

Research Progress in the Treatment of Knee Osteoarthritis Using Meridian Theory

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Abstract: *Knee osteoarthritis (KOA) is a kind of disease which is often characterized by knee pain, stiffness and muscle movement disorders, affecting the daily mental and physical health activities of arthritis patients and the quality of family life. Meridian ligament is one of the most important joint structure bases of human body to maintain hip joint activity and stability, and knee muscles will be rapidly and permanently damaged due to the damage of meridian ligament in the process of acute disease, therefore, the clinical research of Chinese medicine meridian ligament theory as a basic guide and based on the theory of clinical treatment of KOA has a considerable depth of the scope of medical research and therapeutic application of the value of practice. This paper systematically elaborates and discusses what is the basic theory of Chinese medicine meridians and tendons, the correspondence between meridians and tendons and western medicine KOA research, as well as the specific research of Chinese medicine meridian and tendon therapy theory in KOA practice, so that readers can better study the guidance and clinical treatment.*

Keywords: Meridian and tendon theory, Knee osteoarthritis, Research progress.

1. Introduction

Knee osteoarthritis (KOA) is a disease characterized by degenerative changes in the articular cartilage, which is mainly characterized by pain, swelling, and different degrees of functional limitation of the affected knee. The prevalence rate of KOA is 18%, and it is higher in women than in men, which seriously reduces the standard of living of the patients [1]. Currently, the best treatment option for early and middle stage KOA is considered to be conservative treatment at home and abroad. According to Chinese medicine, the twelve meridian tendons are the systems of the twelve meridians, which are attached to the twelve meridians, and their general distribution pattern is "all starting from the four skin, fingers, claws, and claws, and are abundant in the auxiliary bones, and are tied to the knees, and are associated with the muscles", and their main function is to "liaise with the hundred skeletons", and "the main bundle of bones". The main function is to "contact all the bones and organs", "the main bundle of bones and organs", with the characteristics of "knotting, gathering, dispersing, complex", it is a wide and systematic physiological structure. Most of the conservative treatments in western medicine use oral non-steroidal anti-inflammatory drugs, but Chinese medicine under the guidance of the meridian theory has unique advantages, and studies have shown that the treatment of KOA under the guidance of the meridian theory has better clinical efficacy and is superior to the traditional therapies [2]. Based on the fact that the treatment of KOA with the meridian theory can loosen the tendon nodes and restore the role of the tendon as the "main binding bone and facilitating organs", in order to scientifically and rationally utilize the meridian theory in the treatment of KOA, the research methods of the meridian theory in the treatment of KOA are summarized as follows.

2. Meridian Tendons

Spiritual Pivot - meridian tendons" is the first concept of meridian tendons, describing in detail the physiological functions of the twelve meridian tendons, circulation,

pathological manifestations and treatments. Twelve major meridians of blood and qi infusion in the meridians, sinews and bones that is the formation of the total meridian tendons, with blood and qi junction, poly, scattering, and the important characteristics of the network, so here is also visceral meridians cold and damp paralysis cold and damp obstruction, blood and qi condensation and so on, the more common onset of the site. Modern research will be regarded as the meridian tendons, including muscles, fascia, ligaments and other soft tissues and the nervous system of the integrated movement of the functional body. Myofascial chain as the core path of mechanical conduction as a whole closely linked state to maintain the balance of movement. The structure and layout of the two are highly compatible [3]. Therefore, the essence of the meridian tendon is an integral system that exists in the form of a chain, transmits mechanical energy along a specific pathway, and maintains the balance of muscle tension and skeletal stability [4]. When the myofascial bands and connective tissues belonging to the meridian tendons are subjected to prolonged or sudden violent pulling, which exceeds their tolerance thresholds, it will lead to damage of the stress points and trigger muscle spasm, fascial adhesion and inflammation, and ultimately form tendon knots. Under the guidance of the TCM meridian theory system, the treatment of lower limb motor neurological diseases has a very good and stable long-term clinical efficacy.

