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Clinical Experience of Combining Qihuang Acupuncture with Extracorporeal Shock Wave Therapy for the Treatment of Knee Osteoarthritis

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Abstract:

Knee osteoarthritis (KOA) is a chronic degenerative disease characterized by articular cartilage degeneration and bone hyperplasia, which severely affects patients' quality of life. Qihuang acupuncture therapy can regulate meridian Qi and blood circulation, improve local microcirculation, and has the effects of relieving pain and eliminating inflammation. As a noninvasive physical therapy technique, extracorporeal shock wave therapy (ESWT) promotes tissue repair and delays cartilage degeneration through mechanical stimulation. Combining clinical research and literature reports, this article summarizes the clinical experience of Qihuang acupuncture combined with extracorporeal shock wave therapy in the treatment of knee osteoarthritis. Studies have shown that the combined application of the two can significantly improve patients' pain symptoms, enhance joint function, delay disease progression, and have good safety with no significant adverse reactions. This comprehensive treatment plan has important clinical value in the non-surgical treatment of knee osteoarthritis and deserves further promotion and in-depth research.

Keywords:

Knee osteoarthritis
Qihuang acupuncture therapy
Pain management
Extracorporeal shock wave therapy
Comprehensive treatment

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1. Introduction

Osteoarthritis (OA) is a chronic multi-factorial disease primarily characterized by the degeneration of articular cartilage. Its pathological features include cartilage destruction, abnormal changes in subchondral bone, and synovial inflammation [1]. Clinically, knee osteoarthritis (KOA) is the most common type of osteoarthritis, with primary symptoms including knee pain, stiffness,

and limited range of motion [2]. Epidemiological investigations have shown that the incidence of KOA increases significantly with age, making it one of the top ten diseases affecting human health globally and posing a significant burden on healthcare resources and economic development [3].

Currently, the treatment of KOA mainly focuses on symptom relief. While commonly used nonsteroidal anti-inflammatory drugs (NSAIDs) can provide pain relief, they cannot reverse the disease progression and may cause adverse effects on the gastrointestinal and cardiovascular systems with long-term use [4]. Among non-surgical treatments, extracorporeal shock wave therapy (ESWT) has gained attention due to its non-invasive nature. ESWT generates low to medium-energy shock waves through pneumatic ballistic principles, which can loosen tissue adhesions, improve local blood circulation, promote tissue repair, and show potential in cartilage protection and inflammation relief [5].

Additionally, Chen Zhenhu has established and developed the Qihuang acupuncture therapy based on the meridian sinews theory from the "Yellow Emperor's Inner Canon" and traditional acupuncture. This therapy is characterized by precise acupuncture point selection, delicate techniques, and remarkable efficacy. It can rapidly alleviate pain, improve joint function, and optimize the shortcomings of traditional acupuncture, such as the need for multiple acupuncture points and long needle retention times [6]. In recent years, the combination of Qihuang acupuncture therapy and ESWT has achieved promising clinical results in treating knee osteoarthritis. This study aims to summarize the clinical experience of combining Qihuang acupuncture therapy with extracorporeal shock wave therapy for the treatment of knee osteoarthritis, providing a reference for the comprehensive management of this disease.

