

Comparative Study of the Clinical Efficacy of Manipulation and Acupuncture in the Treatment of Knee Osteoarthritis

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Abstract: From January 2022 to January 2023, 120 patients with knee osteoarthritis were randomly divided into an observation group and a control group. Control group received acupuncture and moxibustion treatment while observation group received treatment combined acupuncture and moxibustion and massage. The therapeutic effects of the two groups were observed, the improvement of knee function and pain of the patients was evaluated, the level of inflammatory factors was detected, and the quality of life of the patients was assessed. The therapeutic effectiveness of the observation group was 98.33%, while that of the control group was 88.33%. The therapeutic effect of the observation group was better ($P < 0.05$). Before treatment, the knee joint function scores and Visual Analogue Scale (VAS) of the two groups are of no statistical significance ($P > 0.05$); After treatment, the observation group was superior to the control group ($P < 0.05$). Before treatment, the comparison of the levels of inflammatory factors between the two groups is of no statistical significance ($P > 0.05$). All inflammatory factors in the observation group were lower than those in the control group ($P < 0.05$), after treatment, the quality of patients' life in the observation group has been significantly improved, and all scores are higher than those in the control group ($P < 0.05$). In this article, through the above data analysis, the treatment of patients with knee osteoarthritis, massage and acupuncture treatment can further reduce the patients pain, improve the function of knee joint, and anti-inflammatory effect is better, overall treatment effect is more outstanding.

Keywords: massage manipulation; acupuncture and moxibustion; knee osteoarthritis

1. Introduction

Among osteoarthritis diseases, knee osteoarthritis is relatively common, and patients with this disease often have varying degrees of cartilage tissue damage and deformation. Knee osteoarthritis is a degenerative disease. From the current perspective, the incidence of this disease has shown an upward trend, with the middle-aged and elderly population being the high incidence population. According to X-ray photographs, about 50% of patients over the age of 60 will develop osteoarthritis. The incidence of osteoarthritis symptoms in patients over 75 years of age is approximately 80%. The main characteristics of knee osteoarthritis are secondary hyperosteoecy, cartilage destruction, and degenerative lesion of osteoarticular cartilage. Clinical symptoms include local joint pain, joint swelling, and dysfunction of joint activity. Joint stiffness can occur when wake up in the morning. Due to the inconvenience of patients' movement, the quality of life can be greatly reduced. This disease has a certain rate of self-mutilation and requires early treatment. In clinical practice, acupuncture and moxibustion and massage manipulation are commonly used. With no side effects of drugs, these treatment methods can effectively avoid adverse reactions caused by drugs, eliminate aseptic inflammation and have significant effects in pain relief. To explore the therapeutic effect of massage manipulation and acupuncture and moxibustion therapy on knee osteoarthritis, 120 patients with knee osteoarthritis were selected in this study and divided into groups to apply different treatment methods. The specific results are as follows.^[1]

2. Materials and Methods

2.1. General Materials

From January 2022 to January 2023, 120 patients with knee osteoarthritis were randomly divided into an observation group and a control group, with 60 patients in each group. In the control group, there were 33 males and 27 females, with ages ranged from 45 to 80 years and an average of (59.2 ± 5.7) years. In the observation group, there were 32 males and 28 females; with age ranged from 45 to 80 years old and an average age of (59.1 ± 5.6) years. This study was approved by the medical ethic committee of the hospital. All patients were aware of the study content and voluntarily signed the Informed Consent Form. There was no difference in the basic information between the two groups of patients ($P > 0.05$).

2.2. Methods

The patients in the control group were treated with acupuncture and moxibustion, instructing the patient to maintain a supine position and do a good job of local disinfection. The selected acupoints include Zusanli, Sanyinjiao, Yanglingquan, Yinlingquan, Weizhong, Weiyang, Xuehai, Ashi point, and Xiguan point. After a sense of pain occurs to the patients, it is required to use the manipulation of lifting, thrusting, swirling, rotating, reinforcing and reducing. The needle retention time is 0.5h. Acupuncture and moxibustion is performed every other day, and 10 days is a course of treatment, a total of 4 courses of treatment.

