

# A Case Study on Chinese Herbal Medicine in the treatment of athletic injury of ankle joint

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**ABSTRACT.** Athletic injury of ankle joint is a common sport injury in training and competition. With the rapid development of medical research in China, more and more medical workers use Chinese herbal medicine to treat athletic injury of ankle joint, and have achieved good results. The treatment of Chinese herbal medicine has external Chinese herbal medicine, internal Chinese herbal medicine, Chinese herbal fumigation and washing. Taking Chinese herbal fumigation and washing as an example, the patients were divided into two groups (A-contrast group and B-intervention group) to compare and analyse, and it was found that Chinese herbal fumigation and washing had a good effect on athletic injury of ankle joint.

**KEYWORDS:** Chinese herbal medicine; Ankle injury; Athletic injury; Tcm therapy

## 1. Introduction

Athletic injury of ankle joint is not only a common sport injury for professional athletes, but also for amateurs. There are many reasons for athletic injury of ankle joint, among which the subjective reasons mainly include ideological paralysis, insufficient warm-up exercises, excessive movements, poor physical health, etc; Objective reasons include uneven sports ground, senescent sports equipment and bad weather conditions [1]. All of the above reasons lead to athletic injury of ankle joint.

In sports, especially in track and field, ball, skiing, skating, roller skating, athletic injury of ankle joint appears easily. The reason why the ankle joint is prone to damage is determined by its anatomical structure [2]. At present, athletic injury of ankle joint mainly includes bone injury, osteochondral injury, tendon injury and ligament injury.

## 2. Research Purpose and Hypothesis

### 2.1 Research Purpose

This study mainly focused on the case study on Chinese herbal medicine in the treatment of athletic injury of ankle joint to confirm the treatment effect; Whether Chinese herbal remedies are more effective than traditional treatments; Whether Chinese herbal medicines are more acceptable to patients than traditional treatments.

### 2.2 Research Hypothesis

There are two hypotheses in this study: (1) Chinese herbal medicine therapy has certain therapeutic effect on athletic injury of ankle joint, and can effectively alleviate the occurrence of the same kind of injury in the future; (2) Compared with traditional treatment methods, Chinese herbal medicine therapy can get active cooperation from patients.

## 3. Research Design

### 3.1 Research Object

10 patients with ankle athletic injury were selected from one hospital in China, including 6 males and 4 females with an average age of (25.5±6.2) years and an average course of disease of (1.5±0.5) years. The 10

patients were randomly divided into group A and group B, with 5 patients in each group. Patients in group A received conventional treatment, while patients in group B received Chinese herbal medicine on the basis of conventional treatment.

### **3.2 The Diagnosis of Infected Part**

To diagnose the type of ankle joint athletic injury: (1) T1WI was used to observe whether there were obvious fracture lines and patchy low signal shadows in the left ankle joint of the patient, and then 3d CT was used to examine the infected part of the patient for other fracture problems. (2) T2WI and PDWI were used to observe the cartilage in the infected area of the patient, and the structure of the ankle joint was checked to see whether the patient had clear contour and whether it was osteochondral injury. (3) The infected part of the patient was scanned by MRI, and the focus was to observe whether the patchy irregular structure and partial disruption of ligament continuity of the anterior talofibular ligament were appeared in the MRI sequence, so as to diagnose whether the ankle athletic injury was ligament injury. (4) MRI was used to examine whether the ankle tendon was damaged and observe whether there was obvious effusion in the tendon sheath of the ankle joint, it is important to observe whether there is obvious effusion in the tendon sheath of the ankle joint and the effusion in the sheath of flexor tendon, then diagnose whether the ankle joint athletic injury was tendon injury. According to the above diagnosis, among the 5 patients in group A, 3 had ankle ligament injuries and 2 had tendon injuries. Among the 5 patients in group B, 4 had ankle ligament injuries and 1 had tendon injuries.