2. Etiology and pathogenesis

2.1. Etiology and pathogenesis in Traditional Chinese Medicine (TCM)

In the theory of Traditional Chinese Medicine, knee osteoarthritis falls under the categories of "Bi Syndrome" and "Jingjin Disease." As mentioned in the ancient medical text "Su Wen - Mai Yao Jing Wei Lun," "The knee is the house of the tendons; when one cannot bend or stretch, and walks with a hunch, it is a sign that the tendons are exhausted." Therefore, Jingjin disease is a pathological condition of the knee joint, where the disease evil initially invades the tendons and gradually penetrates the muscles, and in severe cases, even affects the bones. Hence, the disease location involves muscles, tendons, and bones. "Su Wen - Bi Lun" points out that "when wind, cold, and dampness combine, they form Bi Syndrome." This indicates that the invasion of wind, cold, and dampness evil into the human body disrupts the meridian operation, leading to Qi and blood stagnation, thus forming a "Bi Syndrome". The ancient medical text "Za Bing Yuan Liu Xi Zhu" also records that "the tendons converge at the knees." The knee joint belongs to the "gathering of tendons" and is susceptible to invasion by wind, cold, and dampness. Over time, this can cause symptoms such as joint swelling, pain, and difficulty in bending or stretching. "Ling Shu - Zhong Shi" proposes that "if the disease is in the bones, treat the bones; if it is in the tendons, treat the tendons." Since "the liver controls the tendons, and the kidneys control the bones," a deficiency in the liver and kidneys can lead to malnutrition of the tendons and bones, degeneration of joint function, and symptoms such as knee weakness, limited movement, especially among middle-aged and elderly people. According to Wang [7], the root cause of knee osteoarthritis (KOA) lies in kidney yang deficiency and malnutrition of tendons and vessels. This deficiency leads to a decline in yang energy and insufficient vital qi, making it difficult to resist the invasion of external pathogens. Consequently, the tendons and vessels become blocked, Qi and blood circulation is impeded, resulting in local pain. Additionally, factors such as aging, excessive strain, or chronic illnesses affecting the kidneys can contribute to insufficiency of the liver and kidneys, further exacerbating the condition. If there is a deficiency in Qi and blood, it can result in malnutrition of the meridians and poor circulation in the joint area. This can lead to the formation of blood stasis, obstructing the meridians and manifesting as joint stiffness, persistent pain that is fixed in location, and increased severity during the night. Prolonged illness penetrating the meridians and blood stasis can worsen the condition, potentially leading to joint deformity and dysfunction. Weakness

of the spleen and stomach can cause dysregulation of digestion and transportation, leading to the endogenous production of damp-heat. This damp-heat pathogen then invades the knee joints, resulting in symptoms such as redness, swelling, burning pain, and restricted movement. Prolonged retention of damp heat can also damage tendons and bones, accelerating the degeneration of articular cartilage. In summary, ancient medical practitioners believed that the etiology and pathogenesis of this disease arise from a combination of liver and kidney deficiency and invasion by external pathogens. This condition is considered to be one of deficiency in origin and excess in manifestation.