The patients in the observation group were massaged on the basis of acupuncture and moxibustion therapy. The massager should guide the patient to maintain a supine position, and then use the friction method, finger-rubbing method and rolling method to relax the muscles around the knee joint, and then perform acupoint massage. The main acupoints include Xiyan point, Weizhong point, Xuehai point, Liangqiu point and Zusanli point and so on. To massage the acupoints, the massager should use thumbs of both hands to massage the patella, pushing it from bottom to top, and pushing it down at the upper edge of the patella repeatedly. The massager should press and hold the patella with one hand, pushing and pulling upward at the edge of the patella. Then, hold down the ankle with one hand and the knee with one hand, repeatedly shaking the knee in a clockwise and counterclockwise direction. Using the massage manipulation to relax the knee joint and surrounding muscles. Each massage lasts for 20 minutes, and is massaged every other day. A course of treatment lasts for 10 days, with a total of 4 courses of treatment.^[2]

2.3. Indicators Observation

(1) Evaluation of treatment effectiveness: significant effect: relevant symptoms disappear, pain is significantly reduced, and joint activity returns to normal. Effective: pain, swelling, and stiffness symptoms have been alleviated, and joint activity has improved. Invalid: All indicators and symptoms have not improved.

(2) The Lysholm-II Scale was used to evaluate knee joint function, observe joint swelling, and check the patient's squatting, supporting, and climbing stairs. The higher the score, the better the knee joint function. The visual simulation scoring standard was used to evaluate the pain situation of patients, and calculate the pain degree score. The lower the score, the lighter the pain.^[3]

(3) Check the level of inflammatory factors, mainly including the levels of Tumor Necrosis Factor (TNF- α), Matrix Metalloproteinase (MMP-I), Interleukin-6 (IL-6).

(4) The quality of life scoring table was used to evaluate the quality of patients' life, mainly including physical health, mental health, social function, and material life. The higher the score, the better the quality of life.^[4]

2.4. Statistical Methods

In this study, SPSS Software Version 20.0 was used for data analysis. The percentage was expressed in the form of (%), and the chi-square value χ^2 was used to inspect the enumeration data [n (%)]. The $\bar{X} \pm s$ was used to represent the measurement data, and the student's t test was used. The result showed that $P < 0.05$ was statistically significant.^[5]

3. Result

3.1. Comparison of Treatment effectiveness between Two Groups of Patients

The treatment effectiveness of the observation group was 98.33%, while that of the control group was 88.33%. The treatment effectiveness of the observation group was better ($P < 0.05$), as shown in Table 1.

Table 1: Comparison of Treatment effectiveness between Two Groups of Patients.

Group	Cases	Significantly Effective	Effective	Invalid	Therapeutic Effectiveness
Observation Group	60	33	26	1	59 (98.33)
Control Group	60	21	32	7	53 (88.33)
χ^2					4.8214
P Value					0.028

3.2. Comparison of Knee Joint Function and Visual Analogue Scale (also known as VAS)

Before treatment, the knee joint function scores and VAS scores of the two groups of patients were not statistically significant ($P > 0.05$); After treatment, the observation group was superior to the control group ($P < 0.05$), as shown in Table 2.

Table 2: Comparison of Knee Joint Function and Visual Analogue Scale Before and After Treatment ($\bar{X} \pm s$, score).

Group	Cases	Knee Joint Function		Visual Analogue Scale	
		Before Treatment	After Treatment	Before Treatment	After Treatment
Observation Group	60	54.25±5.12	79.17±3.08	3.36±0.68	1.05±0.55
Control Group	60	54.71±5.25	70.03±2.17	3.25±0.71	2.93±0.64
T Value		0.518	18.790	0.866	17.257
P Value		0.601	0.000	0.388	0.000

3.3. Comparison of Inflammatory Factor Levels between Two Groups of Patients

Before treatment, there was no statistical significance in the levels of inflammatory factors between the two groups ($P > 0.05$), and the inflammatory factors in the observation group were lower than those in the control group ($P < 0.05$). As shown in Table 3.

Table 3: Comparison of Inflammatory Factor Levels between Two Groups of Patients ($\bar{X} \pm s$).

Group	Cases	TNF- α (ng/L)		MMP-I(ng/ml)		IL-6(ng/L)	
		Before Treatment	After Treatment	Before Treatment	After Treatment	Before Treatment	After Treatment
Observation Group	60	64.11±5.12	44.15±3.08	4.25±1.32	1.04±0.26	4.05±0.88	1.47±0.12
Control Group	60	64.60±5.14	59.01±2.05	4.11±1.06	2.64±1.58	4.08±0.69	2.54±0.50
T Value		0.523	31.111	0.641	7.740	0.208	16.119
P Value		0.602	0.000	0.523	0.000	0.836	0.000

3.4. Comparison of Quality of Life between Two Groups of Patients

After treatment, the quality of life of the patients in the observation group was significantly improved, and all scores were higher than those in the control group ($P < 0.05$), as shown in Table 4.