3. The Connection between Meridian Theory and KOA

Knee osteoarthritis belongs to the category of "paralytic disease", mostly occurring in middle-aged and elderly people, most of these people have liver, spleen and kidney deficiencies, insufficient qi and blood to moisten the "tendons, bones and flesh" [5], the "Miscellaneous Diseases Source and Flow Rhinoceros Candle" said: "The three qi are mixed to the congestion of the meridians, blood and qi can not, can not be used. Meridians, blood and gas can not, can not be dispersed at any time, so long for paralysis". In the clinic, knee osteoarthritis is mostly "meridian tendon disease" category,

"Su Wen - Pulse Essentials Essentials" said: "the knee of the tendon of the House, flexion and extension can not, line is hunched attached, tendon will be exhausted". The human body at the knees for the convergence of the tendons, foot yin and yang six meridians tendons are traveling through here, knee popliteal for the six meridians convergence intersection. Foot Yangming meridian tendons and foot Shaoyang meridian tendons are gathered in the tibia lateral, foot Taiyin meridian tendons gathered in the tibia inner condyle; foot sun meridian tendons gathered in the knee joint, foot Shaoyin meridian tendons and foot syncope meridian tendons are gathered in the tibia inner condyle below. koa meridian tendon pathology is mainly involved in the foot sun meridian tendons, foot Shaoyang meridian tendons, foot yangming meridian tendons and foot three yin meridian tendons. Knee joint is also the most complex and active and complex joint movement parts of the body, when its tendon paralysis and closed obstruction and pressure on the body's blood easily lead to the body's qi and blood circulation run extremely blocked, resulting in intense knee stiffness and pain deformation and a series of sports joint function. Osteoarthritis of the knee is a disease of movement, the five labors hurt the tendon for a long time, the complexity of the knee movement, long-term unphysiological movement caused by repeated injuries to the knee, the overall movement of the tendon imbalance in the line of force, the formation of "tendon knots" or "transverse", pain-causing substances infiltrate the joints to produce localized Nociceptive sensitization tendon loss of support, resulting in knee pain and movement disorders [6]. Therefore, the lesion of the meridian tendon tissue is the main cause of knee osteoarthritis joint paralysis pain.

4. Therapeutic Methods

The theory of meridian tendon originates from the "Ling Shu Qia Shi" or "If the hand flexes but does not extend, the disease is in the tendon; if it extends but does not flex, the disease is in the bone; if the bone guards the bone, if the tendon guards the tendon", which indicates that this method is also suitable for the medical category of "meridian tendon disease" and "pain disease" and so on. By stimulating the tendons and foci of the joint lesions, it not only can quickly make the tendons reach the joint lesions, loosen and tighten the tendons and reduce the surrounding tendon twitching, but also can quickly promote the metabolism of the damaged part, reduce the clinical symptoms such as oedema, soreness, and unfavorable contraction in knee flexion and extension, and restore the normal flexion biologic force of the medial knee joint of the patients, so as to improve the quality of the daily life of the patients after the operation. The patient's quality of life will be improved after the surgery. Knee osteoarthritis patients with common severe pain in the knee joint is located in the main joints and the knee joint and the surrounding tendons and ligaments joints attachment point, the early onset of soreness in the back of the knee joint anterior medial bone gap, the mid-term occurrence of soreness occurs in the front of the knee joint after the medial-lateral gap and tarsal patellar gap around the site. By using both hands, we can search for hard knots or pain points in the peripatellar area (inner and outer upper edge of the patella, inner and outer lower edge of the patella), inner and outer upper edge of the patellar eminence, eyes of the knees, goosefoot tendon, inner and outer joint

space, inner and outer epicondyles of the femur, inner and outer epicondyles of the tibia, and popliteal fossa, etc. , and we can observe whether there are any radiating characteristics to the foot or thigh muscles in the areas where the pressure and pain are obvious on the inner and outer side of the knee. At present, clinical medicine believes that the treatment of osteoarthritis of the knee under the guidance of the principles of Chinese medicine meridian tendon theory is generally acupuncture, manipulation, needle knife, moxibustion and so on.