2.2. Modern medical etiology and pathogenesis

The modern medical etiology and pathogenesis of knee osteoarthritis (KOA) involve a combination of multiple factors. Firstly, the occurrence of KOA is closely related to biomechanical factors. Long-term mechanical loading or improper joint use are important contributors to cartilage degeneration. Studies have found that obesity significantly increases the burden on the knee joint, and the pressure on the knee joint during walking or running can reach multiple times the body weight. Long-term high loads can accelerate cartilage wear and tear [8]. Overexercise or high-intensity activities can lead to the accumulation of micro-injuries in the cartilage, ultimately triggering degeneration [9]. Additionally, joint deformities (such as knee varus or valgus) can cause uneven distribution of load in the knee joint, and excessive local pressure can lead to excessive wear and tear of the cartilage [10]. Poor posture (such as incorrect standing, walking, or sitting) can also increase local joint pressure and accelerate cartilage damage, while joint instability due to ligament injury, muscle weakness, or soft tissue laxity can lead to abnormal sliding or rotation of the joint, further aggravating cartilage wear and degeneration. These biomechanical factors directly affect the cartilage by increasing joint load and local pressure, ultimately triggering the occurrence and development of knee osteoarthritis [10,11]. The occurrence of knee osteoarthritis (KOA) is not only related to biomechanical factors but also significantly influenced by biochemical factors, particularly the role of inflammatory mediators and matrix metalloproteinases (MMPs). Inflammatory mediators are crucial triggers for the inflammatory response in knee joints [12], with cytokines such as interleukin-1β (IL-1β) and tumor necrosis factor-α (TNF-α) playing a key role in their overexpression within the joint cavity. These inflammatory factors induce persistent inflammatory responses by activating synovial cells and chondrocytes in the joints, thereby disrupting the normal metabolic balance of cartilage [13]. Additionally, these inflammatory factors activate MMPs, including MMP-1 and MMP-13, leading to an accelerated degradation rate of type II collagen and proteoglycans in the cartilage matrix. Specifically, MMP-13 exhibits a strong degradation ability towards type II collagen, making it a significant factor in cartilage destruction. The synergistic effects of these inflammatory factors and MMPs create a vicious cycle, further aggravating cartilage damage and joint degeneration, ultimately leading to the development and progression of knee osteoarthritis [14]. Furthermore, family history is also an important risk factor for KOA. Research has revealed that genetic variations related to cartilage metabolism, inflammatory responses, and bone development may increase the susceptibility of cartilage to degeneration or sensitivity to inflammatory responses. Among them, long non-coding RNAs (lncRNAs) and microRNAs (miRNAs) play crucial roles in the regulation of osteoarthritis (OA) mechanisms [15]. These genetic variations can increase individual susceptibility to knee osteoarthritis (KOA) by affecting the function of chondrocytes, the integrity of joint structures, and the reactivity of the immune system. Metabolic abnormalities such as obesity, diabetes, hypertension, and hyperlipidemia not only affect overall health but may also promote the release of inflammatory mediators, accelerate cartilage degradation, and further exacerbate cartilage degeneration and joint damage. With increasing age, aging factors play a critical role in the occurrence and development of KOA. As the only active cells in cartilage tissue, chondrocytes gradually degenerate in function with age. On the one hand, the proliferation and regeneration ability of chondrocytes is significantly weakened, and synthetic metabolic activities decrease, leading to reduced production of key components in the cartilage matrix, such as proteoglycans and type II collagen [16]. On the other hand, aging also causes significant changes in the composition of the cartilage

matrix, including reduced water content and decreased proteoglycan content [17]. These changes weaken the elasticity, pressure resistance, and lubricating function of the cartilage, making it more susceptible to mechanical stimuli and inflammatory factors. Furthermore, increased levels of oxidative stress during aging can further damage chondrocytes, accelerating the process of cartilage degeneration and joint destruction. Therefore, aging is not only an important risk factor for KOA but also drives the occurrence and progression of the disease through multiple mechanisms.

3. Clinical thinking

3.1. Knee osteoarthritis (KOA) and Qihuang needle therapy from the perspective of modern medicine

The core pathogenesis of knee osteoarthritis (KOA) lies in the disharmony of the "muscle, tendon, and bone" in the knee. According to the "Huangdi Neijing" (Yellow Emperor's Inner Canon), "tendons are rigid, bones are the mainstay, and muscles are the walls." These three elements are interdependent and jointly maintain the normal function of the knee joint. Tendons have the function of restraining bones, bones provide support, and muscles are the source of strength. However, with the degeneration of the body, the balance between these three elements is broken, forming a pathological state where "muscle, tendon, and bone" are equally important. The knee joint is where meridians such as the Stomach Meridian of Foot-Yangming, Gallbladder Meridian of Foot-Shaoyang, Spleen Meridian of Foot-Taiyin, and Bladder Meridian of Foot-Taiyang pass through. Based on the principles of syndrome differentiation and treatment, acupoints should be reasonably selected to harmonize Yin and Yang, promote blood circulation and remove blood stasis, and dredge meridians. Chen Zhenhu believes that the fundamental cause of KOA lies in the damage to the knee's meridians and tendons, which subsequently affects the muscles, tendons, and bones, ultimately leading to the occurrence and development of the disease [6]. In clinical treatment, he focuses on meridian and tendon syndrome differentiation, emphasizing the simultaneous regulation of muscles, tendons, and bones. Through acupuncture, he aims to reduce patient pain and restore normal knee joint function. This concept of syndrome differentiation based on meridians and tendons has become a key approach in the treatment of KOA using Qihuang needle therapy.