Table 4: Comparison of Quality of Life between Two Groups of Patients ($\bar{X} \pm s$).

Group	Cases	physical health	mental health	social function	material life
Observation Group	60	71.02±6.03	64.17±9.64	75.51±7.16	75.04±7.16
Control Group	60	53.44±6.15	60.22±10.14	60.03±6.38	61.30±8.03
T Value		15.810	2.187	12.503	9.893
P Value		0.000	0.031	0.000	0.000

4. Conclusions

Knee Osteoarthritis, also known as hypertrophic osteoarthropathy, has a high probability of occurrence, especially in the elderly population. Some studies have pointed out that the pathogenesis of this disease is closely related to excessive weight bearing, excessive obesity, long-term fatigue, excessive exercise and cold stimulation. The main cause of the disease is hyperosteogeny in the bone and joint tissues, and the presence of degenerative lesion in the joints, resulting in many symptoms in the patient, specifically manifested as: joint pain, limited activity, joint swelling and so on. If not treated promptly, as the condition continues to develop, the patient's joint function will be affected, with a certain rate of self-mutilation, and the patient's quality of life will decline.^[6]

From the perspective of TCM, knee osteoarthritis is classified into the category of "arthralgia of the muscles and bones", mainly due to deficiency of the liver and kidney, weakness of the positive energy, and inability of the fascia of the knee joint to receive sufficient nourishment of the essence and blood, leading to the invasion of negative energy while taking advantage of the deficiency. Due to the block of qi and blood, the muscles and collaterals are blocked, leading to this disease. When treating knee osteoarthritis, it is generally advocated to use conservative treatment methods. Although drug treatment can effectively alleviate joint pain, it has no significant improvement in joint activity reduction and joint stiffness. Long-term use of anti-inflammatory drugs and hormone drugs can also cause many side effects. Once patients develop severe gastrointestinal bleeding complications, which can endanger their life safety, it is necessary to find a safe and effective treatment method. Medical acupuncture and moxibustion treatment for this disease can eliminate tissue edema, joint adhesion, etc., improve the blood circulation around joints, relax muscles and activate collaterals, repair damaged nerve tissue, and further reduce pain. Xiyian point belongs to Waiqi point, which can effectively relieve pain through acupuncture and moxibustion. Acupuncture and moxibustion at Yangling point can harmonize qi and blood, dredge collaterals and relieve pain. Acupuncture and moxibustion at Zusanli point can strengthen the body's positive qi and strengthen the body's ability of anti-inflammatory exudation. Acupuncture and moxibustion at Xuehai and Yinling point can remove dampness and swelling, promoting blood circulation and removing blood stasis. Acupuncture and moxibustion at Ashi point can dissipate blood and relieve pain, relieving stagnation of qi and blood. By using massage manipulation on patients, it can play a role in relieving adhesion, dredging meridians, and relaxing muscles, promoting the absorption of inflammatory exudates, repairing damaged areas, and helping joints to passively move. It has an improved effect on local blood circulation. By increasing blood flow and relieving pressure in the knee joints, it can effectively alleviate pain and swelling pain. Through the combined application of acupuncture and moxibustion of TCM and massage manipulation, the effect is relatively significant. The functional disorder of joint stiffness and pain can be effectively alleviated, and the absorption of inflammatory factors can be promoted, which is conducive to the recovery of patients.^[7]

In this study, through the application of massage manipulation and acupuncture and moxibustion therapy, the treatment effectiveness of the observation group was 98.33%, while that of the control group was 88.33%, it can be found that the treatment effectiveness of the observation group was better ($P < 0.05$). The observation group significantly improved the level of inflammatory factors, improved knee function, further alleviated pain, and improved quality of life. Compared with the control group, the results were statistically significant ($P < 0.05$).^[8]

To sum up, when treating knee osteoarthritis, the combination of massage and acupuncture and moxibustion can greatly improve the treatment effectiveness, help patients relieve pain, eliminate the level of inflammatory factors, and restore knee function as soon as possible, so as to improve the quality of life of patients. This treatment method can be vigorously promoted.

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