4.1 Acupuncture and Knife Therapy under the Guidance of the Theory of Meridians and Tendons

Acupuncture and knife therapy is mainly used in ancient acupuncture theory and clinical anatomy, biomechanical methods combined with a new surgical treatment technology, at present, China's clinic is commonly used in the treatment of osteoarthritis pain, chronic skin and soft tissue injuries, degenerative sclerosis necrosis of bone and other diseases. Needle knife is both the characteristics of traditional Chinese medicine and Western medicine scalpel characteristics of the therapeutic device, not only can play the traditional Chinese medicine "needle" to relieve tendons and blood circulation, the role of pain, but also like the Western medicine "scalpel" like cutting adhesions, needle knife will be a combination of both roles can be the lesion at the nodule, scarring, cutting and cutting, and the needles knife will be a new surgical technique. The combination of the two effects of the needle knife can cut and remove the nodules and scars at the lesion, separate the adhesions of soft tissues, restore local blood circulation, and eliminate the high tension and stress of local soft tissues, so as to block the conduction of pain, thus achieving the purpose of pain. Some studies have shown that the treatment of KOA with needle-knife therapy under the guidance of meridian theory is better than ordinary needle-knife therapy [7]. Wang Pei et al [8] randomly divided 63 patients with KOA into Group A and Group B. Group A was operated by adopting the Western anatomical theory of starting and stopping points of the medial and lateral collateral ligaments, starting and stopping points of the patellar ligament, stopping point of the quadriceps tendon, and the point of the goosefoot bursa as eight points of entry; Group B was operated by using the pressure and pain points of the foot three yang and three yin meridians and the points of the striated nodes and other positive reaction points of the foot three yang and three yin meridians as the points of entry to perform the peeling operation under the guidance of the theory of the meridian tendons, Subcutaneous sweeping and dispersing operations, the two groups were treated 1 time/week for a total of 3 times. The effective rate of group A was 90. 63%, which was better than that of group B (87. 09%), indicating that both methods had good curative effect on KOA. However, the needle-knife therapy applied under the guidance of meridian theory will have more significant advantages in terms of more executable operation, safety and effectiveness. Through various clinical examinations and experimental observations at home and abroad, it has been shown that this kind of needle-knife therapy based on the guidance of meridian tendon theory can not only rapidly and well reduce the persistent pain episodes of joints and other symptoms of joint pain and stiffness in patients with early and middle-stage intractable KOA disease, but also can effectively block the further development of

secondary KOA disease in the long term.

4.2 Meridian Moxibustion

Moxibustion is an important part of traditional therapy, using moxa leaves as moxibustion material, through warm stimulation, to play a therapeutic role, "warm pass" and "warm tonic" effect is a high degree of generalization of the role of moxibustion, moxibustion heat warm stimulation to activate acupoints, dilate the local capillaries, promote the flow of qi and blood, regulate the neurological - endocrine - immune network, play a "warm pass" effect. The warm stimulation of moxibustion heat activates the acupuncture points, expands the local capillaries, promotes the operation of qi and blood, regulates the neural-endocrine-immune network, and exerts a "warming" effect. Moxibustion also has the effect of tonifying qi and blood, warming and tonifying, and playing the role of "warm tonic" [9]. Liu Minjie et al. [10] randomly divided 80 cases of KOA patients into a control group and an observation group, the control group was given glucosamine sulfate capsules, and the observation group was given meridian manipulation and thunder fire moxibustion treatment on the basis of the control group, which loosened the surrounding tissues and adjusted the structure, and the moxibustion method can further play the dual role of warming and dispersing the cold and the drug, effectively inhibit inflammation and pain mediator levels, and improve the function of the knee joint.