3.2. Characteristics of Qihuang needle therapy

Qihuang Needle Therapy is an innovative acupuncture technique proposed by Chen Zhenhu, based on the inheritance of traditional acupuncture techniques. It integrates the meridian differentiation theory and the five-needle method from the "Yellow Emperor's Inner Canon of Medicine." This therapy is characterized by precise acupoint selection, rapid efficacy, short treatment duration, high reproducibility, and a wide range of applications. It is suitable for various medical conditions in internal medicine, surgery, gynecology, pediatrics, and more. The core tool of this therapy, the Qihuang Needle, is a novel hollow acupuncture needle designed based on the ancient nine needles (round needle, pointed round needle, long needle) and modern craftsmanship. The needle tip is both round and sharp, allowing it to channel Qi between muscles without damaging them. As stated in the "Leijing: Jiuzhen," "The needle is shaped like an egg, facilitating guidance between muscles to avoid excessive damage, which could deplete spleen qi; therefore, sharpness is not the main focus." The rounded needle tip can expand, compress, and clear deep tissues at acupoints during insertion, enhancing safety by avoiding damage to blood vessels and adjacent tissues [18]. The needle shaft adopts a hollow design, which reinforces the hardness of the needle body. This design enables more precise transmission of acupuncture techniques to the affected area, achieving the effect of "Qi reaching the diseased location." Additionally, the transparent needle handle allows for observation of any blood return, preventing injury to blood vessels.

3.3. Treating KOA with Qihuang needle combined with Jingjin syndrome differentiation

The treatment of KOA with Qihuang needle has formed a complete system of "theory-method-formula (acupoint)-technique." Based on Jingjin syndrome differentiation, it focuses on the coordinated regulation of muscles, tendons, and bones, and proposes a combined treatment method of "point-line-surface."

3.3.1. Identifying Jingjin: Clarifying the diseased Jingjin

Identifying Jingjin is the first step in treating KOA with Qihuang needle [19]. Jingjin refers to the system where the Qi of the twelve meridians gathers in muscular and joint areas. It complements the twelve meridians and jointly maintains the motor function of the human body. The knee is known as the "house of tendons" and is a convergence point for multiple Jingjin. For example, the Foot Taiyang Jingjin has "evil Qi ascending and converging at the knee," the Foot Yangming Jingjin "ascends along the path, bypassing the knee and converging here," while the Foot Taiyin Jingjin "converges at the medial auxiliary bone of the knee." Clinical studies have shown that there are more than twenty positive reaction points of Jingjin near the knee joint, and the highest occurrence of pain points is at the starting and ending points of the patellar ligament [20]. Therefore, the imbalance or blockage of Qi and blood in the knee Jingjin is the root cause of KOA.

In clinical practice, Chen Zhenhu identifies the diseased Jingjin through a combination of four diagnostic methods: observation, auscultation and olfaction, inquiry, and palpation. For instance, observation is used to check for swelling or joint deformity in the knee area; inquiry helps understand the location and characteristics of the patient's pain; and palpation is used to feel for abnormalities such as nodules, cords, or masses in the knee Jingjin. The integration of these four diagnostic methods not only aids in precise localization of the lesion but also guides acupuncture treatment.

3.3.2. Precise acupoint selection: From "Line" to "Point"

After identifying the diseased muscular meridians, Chen Zhenhu emphasizes precise acupoint selection, usually choosing 2 to 3 acupoints to minimize the damage to defensive Qi. Acupoint selection is divided into two methods: local treatment and remote regulation.

(1) Local Treatment at the Site of Illness, Facilitating the Flow of Muscular Meridians

Acupoints are selected based on the convergence points of the muscular meridians. For example, for lateral knee lesions, one can choose the Xiyangguan acupoint; for anterior knee lesions, the Dubi acupoint; for medial knee lesions, the Ququan acupoint; and for popliteal lesions, the Weizhong acupoint. Acupuncture at these points can dredge the qi and blood of the muscular meridians, achieving the effect of "untying knots."

