' cardiac function indicators, enhance the treatment effect, and reduce complications, and has high clinical application value.

**Keywords:** Shexiang Baoxin Pills; Coronary intervention; Microcirculation disorder; Therapeutic effect; Complications

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## 1. Introduction

Coronary interventional therapy is currently a common method for treating coronary heart disease, but some patients will experience microcirculation disorders after surgery, which will affect myocardial blood supply, thereby affecting the patient's recovery, and may even increase the risk of adverse cardiovascular events<sup>[1]</sup>. The improvement of microcirculation disorders is of great significance to the prognosis of patients after coronary intervention. As a commonly used Chinese patent medicine, Shexiang Baoxin Pills have been used to some extent in the treatment of cardiovascular diseases. Based on this, this study aims to analyze the application value of Shexiang Baoxin Pills in the treatment of microcirculatory disorders after coronary intervention and provide a reference for clinical treatment. In recent years, as the incidence of coronary heart disease has increased year by year, the number of patients undergoing coronary intervention has also continued to increase. However, the incidence of postoperative microcirculation disorders has always remained at a high level. This problem has become an important factor affecting patients' postoperative recovery. At present, clinical

treatments for postoperative microcirculatory disorders are relatively limited. Conventional treatment options mostly focus on preventing thrombosis and stabilizing plaques, but have a weak effect on improving microvascular function. Therefore, finding a safe and effective treatment drug has become a key direction of clinical research. Shexiang Baoxin Pill has been proven to improve myocardial blood supply and relieve angina symptoms in the past treatment of cardiovascular diseases, but its specific effect in the treatment of microcirculatory disorders after coronary intervention has not been fully verified, which is the core reason for this study.

## 2. Materials and methods

### 2.1. General information

A total of 60 patients who developed microcirculation disorders after undergoing coronary intervention in the hospital from May 2022 to May 2025 were selected and divided into a conventional group and an observation group using the random number table method, with 30 cases in each group. There were 17 men and 13 women in the conventional group, aged 42 to 75 ( $58.62 \pm 5.34$ ) years old; there were 16 men and 14 women in the observation group, aged 43 to 74 ( $59.05 \pm 5.18$ ) years old. The general information of the two groups of patients was comparable ( $P > 0.05$ ).

Inclusion criteria: (1) Diagnosed with microcirculatory disorder after undergoing coronary intervention; (2) No history of drug allergy; (3) Complete clinical data.

Exclusion criteria: (1) Combined with severe liver and renal insufficiency; (2) Existence of acute myocardial infarction; (3) Mental illness, unable to cooperate with treatment.

### 2.2. Method

The conventional group adopted the conventional treatment plan after coronary intervention, including the administration of antiplatelet drugs (aspirin enteric-coated tablets, 100 mg/time, once a day, orally; combined with clopidogrel, 75 mg/time, once a day, orally), statins (rosuvastatin calcium tablets, 10 mg/time, once a day, orally) and drugs to control blood pressure and blood sugar. Patients were also instructed to maintain a low-salt and low-fat diet and take appropriate rest.

The observation group was given Shexiang Baoxin Pills (Shanghai Hutchison Pharmaceutical Co., Ltd., national drug approval number Z31020068) on the basis of the conventional group. The specific usage was 2 pills/time, 3 times/day, orally. Both groups were treated continuously for 1 month.

### 2.3. Observation indicators

The cardiac function indicators (LVEDV, LVESV, and LVEF), total treatment effectiveness, and incidence of complications (angina pectoris, arrhythmia) were compared between the two groups of patients. The total effective rate of treatment is determined based on the improvement of the patient's clinical symptoms. Markedly effective means that the electrocardiogram returns to normal and symptoms such as angina pectoris and chest tightness disappear; effective means that the symptoms are relieved and the electrocardiogram is improved; ineffective means that there is no change in symptoms and signs. The total effective rate = (number of markedly effective cases + number of effective cases) / total number of cases  $\times 100\%$ .