### **3.3 Treatments**

Use Chinese herbal fumigation and washing, the formula includes: eleutherococcus gracilistylus, notopterygium, safflower, angelica sinensis, turmeric, radix angelica dahurica, radix clematidis, radix cyathula 15 grams each, 30 grams garden balsam stem, 6 grams frankincense, 9 grams sichuan pepper. An appropriate amount of water is added to the prepared Chinese medicine, next put the medicine which is wrapped up in a double gauze bag in the medicine pot with water to make the medicine produce steam, then fumigate the infected part of the patient, or directly give the hot traditional Chinese medicine fumigation bag to the infected part of the patient, the temperature of 50°C is appropriate, once for 20 minutes a day[3].

### **3.4 Observation Target**

Score the clinical symptoms of the patients before and after treatment, the items included ankle pain, tenderness, swelling, ecchymosis, and walking ability, each item scored 10 points, 50 points in total, the higher the score is, the more serious the problem is. (2) Score the patients' athletic function before and after treatment (Rivermead score), the items included squatting, jumping, jumping on one foot (the infected foot) and body position transfer, each item scored 10 points, 40 points in total. The higher the score is, the higher the athletic function is. (3) Score the patient's static pain and local pain (VAS score) with 10 grades, grade0 indicates no pain and grade10 indicates the highest level of pain. (4) Evaluate the clinical efficacy of patients before and after treatment with obvious, effective and ineffective standard. Among them, the obvious representatives' pain, swelling, congestion and other symptoms of ankle joint athletic injury disappeared after the treatment of Chinese herbal medicine, and the motor function of the patient returned to normal; the effective representatives' pain, swelling, congestion and other symptoms of ankle joint athletic injury got a certain relief after the treatment of Chinese herbal medicine, and its athletic function was improved, but it hasn't fully recovered; After the treatment of Chinese herbal medicine, the ineffective representatives had not any change, instead, the symptoms were more severe.

### **3.5 The Treatment Results**

Through SPSS 22.0 statistical analysis software, after analyzing the score of clinical symptom, athletic function, static pain and local pain of patients in groups A and B before and after treatment, the result is that there was no significant difference in the score of clinical symptom, athletic function, static pain and local pain between groups A and B before treatment ( $P>0.05$ ), while group B accept the treatment with Chinese herbal medicine, the scores of clinical symptoms, athletic function, static pain and local pain in group A and group B were significantly different ( $P<0.05$ ), the scores of group B were significantly different from those of group A. In addition, the clinical efficacy of group A was obvious in 2 cases and effective in 3 cases, while group B was obvious in 4 cases and effective in 1 case. By contrast, the clinical efficacy of group B was significantly better

than that of group A. Through the above analysis and comparison, it showed that Chinese herbal fumigation has a good therapeutic effect on ankle joint athletic injury.

#### 4. Conclusion

Based on the research results of Chinese herbal medicine treatment in China, this paper chose 10 patients with ankle joint athletic injury from a hospital in China, and formulated a scientific and reasonable Chinese herbal medicine treatment scheme according to his physical quality and ankle joint athletic injury type. After the treatment, it was found that the clinical symptoms, motor function, static and static pain and clinical efficacy of the patients who received Chinese herbal medicine therapy were significantly better than those who did not receive.

With the help of heat, all kinds of Chinese herbal medicine effect on the patient's ankle through the skin, it can significantly relieve patients' pain, swelling and blisters after athletic injury of ankle joint and promote blood circulation to remove blood stasis, so as to make infected ankle ligament get quick recovery [4]. In addition, herbal fumigation is economical, safe and easy to operate for patients. If the ankle athletic injury of the patient is only mild, Chinese herbal medicine fumigation can be used to relieve the pain [5]. If the patient underwent surgery for ankle joint injury, the doctor should advise the patient to use Chinese herbal fumigation washing, like that it will be a very good auxiliary treatment function.

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