

Research Progress of TCM External Therapy in the Treatment of Knee Osteoarthritis

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Abstract

Knee osteoarthritis is a common disease with high incidence today. The symptoms of joint pain and motor function limitation are irreversible and the disease progression is irreversible. The long-term disability rate is high, and it brings a huge socioeconomic burden. At present, there is no effective treatment method, most of which are aimed at improving symptoms and delaying the development of the disease. Western medicine treatment has many adverse reactions, and the surgical treatment has great trauma, which is difficult for patients to accept. Compared with Western medicine treatment, traditional Chinese medicine external treatment methods such as external use of traditional Chinese medicine, acupuncture, acupuncture, physical therapy, and functional exercise have the characteristics of simple operation, less side effects, economical and practical, and accurate curative effect in the treatment of this disease. The mechanism has been continuously researched and revealed, making TCM external therapy for knee osteoarthritis accepted by more and more physicians and patients. This article reviews the application progress of common TCM external therapy in knee osteoarthritis.

Keywords

Knee Osteoarthritis; TCM; External Therapy.

1. Introduction

Knee osteoarthritis (KOA) is a chronic osteoarthritis with a high incidence in the middle-aged and elderly people recently[1]. Joint pain and limited motor function are common symptoms. The main pathological changes are articular cartilage and subchondral bone. Degeneration, wear and hardening occur, contracture of the joint capsule and its surrounding ligaments, hyperplasia of the synovial membrane around the joint, and chronic inflammatory reaction around the joint[2]; the disease gradually develops, leading to joint deformity, persistent pain, and dare not go up and down steps until it is unable to level the ground. Walking, the quality of life of the patient deteriorates sharply, the cartilage and subchondral bone at the joint are damaged, degenerated, and the osteophyte around the joint develops slowly[3]. The disability rate of "unfavorable joint flexion and extension" and "limited joint movement" can be as high as 53%[4]. The incidence of knee osteoarthritis increases with age, and there is a lot of evidence that the incidence of knee osteoarthritis increases with increasing age[5]. The possible reason is that with increasing age, cartilage degeneration and muscle strength decline, the more obvious, the chance of repeated joint wear and tear increases, the probability of injury increases, the cartilage bears more pressure, and the articular subchondral bone bears more stress after damage[6]. With increasing age, various risk factors for KOA accumulate and accelerate knee joint degeneration[7].

There are many pathogenic mechanisms of KOA, and it is usually regarded as a chronic inflammatory reaction. The current mechanism is quite complicated. At present, it is believed that the possible mechanisms include mechanical theory, biological theory, structural component changes, inflammation and metabolism. Structural destruction of the joint This disease is a dynamic change caused by an imbalance between knee joint tissue repair and destruction, and may not be closely related to wear and tear disease [8].

The current clinical criteria for the diagnosis of KOA are mainly based on symptoms (pain, transient morning stiffness, functional limitations) and physical examination (joint snapping sounds, movement limitation or pain, joint tenderness, joint enlargement). The main basis for the current use of diagnostic criteria are the diagnostic criteria for knee osteoarthritis from the American College of Rheumatology and the European Federation of Rheumatology[9]. At present, X-examination is more convenient and fast, and it is widely used in clinical practice. With the development of CT, MRI, ultrasound and other influencing technologies, the sensitivity of the soft tissues of the knee joint such as cartilage, ligament and synovium has increased, which is very important for the early stage of the disease. Diagnosis has a certain contribution, and early diagnosis is of great significance for early treatment of patients and delaying the development of the disease[10].

KOA has a great impact on the life of patients. Because of its long course and continuous development, pain is the most serious disabling symptom in patients. Currently the best clinical framework regarding pain is the use of a physio-psycho-social model for decision-making[11]. At present, patients are dynamically in the attack period, remission period, and recovery period. There are large individual differences in the onset process of different symptoms and signs, and other diseases. At present, step-by-step and individualized treatment has been widely used in KOA. At present, the commonly used diagnosis and treatment measures also propose that step-by-step treatment includes basic treatment, non-drug treatment, drug treatment and surgical treatment.

Compared with Western medicine, traditional Chinese medicine therapy has the advantages of clear treatment effect, diverse methods, faster effect, fewer side effects, simple operation, and easy promotion for KOA [11]. External therapy of traditional Chinese medicine plays an important role in the treatment of KOA, and has achieved satisfactory results in long-term clinical application.

2. Traditional Chinese Medicine Hot Compress

Traditional Chinese medicine hot compress is a method recorded in "Puji Fang", which is a method of using Chinese herbal medicine to steam heat and then stick it to the affected area to treat diseases. Traditional Chinese medicine hot compress is currently widely used in the field of traditional Chinese medicine, and its clinical efficacy is reliable, especially for patients with deficiency-cold constitution. The main function is to directly act on the knee joint from the skin through penetration and heat of Chinese herbal medicine. Some studies have found that knee pain can be improved by heat[12]. The reason may be that the heat effect of traditional Chinese medicine hot compress can speed up local blood circulation, improve lymphatic return to the injured site, accelerate the absorption of inflammation around the knee joint, reduce inflammation of soft tissues, and improve inflammation. to relieve pain. Qu Qiang[12] and others conducted a clinical study on 100 KOA patients. The control group was treated with external sticking (good and applied) transdermal therapy, and the treatment group was treated with hot compress powder. After 20 days, they found that the pain of the patients was improved after the traditional Chinese medicine hot compress treatment. The possible reason is that the hot compress of traditional Chinese medicine can penetrate the skin, inhibit the proliferation of connective tissue and reduce inflammatory exudation, which can relieve pain and improve joint function.

