

# Analysis of Bazhen Decoction in Improving the Rehabilitation Effect of Patients Undergoing Minimally Invasive Hip Joint Replacement

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**Keywords:** Bazhen Decoction; hip joint; rehabilitation effect

**Abstract:** In the traditional sense, life refers to the wear time of artificial joint. Now the new ceramic and metal friction interface can solve the wear problem well. However, the subsidence of prosthesis and fracture around prosthesis caused by osteoporosis will still exist. At present, surgery is widely used in clinic, especially hip replacement, and its curative effect has been unanimously affirmed in clinic. Traditional Chinese medicine prescription for enriching blood has its unique features in treating deficiency of qi and blood, and its effect in treating anemia has also been confirmed in clinical research results. Studies have pointed out that Bazhen Decoction has the efficacy of invigorating qi, enriching blood and nourishing blood, and it has a better effect on patients after hip replacement. With the concept of rehabilitation nursing deeply rooted in the hearts of the people, more and more attention has been paid to rehabilitation nursing. The main purpose of operation is to return the elderly patients to their families and society after operation. Postoperative rehabilitation is the main factor determining the recovery of elderly patients, which is not only the key research field of rehabilitation doctors. With the concept of rehabilitation nursing deeply rooted in the hearts of the people, more and more attention has been paid to rehabilitation nursing. At present, there are many studies on the rehabilitation exercise of elderly patients after hip replacement, which has achieved certain clinical effect. This paper mainly observed the effect of Bazhen Decoction on postoperative rehabilitation indexes of patients with minimally invasive hip replacement, and explored a new method to accelerate the development of integrated traditional Chinese and Western medicine in rehabilitation surgery.

## 1. Introduction

Artificial hip replacement is a common orthopedic operation in clinic, and the life of artificial joint will be affected by many factors. In the traditional sense, life refers to the wear time of artificial joint [1]. Now the new ceramic and metal friction interface can solve the wear problem well. However, the subsidence of prosthesis and fracture around prosthesis caused by osteoporosis still exist [2]. Among them, optimized management runs through preoperative, intraoperative and postoperative, mainly including patient education, nutritional support, anesthesia management, pain management, blood management, restricted infusion, sleep management, wound management, optimization of tourniquet and urinary catheter application, etc [3]. At present, surgical treatment is widely used in clinic, especially hip replacement, and its curative effect has been unanimously affirmed in clinic [4]. However, postoperative complications, anemia, hypercoagulable state of blood and other conditions cause great trouble to clinicians and affect the prognosis of patients, which is the focus of clinical attention at present. Traditional Chinese medicine blood formula has its unique in the treatment of Qi and blood deficiency, and its effect in the treatment of anemia has also been confirmed in clinical research results. On the basis of minimally invasive technology and optimization of perioperative management, how to better play the advantages of traditional Chinese medicine has become one of the hot research directions [5].

With the development of the times, the related theories and technologies in the field of orthopedic nursing are changing with each passing day. Foreign nursing experts apply the concept of rehabilitation and use special nursing skills to check the function and health status of joint replacement patients after discharge [6]. Minimally invasive technique is a major trend in the development of joint surgery in China, among which minimally invasive approaches for hip

replacement include direct anterior approach and anterolateral approach. Some studies have pointed out that Bazhen Decoction has the efficacy of invigorating qi, enriching blood and nourishing blood, and it has a better effect on patients after hip replacement [7]. At present, allogeneic blood transfusion is the main way to deal with anemia caused by excessive intraoperative and postoperative blood loss, but there are also adverse factors such as blood tension and virus infection [8]. The main purpose of operation is to return the elderly patients to their families and society after operation. Postoperative rehabilitation is the main factor determining the recovery of elderly patients, which is not only the key research field of rehabilitation doctors. With the concept of rehabilitation nursing deeply rooted in the hearts of the people, more and more attention has been paid to rehabilitation nursing [9]. At present, there are many studies on the rehabilitation exercise of elderly patients after hip replacement, which has achieved certain clinical effect.