(2) Remote Regulation of Qi and Blood, Strengthening the Body and Eliminating Pathogenic Factors

Acupoints are also selected based on the regulation of Qi and blood in the organs. For instance, Fengshi acupoint is mainly used for treating lower limb wind-dampness; Qihaiyu acupoint has the function of regulating and tonifying the liver and kidneys, relaxing tendons, and strengthening bones; and Xuanzhong acupoint, known as the "convergence of marrow," can tonify the liver and kidneys, nourish marrow, and is used to relieve knee pain and movement disorders.

3.3.3. Skilled use of five types of acupuncture: Directing Qi to the disease site

Qi Huang acupuncture therapy emphasizes the hierarchical approach of acupuncture, selecting different techniques based on the depth of pathogenic factors. As stated in the "Plain Questions: On the Essentials of Acupuncture," "Diseases manifest differently on the surface or internally, and acupuncture techniques vary in depth, each reaching its respective level without exceeding its limits." The human body structure is divided into five layers from the outside to the inside: skin, vessels, tendons, internals, and bones. The acupuncture method needs to match the level of the lesion. For example, He-Gu needling is a superficial technique often used to treat lesions in the superficial muscles (muscle numbness). Techniques like Guan needling and Shu needling are deeper acupuncture methods used to treat tendon and bone lesions (tendon numbness, bone numbness). The lesions of knee osteoarthritis (KOA) often involve muscles, tendons, and bones. Chen Zhenhu frequently adopts a combined acupuncture approach. In the early stages, when the lesion primarily affects muscles and tendons, Guan needling can be used to relax tendons and promote blood circulation, supplemented by He-Gu needling to disperse pathogenic qi in the muscles. In later

stages, when bone lesions predominate, Shu needling is primarily used to reach the bone surface and disperse deep-seated pathogenic qi between the bone joints, supplemented by He-Gu needling to regulate Qi and blood and relieve pain.

3.4. Comprehensive advantages of Qihuang acupuncture

Qihuang acupuncture therapy emphasizes holistic regulation in the treatment of KOA. Through the identification of meridians and muscles, precise selection of acupuncture points, and the integration of the five needling techniques, it achieves the effect of Qi reaching the diseased location and dredging the meridians and muscles. The acupuncture technique employed is gentle and swift, not only alleviating patients' pain but also effectively relieving their fear of acupuncture, thus enhancing the acceptability of the treatment. As stated in the "Yi Zong Jin Jian": "The application of the method should make the patient unaware of their suffering." With its unique efficacy and safety, Qihuang acupuncture therapy has emerged as a significant approach for the treatment of KOA.

4. Extracorporeal ShockWave Therapy (ESWT) and knee osteoarthritis

In the field of non-surgical treatment, Extracorporeal ShockWave Therapy (ESWT), as an emerging physical therapy method, has gradually attracted widespread attention for its application in the treatment of knee osteoarthritis. Studies have shown that extracorporeal shock wave therapy can effectively improve pain symptoms and joint function in patients with knee osteoarthritis. Additionally, as a non-invasive and minimally invasive treatment, extracorporeal shock wave therapy has relatively high safety and patient acceptance. Research has found that the combination of extracorporeal shock wave therapy and sodium hyaluronate injection can effectively improve pain and function scores in patients with knee osteoarthritis [21]. Furthermore, the combination of extracorporeal shock wave therapy and traditional Chinese medicine fumigation has demonstrated better clinical effects in promoting symptom relief and improving quality of life. Meanwhile, comparative studies on the combination of extracorporeal shock wave therapy with other physical therapy methods, such as ozone therapy and acupotomy, are continuously being conducted to find the best treatment combination regimen [22].