3. Traditional Chinese Medicine Leg Bath

Traditional Chinese medicine leg bath therapy is a more practical and convenient method for KOA patients' families. Traditional Chinese medicine leg bath is to use warm traditional Chinese medicine

soup to bathe the knee joint after steaming with Chinese herbal medicine. Generally, it takes about 30 minutes. According to the patient's constitution, Chinese medicine syndrome differentiation syndrome, climate season and other factors, the Chinese herbal medicine prescription and bathing time are adjusted. Through the warming effect, the skin can be opened and the Chinese herbal ingredients penetrate into the knee injury site, accelerate the local blood flow rate and vascular patency, and improve joint pain and mobility. Lu Tuansheng [13] reported on 82 patients with KOA using traditional Chinese medicine leg baths for syndrome differentiation. The control group was treated with routine treatment in our hospital, and the treatment group was additionally treated with traditional Chinese medicine leg baths. The treatment time was 2 months and the follow-up was 6 months. The total effective rate was significantly higher than that in the control group. After 6 months of follow-up, the disease recurrence rate in the therapeutic group was significantly lower than that in the traditional group. The study found that the traditional Chinese medicine leg bath has a better effect on KOA.

4. Tuina Manipulation Therapy

Tuina manipulations are mainly used in the remission and rehabilitation periods of KOA patients, mainly through the use of different manipulations to physically stimulate the meridians, tendons, muscles, and acupoints of the knee joint, and relax the body locally or as a whole. Applying specific manipulations to the surrounding of the disease center, it can relax the tendons and activate the collaterals and release the adhesion of the soft tissue around the joints, so that the muscles and bones are in balance. Manipulative therapy has clinical curative effects such as adjusting muscle strength, improving joint mobility and relieving pain, and is simple, convenient, practical, and safe. Huang Ji[14] treated 78 patients with KOA using manual therapy, the control group was treated with sodium hyaluronate injection, and the treatment group was treated with sodium hyaluronate injection plus manual therapy for (6-8) weeks, 5 times a week. After 8 weeks of treatment, the total effective rate of the control group was 84.62%, and the effective rate of the treatment group was 92.31%. The use of manual therapy in the remission and recovery periods of the disease can improve the therapeutic effect of this disease.

5. Traditional Chinese Medicine Iontophoresis Therapy

The iontophoresis of Chinese herbal medicine is to use direct current to stimulate the ions of Chinese herbal medicine in an electric field, so that the anions of the drug are introduced into the body from the anode, and the cations are introduced into the body from the cathode, and the ionized absorption of the Chinese herbal medicine is carried out through pores, sweat glands or intercellular spaces. Studies have shown[15] that this method of drug absorption can improve the efficiency by about 80% compared with direct external application through the skin. At present, this method is mostly used in foreign countries mainly for synovitis, tendinitis and other parts, while the one-time introduction patch has been marketed in developed regions[16]. Chinese herbal medicines are stimulated by electric current to make the ions of traditional Chinese medicines enter the skin more efficiently. Pharmacological effects and electric current stimulation are used to treat affected knees, accelerate local metabolism to stimulate local acupuncture points, and regulate qi to achieve more effective therapeutic effects. Huang Rong[17] conducted a clinical study on 125 elderly patients with knee osteoarthritis. The control group used glucosamine hydrochloride capsules orally, and the observation group used traditional Chinese medicine iontophoresis plus acupuncture. Joint function, lowering the pain threshold, have a good effect on improving the prognosis of patients.

6. Chinese Medicine Wax Therapy

The use of paraffin to treat diseases has many records in the history of our country. "Compendium of Materia Medica" describes that using wax pills on the forehead to treat rheumatism, typhoid fever and frostbite is effective. Paraffin has the characteristics of large heat capacity, low melting point and good thermal conductivity. Chinese herbal medicine mainly uses its warmth and mechanical

compression to exert pharmacological and physical effects on traditional Chinese medicine, relieve muscle spasm and speed up the metabolic process. Relieve joint pain and soft tissue edema. Li Meng et al. [18] used TCM external therapy to treat 80 KOA patients with cold-dampness obstruction type. The control group was treated with acupuncture, and the treatment group was treated with acupuncture plus traditional Chinese medicine wax therapy. After 28 days of treatment, it was found that the control group The markedly effective rate was 65%, the treatment group was markedly effective by 85%, the living scale was improved, and the symptoms of pain in the patients were improved better than those in the control group. The functional improvement is more obvious.

Knee osteoarthritis (KOA) belongs to the categories of "arthritis", "crane knee wind" and "jinbi" in traditional Chinese medicine[19], and this disease is a common disease in clinical orthopaedics. Early in the "Nei Jing", there are relevant records of this disease. The disease is caused by wind, cold, and dampness, which invade the body and develop into Bi disease. Ancient physicians called it Xingbi; cold pathogens are characterized by their stagnation and stagnation, and they are called "tongbi" because they like warmth and avoid cold, and are so focused on pain; Shifting, the soreness has become "paralysis"[20].

To sum up, the treatment options for KOA patients are diverse, and there are many studies on the evaluation of multiple efficacy at present, but in clinical practice, most of them are to add one more efficacy for comparison. Patients with KOA were treated and followed up long-term. Because of its simple and convenient operation, the external treatment of traditional Chinese medicine is widely used in clinical trials. The clinical trial research is relatively mature and has good curative effect, and it does not produce the risks of gastrointestinal irritation and adverse reactions caused by oral drugs. It is non-invasive and convenient. The advantages of simplicity, low cost, and wide adaptability to the population are accepted by more patients in clinical practice.

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