## **2. Research on accelerated rehabilitation surgery in traditional Chinese medicine**

### **2.1. Etiology and pathogenesis**

Surgical trauma can be classified as "injury" in traditional Chinese medicine. Xue Ji pointed out in Zhengti Yaoyao in Ming Dynasty: "If the limbs are damaged outside, the qi and blood are damaged inside, the camp and health are not consistent, and the viscera are not harmonious [10]." Training contents include the assessment and evaluation of muscle strength, the correct use and selection of rehabilitation AIDS, the application and recording methods of muscle strength training prescriptions and the application of various related scales. Hip replacement is a kind of elective surgery, and patients undergoing elective surgery are often accompanied by anemia of different degrees. Modern medicine thinks that deep vein thrombosis refers to abnormal blood coagulation in deep vein, which belongs to venous reflux disorder of lower limbs. Thrombosis mostly occurs in braking state, especially in major orthopedic surgery. Sucrose iron is a complex composed of sucrose molecules and surrounding polynuclear hydroferroic macromolecules. It has similar structure to ferritin, and has the characteristics of stable structure, low toxicity, fast onset, and not easy to be metabolized by liver and kidney. Bazhen decoction is a combination of Siwu Decoction and Sijunzi Decoction; Radix Codonopsis can tonify the middle and Qi, invigorate the spleen and lung. Paeonia lactiflora Pall. But in recent years, many scholars have done a lot of exploration in the application of traditional Chinese medicine to accelerate postoperative rehabilitation. The most important two points are in the treatment of postoperative anemia and postoperative fatigue syndrome.

### **2.2. Study on Treatment of Postoperative Anemia with Traditional Chinese Medicine**

Anemia after operation belongs to the category of "blood deficiency" in TCM from the injury pathogenesis and clinical manifestations. The main clinical manifestations of blood deficiency syndrome are complexion, lip, eyelid, pale whiteness, pale tongue and weak pulse. Self-made rehabilitation AIDS can avoid adduction or internal rotation of the limbs during training. Bazhen Decoction combined with perioperative blood management, internal supplement and external adjustment, play a gain effect, and further enhance the therapeutic effect. Clinically, it is used for the treatment of chronic consumptive diseases or anemia with excessive blood loss in internal medicine, obstetrics and gynecology, etc. In recent years, it has been reported that Bazhen decoction can be used in the treatment of renal anemia, iron deficiency anemia in children, tumor related anemia, aplastic anemia and fracture hemorrhagic anemia. Qi deficiency leads to weak promotion, qi stagnation leads to unfavorable blood circulation, slow blood circulation leads to blood stasis, and even leads to blood stasis and thrombosis. The application of muscle strength training prescription to guide patients' rehabilitation exercise can avoid the subjective will of different nurses, standardize rehabilitation nursing behavior, and effectively reflect the characteristics of nursing profession. Studies have shown that Bazhen decoction can significantly reduce the hidden blood loss after total hip arthroplasty.

### 3. Influence of Bazhen Decoction on Accelerated Rehabilitation after Minimally Invasive Total Hip Arthroplasty

#### 3.1. Analysis of Bazhen Decoction

Bazhen Soup comes from Experience Recipe of Ruizhutang, which is a collection of experience recipes organized by Shatu Musu in Yuan Dynasty. Comprises ginseng, poria cocos, largehead atractylodes rhizome, angelica, prepared rhizome of rehmannia, ligusticum wallichii, white peony root and liquorice. The nursing staff simply preached and explained every day, but the health education was not in place, and the related functional exercise terms were too specialized, which led to the limited learning and mastery of information for the elderly. Cooperate with all the agents to receive the work of supplementing both qi and blood; Astragalus membranaceus can tonify qi of spleen and lung, and it is an essential medicine for invigorating qi. It can be combined with ginseng to enhance qi invigorating effect. Lumbricus, Pangolin, Rhizoma Sparganii and Rhizoma Curcumae have the functions of promoting blood circulation, removing blood stasis and dredging collaterals. Modern pharmacology shows that Codonopsis pilosula can enhance immunity, improve microcirculation and enhance hematopoiesis. Angelica can promote the body's hematopoietic function, improve the level of hemoglobin and red blood cells, inhibit thrombosis, and promote the production of hematopoietic regulatory factors by stimulating muscle tissue. At present, there are many clinical measures for the prevention of anemia, such as taking blood tonic before operation, reducing blood transfusion during operation or using autologous blood transfusion, etc. A total of 25 cases were included in the study, and 1 case fell off. 2 cases fell off due to failure to take medicine as planned in the observation group after discharge, and 1 case fell off due to failure to timely review 14 days after operation in the control group. There was no significant difference in gender, age, height, weight and BMI between the two groups. As shown in Table 1.

Table 1 There is no statistical difference between the two groups of patients in gender, age, height, weight, and BMI, and they are comparable.