5. Case study

Patient Jiang XX, a 67-year-old female, presented for the first time on June 27, 2024. The patient complained of recurrent bilateral knee pain for 9 years, with symptoms intensifying in the past week. Since 9 years ago, the patient has experienced dull pain in both knees, especially during walking and climbing stairs, accompanied by limited flexion activity of the knee joints. The patient prefers massage and kneading to relieve discomfort. X-ray examination revealed degenerative changes in bilateral knee joints, confirming the diagnosis of knee osteoarthritis. Although the patient's pain was reduced after taking celecoxib capsules, the symptoms still occur repeatedly. In the past week, the pain in both knees has worsened, affecting daily activities.

5.1. Initial diagnosis

(1) Current medical history: The patient's bilateral knee pain is mainly concentrated on the lateral and posterior sides of the knees, which intensifies during prolonged walking and climbing stairs. It is accompanied by limited flexion and extension, making squatting difficult. No significant discomfort was reported in other parts.

(2) Tongue and pulse: The tongue is pale with a thin white coating, and the pulse is deep and thin.

(3) Physical examination: The skin temperature of the bilateral knee joints is elevated, but the skin color is normal. Pressure pain is positive on the medial and lateral sides of the knee joints. The floating patella test is positive, the drawer test is negative, and the bone friction sound is positive.

(4) Scores:

(a) KOOS scores: Symptoms 64.3, Pain 63.9, Daily Activities 66.2, Sports and Recreational Functions 45, Knee-related Quality of Life 50.

(b) Knee LYSHOLM pain rating scale: 48 points

(c) WOMAC score: 48 points

(d) Patient's knee range of motion: 110°

5.2. Diagnosis and syndrome differentiation

(1) Western medicine diagnosis: Knee osteoarthritis

(2) Traditional Chinese Medicine diagnosis: Knee Bi Syndrome (a condition marked by pain and stiffness in the knee)

(3) Syndrome differentiation: Liver and kidney deficiency syndrome (characterized by symptoms indicating a deficiency in the functions of the liver and kidney, often manifesting as weakness or pain in the joints)

(4) Therapeutic method: Tonifying Qi to dredge the meridians, promoting blood circulation, and relieving pain. (This approach aims to strengthen the body's vital energy, improve the flow of energy through the meridians, enhance blood flow, and alleviate discomfort.)

5.3. Treatment process

Based on the patient's pain primarily focused on the lateral and posterior aspects of the knee, which is associated with the foot Shaoyang meridian sinews and foot Taiyang bladder meridian sinews, Yanglingquan, Ququan, and Weizhongshu (bilateral) acupoints were selected for acupuncture treatment. Extracorporeal shock wave therapy was administered on the second day after acupuncture treatment.

5.4. Acupuncture procedure

(1) The patient was positioned appropriately to fully expose the affected area.

(2) The physician chose a 1.5-inch Qihuang needle (specification: 0.3 mm × 55 mm) and inserted it quickly using a flying needle technique.

(a) First, Shu-style acupuncture was performed, with the needle tip reaching the bone surface at a depth of approximately 50 mm.

(b) Subsequently, He-style acupuncture was applied along the meridian sinew's pathway.

(c) The needle was immediately removed after the acupuncture procedure, and the needle hole was pressed with a cotton ball for a moment.

5.5. Treatment effect

(1) After acupuncture, the patient reported significant pain relief in the knee, and squatting and standing movements became easier.

(2) The patient was advised to avoid climbing stairs and heavy physical labor, and to perform appropriate knee function exercises.

5.6. Treatment plan

(1) Acupuncture was administered once every other day, with 3 sessions constituting one course of treatment. Extracorporeal shock wave therapy (ESWT) was also applied, with an ESW energy of 2.5 × 10^5 Pa and 2000 shockwaves per session, twice a week. - After one course of treatment, the patient reported a reduction in knee pain and significant improvement in knee joint function:

(2) KOOS (Knee injury and Osteoarthritis Outcome Score) ratings were as follows: Symptoms 78.6, Pain 72.2, Activities of Daily Living (ADL) 73.5, Sport and Recreation Function 60, and Knee-related Quality of Life 62.5.