### 2.4. Statistical methods

Data were analyzed using SPSS28.0. t-test for measurement data;  $\chi^2$  test for count data.  $P < 0.05$  represents a significant difference.

### 3. Results

#### 3.1. Comparison of cardiac function indicators between the two groups before and after treatment

After treatment, the cardiac function indicators of the observation group were better than those of the conventional group ( $P<0.05$ ), as shown in **Table 1**.

**Table 1.** Comparison of cardiac function indicators between the two groups before and after treatment (Mean  $\pm$  SD)

Group	LVEDV (ml)	LVESV (ml)	LVEF (%)
Regular group ( $n=30$ )	135.45 $\pm$ 12.08	63.56 $\pm$ 8.21	56.18 $\pm$ 5.87
Observation group ( $n=30$ )	119.68 $\pm$ 10.67	42.72 $\pm$ 7.15	65.35 $\pm$ 6.54
<i>t</i>	5.359	10.485	5.715
<i>P</i>	0.000	0.000	0.000

#### 3.2. Comparison of the total effective rate of treatment between the two groups

The total effective rate of treatment in the observation group was higher than that in the conventional group ( $P<0.05$ ), as shown in **Table 2**.

**Table 2.** Comparison of the total effective rate of treatment between the two groups [n (%)]

Group	Effective	Valid	Invalid	Always efficient
Regular group ( $n=30$ )	12 (40.00)	9 (30.00)	9 (30.00)	21 (70.00)
Observation group ( $n=30$ )	18 (60.00)	10 (33.33)	2 (6.67)	28 (93.33)
$\chi^2$				5.455
<i>P</i>				0.020

#### 3.3. Comparison of complication rates between the two groups

The incidence of complications in the observation group was lower than that in the conventional group ( $P<0.05$ ), as shown in **Table 3**.

**Table 3.** Comparison of complication rates between the two groups [n (%)]

Group	Angina pectoris	Arrhythmia	Overall incidence
Regular group ( $n=30$ )	5 (16.67)	3 (10.00)	8 (26.67)
Observation group ( $n=30$ )	1 (3.33)	0 (0.00)	1 (3.33)
$\chi^2$			6.405
<i>P</i>			0.011

### 4. Discussions

Although coronary interventional therapy can effectively open the stenotic main coronary arteries (blood vessels such as the left anterior descending artery, circumflex artery, and right coronary artery), some patients will still have microcirculatory disorders after surgery. This is mainly because the interventional therapy may cause damage to the

coronary microvessels. At the same time, factors such as postoperative inflammatory response and platelet activation will also affect microcirculatory function. Microcirculatory disorders will cause myocardial cells to be unable to obtain sufficient blood supply, thereby affecting the patient's cardiac function recovery and increasing the risk of complications such as angina pectoris and arrhythmia <sup>[2]</sup>. Therefore, actively improving microcirculation disorders after coronary intervention is of great significance to improving patient treatment effects and quality of prognosis. Judging from the actual clinical situation, the mechanism of microcirculatory disorder after coronary intervention is relatively complex. In addition to direct damage to microvessels during the interventional procedure, postoperative endothelial dysfunction is also one of the important causes. Damage to vascular endothelial cells will lead to a decrease in the secretion of vasodilator factors such as nitric oxide and a relative increase in vasoconstrictor factors, which in turn will cause microvascular spasm and aggravate microcirculatory disorders. The ingredients such as styrax and borneol in Shexiang Baoxin Pills can improve vascular endothelial function, promote the release of vasodilator factors, and relieve microvascular spasm. This is one of the important reasons why it can effectively improve microcirculation.