4.3 Meridian Needling

Meridian needling has been widely used in the domestic clinical medical treatment, a large number of in-depth domestic clinical case study data also fully confirmed that based on the theory of Chinese medicine meridian Chinese medicine needling techniques to prevent and control KOA clinical efficacy is extremely accurate, and significantly better than the ordinary conventional needling, can be effective in a short period of time to alleviate all kinds of pain and dysfunction of the effect of motor function [11]. Le Mengqiao [12] and others according to the guiding principles of the basis of the theory of meridian tendons to carry out the long needling method to prevent and control KOA, the therapeutic effect is generally 83.3%, the clinical treatment of this method can realize the use of two-way regulation of the patient's knee peripheral stress balance in order to achieve rapid relief of the arthritis patient's local pain, to improve the regulation of the entire knee joint muscle function, to improve the quality of life of the clinic, etc. medical purposes. Ying Qinli et al [13] carried out acupuncture at the foci of easy to appear knotted tendons, compared with the traditional acupuncture points, after 4 weeks of treatment, the WOMAC score of acupuncture at the A Yes point of the meridian tendons is lower than that of the traditional acupuncture points, which can effectively alleviate the pain of the patients with KOA and improve the function of the knee joints, and the therapeutic effect is significantly better than that of the traditional acupoint method of acupuncture.

4.4 Meridian Manipulation

Foot yangming meridian tendon and foot sun meridian tendon is in the foot and knee osteoarthritis and other recurring

factors, the two mutual circulation of the core tendon relative to the popliteus femoris and quadriceps femoris muscle, through the traditional massage method to the core muscle tissue for localized relaxation and treatment of the inhibition of the continuous development of the symptoms of the disease to improve the patient's ability to recover has a very good and significant effect. Yang Zhijie, Wang Kai et al [14] demonstrated in clinical trials that the treatment of KOA with meridian manipulation is superior to conventional manipulation, which can effectively relieve joint pain, stiffness and functional activity, and also improve the muscle strength and explosive force of the KOA-related muscle groups, and promote the functional recovery of muscle fibers. Huang Xudong [15] et al. used meridian muscle manipulation to treat rabbit KOA, and concluded that the single contraction amplitude, tonic contraction amplitude, and elastic modulus of quadriceps and hamstrings were better than those of conventional manipulation, which could effectively improve the contraction mechanical index of skeletal muscles in rabbit knee arthritis model, thus improving clinical symptoms and delaying the disease progression.

Wu Xuan et al [16] divided 60 cases of foot yangming meridian type KOA patients into two groups, the control group was given oral celecoxib capsules, and the observation group was treated with meridian manipulation, and the effective rate of the observation group was 90%, which was significantly higher than that of the control group (70%), which indicated that meridian manipulation treatment of osteoarthritis of the knee has a better efficacy than the western medicine method, and it can alleviate the pain and the dysfunction of the functional activities.

5. Summary

To summarize, there are various ways to treat osteoarthritis of the knee using traditional meridian theory as a guide, and most medical researchers use traditional meridian manipulation and meridian acupuncture for treatment, and their therapies have been less studied. Although many clinical experiments have proved that the therapies under the guidance of meridian theory have good therapeutic effects on osteoarthritis of the knee, there are certain problems. Meridian therapy to be further measures to strengthen the government standardized management, the development of a unified scientific guidance standards for the training of clinical medicine workers at all levels and drug researchers work to provide a more reliable reference material; but the lack of animal experiments to carry out the corresponding research and research to confirm its pathological mechanisms, etc. ; The acute onset of knee dislocation has a certain degree of intimacy with biomechanical damage to the hip joint [17]. It was also pointed out that further emphasis should be placed on holistic treatment measures. How to have such a good and reliable comprehensive clinical efficacy of meridian therapy, people need to long-term hard long-term clinical observation and a large number of experimental exploration, and other modern therapeutic techniques and theories, for the application of meridian therapy for the effective treatment of KOA syndrome to provide some strong evidence, more widely and comprehensively applied to a variety of comprehensive clinical practice.

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