(3) The LYSHOLM Knee Scoring Scale for pain rated at 68.

(4) The WOMAC (Western Ontario and McMaster Universities Osteoarthritis Index) score decreased to 34.

(5) The patient's knee range of motion improved to 120°.

5.7. Follow-up results

Four weeks after the completion of treatment, a telephone follow-up was conducted. The patient's knee function recovered well, showing no signs of recurrence. In traditional Chinese medicine, the knee is considered the "house of tendons." Knee disorders are often caused by overstrain or weakness, coupled with external pathogenic factors invading and damaging the channels and tendons, leading to pain, stiffness, and difficulty in bending and stretching. In the treatment of traditional Chinese medicine, syndrome differentiation and treatment should be based on the theory of channels and tendons. The Qi Huang acupuncture therapy is based on the theory of channels and tendons, and adopts the five-needle method

according to the depth of the lesion, which has strong pertinence. The patient was elderly and frail, with liver and kidney deficiency. Overwork depleted qi and blood, leading to tendon dystrophy and pathogenesis. The disease course was protracted, and the pathogenic factors penetrated deep into the bones, resulting in loss of bone support and muscle weakness. The patient experienced pain on the inside and outside of the knee joint. Combined with palpation, it was found that the lesion involved the tendons of the Foot Shaoyang Channel and the Foot Taiyang Channel.

Based on the principle of "where the meridians pass, there lies the scope of treatment," after identifying the location of the lesion, the method of selecting acupoints near the tendon and muscle accumulation points around the knee joint is adopted to dredge meridians and tendons, promote blood circulation and remove blood stasis, strengthen the body's resistance, and eliminate pathogenic factors. The Xiyangguan acupoint belongs to the Foot Shaoyang Gallbladder Meridian and is located near the tendon and muscle accumulation points on the lateral side of the knee. It has the functions of dredging meridians, relaxing muscles, dispelling cold, and warming yang. The Ququan acupoint belongs to the Foot Jueyin Liver Meridian and is the He-Sea acupoint of the liver meridian, which can dredge meridians and tendons, promote blood circulation, and relieve pain. The Weizhong acupoint is the He-Sea acupoint of the Foot Taiyang Bladder Meridian, which can stimulate meridian qi and nourish meridians and tendons. For patients with long-term knee osteoarthritis, as the pathogenic factors penetrate deeply into the bones and damage the muscles, the treatment mainly focuses on shu-style needling, combined with hegu-style needling to enhance the therapeutic effect. The key to acupuncture treatment lies in regulating the qi and blood of the meridians and tendons. When Qi and blood are smooth, pain can be relieved. The Qihuang needle therapy fully embodies the advantages of traditional acupuncture and moxibustion in the treatment of knee osteoarthritis due to its precise acupoint selection based on syndrome differentiation, simple operation, significant efficacy, and high reproducibility. For diseases manifesting as limb pain and limited mobility in clinical practice, treatment can also be based on syndrome differentiation and treatment from the perspective of meridians and tendons, which often achieves good therapeutic effects.

6. Conclusion

The combined therapy of Qi Huang acupuncture and extracorporeal shock wave therapy has demonstrated remarkable efficacy in the clinical application of knee osteoarthritis. It can not only effectively alleviate knee pain and stiffness but also significantly improve patients' daily activities. Qi Huang acupuncture, characterized by precise acupoint selection, simple operation, rapid efficacy, and high reproducibility, inherits the advantages of traditional acupuncture and further enhances the therapeutic effect through the combination with modern physical therapy techniques. Clinical practice has proven that the combined application of Qi Huang acupuncture and Extracorporeal ShockWave Therapy has important clinical significance in the non-surgical treatment of knee osteoarthritis, providing patients with a safe, effective, and side-effect-free comprehensive treatment option. Looking ahead, with the advancement of more high-quality evidence-based medical research, this therapy is expected to provide a more scientific basis for the treatment of knee osteoarthritis and gain wider clinical promotion and application.

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