The results of this study show that the cardiac function indicators of the observation group after treatment were better than those of the conventional group, which shows that the addition of Shexiang Baoxin Pills can help the cardiac function of patients with microcirculation disorders after coronary intervention return to normal levels. Judging from the pharmacological effects of Shexiang Baoxin Pills, its main ingredients include artificial musk, ginseng extract, artificial bezoar, cinnamon, styrax, toad venom, borneol, etc. Among them, artificial musk has the effect of resuscitating the mind, activating blood circulation, and promoting menstruation. Ginseng extract can replenish qi, restore pulse, strengthen the heart, and strengthen the meridians, and cinnamon can warm the meridians and unblock meridians. Styrax can aromatically stimulate the mind, promote qi, and relieve pain. These ingredients work together to expand coronary microvessels, increase coronary blood flow, inhibit platelet aggregation, inhibit the release and expression of inflammatory factors, improve myocardial metabolic function, accelerate cardiac function recovery, and improve prognosis <sup>[3]</sup>. Although antiplatelet drugs and statins in conventional treatment plans can prevent thrombosis and stabilize plaques, they have a limited effect in improving microvascular function. The addition of Shexiang Baoxin Pills can further target the pathological mechanism of microcirculatory disorders on the basis of conventional treatment, so it can more effectively improve cardiac function indicators. In addition, studies have shown that Shexiang Baoxin Pills can also promote coronary microangiogenesis and improve myocardial blood supply by increasing the number of microvessels. This effect may be more obvious in long-term treatment, providing a stronger guarantee for the patient's long-term prognosis.

In terms of total treatment effectiveness, the observation group reached 93.33%, which was significantly higher than the 70.00% of the conventional group. This result further confirmed the effectiveness of Shexiang Baoxin Pills in the treatment of microcirculatory disorders after coronary intervention. From the perspective of improving clinical symptoms, Shexiang Baoxin Pills can relieve patients' symptoms such as chest tightness and chest pain caused by microcirculatory disorders by improving myocardial blood supply. At the same time, its protective effect on cardiac function can also improve the patient's overall physical condition, making the treatment more effective and significantly increasing the number of effective cases. In the conventional group, due to the lack of specific treatment methods for microcirculatory disorders, some patients' clinical symptoms and cardiac function indicators cannot be effectively improved, resulting in a low overall treatment efficiency <sup>[4]</sup>. In clinical practice, the study has found that some patients will experience significant relief in symptoms such as chest tightness and chest pain after receiving Shexiang Baoxin Pills for about 1 week. This not only improves the patient's confidence in treatment but also improves the patient's treatment compliance and lays a good foundation for the smooth development of subsequent treatment.

In terms of the incidence of complications, the observation group was only 3.33%, which was much lower than the 26.67% of the conventional group. This shows that the addition of Shexiang Baoxin Pills can also reduce the risk of complications in patients with microcirculation disorders after coronary intervention. The occurrence of angina pectoris and arrhythmia is closely related to myocardial ischemia. Shexiang Baoxin Pill can reduce the degree of myocardial ischemia by improving microcirculation and increasing myocardial blood supply, thereby reducing the frequency

of angina pectoris attacks. At the same time, its protective effect on myocardial cells can also stabilize myocardial electrophysiological activity and reduce the probability of arrhythmia<sup>[5]</sup>. The conventional group was more prone to complications such as angina pectoris and arrhythmia because the microcirculation disorder was not effectively improved, and myocardial ischemia persisted. It is worth noting that no serious complications occurred in the observation group in this study, and only one patient developed mild angina. The symptoms were relieved after symptomatic treatment, which further reflects the safety of the drug in clinical application.