Group	Number of cases	Gender (male and female)	Age (years)	Height (m)	Weight (kg)	BMI
Observation group	13	5/8	61.31-13.74	1.65-0.03	63.85-1.74	22.53-0.59
Control group	13	7/6	56.32-14.96	1.65-0.02	68.12-1.48	23.54-0.41

There was no significant difference in operation time, intraoperative blood loss and postoperative dominant blood loss between the two groups. The hidden blood loss and total blood loss in the observation group were significantly less than those in the control group, and the difference was statistically significant. As shown in Table 2.

Table 2 Comparison of operation time and blood loss between the two groups

Group	Number of cases	Operation time (min)	Intraoperative blood loss (ml)	Explicit postoperative bleeding volume (ml)	Invisible blood loss (ml)	Total blood loss (ml)
Observation group	13	59.32-8.67	121.56-29.88	117.45-14.32	141.7-41.78	380.71-85.96
Control group	13	59.89-7.96	117.31-14.57	138.65-53.38	275.4-37.99	531.36-105.96

There was no statistically significant difference in the postoperative hospital stay between the two groups. The time in the observation group to walk independently from the walker was significantly shorter than that of the control group, and the difference was statistically significant. as shown in Table 3.

Table 3 Comparison of the walking time and postoperative hospital stay of the two groups of patients without the walker

Group	Number of cases	Independent walking time of falling-off walker (d)	Postoperative hospital stay (d)
Observation group	13	2.65-0.74	4.44-0.69
Control group	13	3.31-0.63	4.85-1.18

The whole formula is rigorous and precise, and both qi and blood supplement pay attention to invigorating qi and spleen, so as to make qi and blood biochemical active. All the medicines combine qi and blood supplement and promote blood circulation and qi circulation, which can be used to treat the syndrome of qi and blood deficiency after operation.

### 3.2. Modern Pharmacological Study of Bazhen Decoction

Modern pharmacological research shows that Bazhen Decoction is rich in trace elements, amino acids, liquiritigenin, paeoniflorin and other components of human body, and has the functions of improving hematopoietic function, anticoagulation and regulating immune function. Medical support is an effective resource to overcome the poor compliance of patients with functional exercise, and adequate social support will reduce loneliness caused by diseases. To improve their enthusiasm to participate in activities, and then improve their ability to participate in social activities, the prescription of muscle strength training is the biggest embodiment of medical support. Bazhen decoction is a compound of Sijunzi Decoction and Siwu Decoction, and ginseng, *Atractylodes macrocephala*, *Poria cocos* and licorice are from Sijunzi Decoction. The main role of preoperative blood management is to improve the patient's own hemoglobin level and reserve autologous blood, which can avoid and reduce the risk of allogeneic blood transfusion and infection, and improve the hemoglobin level can improve the postoperative anemia. The patients were encouraged to move the affected limb actively and passively after operation; Continuous joint movement device and blood circulation assistant were used; Heparin was injected intramuscularly after operation. The application of low molecular dextran can prevent thrombosis and reduce pulmonary embolism. The combination of aspirin and low molecular dextran can increase anticoagulant effect and reduce the occurrence of such complications. At the same time, Bazhen decoction can promote wound healing, anti-aging and anti apoptosis

## 4. Conclusions

Direct anterior approach minimally invasive hip replacement technology combined with perioperative accelerated rehabilitation surgery management concept can effectively reduce the amount of bleeding and postoperative hospital stay. According to the professional concept of rehabilitation therapy, it is advanced and scientific to design the rehabilitation training prescription of limb muscle strength after artificial hip replacement for the elderly. Oral Bazhen Decoction can effectively reduce the hidden blood loss after minimally invasive hip replacement, improve hemoglobin level and treat postoperative anemia. Bazhen decoction, a traditional Chinese medicine, has better curative effect on anemia after hip arthroplasty than ordinary blood tonics. It can accelerate the recovery of hematopoiesis and effectively reduce the rate of blood transfusion. After a large number of clinical applications, this method is not only used to prevent deep venous thrombosis of lower limbs after hip replacement. It is also suitable for all kinds of long-term bedridden patients to prevent lower extremity deep venous thrombosis, and has achieved good results. Therefore, this method is worthy of clinical application. Oral administration of Bazhen decoction after operation can effectively relieve the postoperative fatigue state of patients with minimally invasive hip arthroplasty, shorten the independent walking time without walking aid, and accelerate the postoperative recovery.

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