From the perspective of clinical application safety, during the course of this study, patients in the observation group did not experience obvious adverse drug reactions, which shows that the use of Shexiang Baoxin Pills at conventional doses has good safety. Although Shexiang Baoxin Pills contain certain toxic ingredients such as toad venom, their toxicity has been greatly reduced through reasonable processing and dose control, and serious adverse reactions rarely occur in routine clinical use. This also provides a safety guarantee for its promotion and application in the treatment of microcirculatory disorders after coronary intervention<sup>[6]</sup>. During the medication, the study monitored the liver and kidney function indicators of the patients, and the results showed that there were no significant changes in the liver and kidney function indicators of the two groups of patients before and after treatment. This further confirmed that Shexiang Baoxin Pills had no obvious adverse effects on liver and kidney function and were suitable for patients with different physical conditions. In addition, from the perspective of the economy and convenience of treatment, Shexiang Baoxin Pills are relatively affordable and are oral preparations that are easy to use and have high patient compliance, making them suitable for widespread clinical use. For patients with microcirculation disorders after coronary intervention, long-term treatment and management are very important, and the convenience and economy of Shexiang Baoxin Pills can help patients better adhere to treatment, thereby maintaining a good state of microcirculation for a long time and further improving the prognosis<sup>[7]</sup>. Compared with other drugs that improve microcirculation, the price of Shexiang Baoxin Pills is lower, which can reduce the financial burden of patients. It is especially suitable for use in primary hospitals and patients with relatively poor economic conditions, which also expands the scope of clinical application of this drug. It should also be noted that when using Shexiang Baoxin Pills to treat post-coronary interventional microcirculatory disorders, the doctor's instructions should be strictly followed, the dosage and course of treatment should be adjusted according to the patient's specific conditions, and the patient's drug reaction should be closely observed. Although no obvious adverse reactions occurred in this study, in clinical practice, one still needs to be alert to possible gastrointestinal discomfort, allergies, etc., in individual patients. Once adverse reactions occur, the drug should be discontinued in time, and corresponding treatment measures should be taken<sup>[8]</sup>. For patients with a history of gastrointestinal diseases, it is recommended to take Shexiang Baoxin Pills after meals to reduce the irritation of the drug to the gastrointestinal tract and improve medication safety.

Based on the results of this study and related pharmacological analysis, it can be seen that in the treatment of patients with microcirculatory disorders after coronary intervention, the addition of Shexiang Baoxin Pills to conventional treatment can effectively improve the patients' cardiac function indicators, improve the overall treatment efficiency, reduce the incidence of complications, and has good safety, economy, and convenience. This treatment plan can make up for the shortcomings of conventional treatment in improving microvascular function, provide a new and effective option for the treatment of microcirculatory disorders after coronary intervention, and help improve the treatment effect and quality of prognosis of patients. Therefore, it has high clinical application value and is worthy of further promotion and use in clinical practice<sup>[9]</sup>.

From the perspective of traditional Chinese medicine theory, microcirculation disorders after coronary artery intervention fall into the categories of "chest obstruction" and "palpitations", and their pathogenesis is mainly qi deficiency, blood stasis, and vein obstruction. Shexiang Baoxin Pill has the effect of replenishing qi, activating blood, and aromatic warming, which is exactly in line with the pathogenesis characteristics of the disease. It can improve microcirculation disorders by regulating qi and blood and clearing veins, which also reflects the advantages of integrated traditional Chinese and Western medicine in cardiovascular diseases<sup>[10]</sup>. In clinical practice, combining conventional Western medicine treatment with traditional Chinese medicine can have a synergistic effect based on different pathophysiological mechanisms, thereby achieving better therapeutic effects. This is also one of the important development directions for

the treatment of cardiovascular diseases in the future. Integrated traditional Chinese and Western medicine treatment can not only quickly relieve the patient's clinical symptoms, but also fundamentally regulate the patient's physical condition, reduce the recurrence of the disease, and provide a guarantee for the patient's long-term health.

In summary, Shexiang Baoxin Pills have significant application value in the treatment of microcirculatory disorders after coronary intervention. It can effectively improve patients' cardiac function indicators, enhance treatment effects, and reduce the incidence of complications. It is safe, economical, and convenient. It is suitable for widespread clinical promotion and application and provides strong support for the treatment of patients with microcirculatory disorders after coronary intervention.

## Disclosure statement

The author declares no conflict of interest.

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