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Therapeutic Effect of Warm Acupuncture on Traumatic Synovitis of Knee Joint in 21 Cases

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Abstract

Purposes: To observe the clinical efficacy of warm acupuncture in the treatment of knee synovitis. ***Methods:*** A total of 42 patients with traumatic synovitis of the knee joint were randomly divided into a control group and a treatment group, 21 cases in each group. The control group was treated with common acupuncture combined with TDP local irradiation, and the treatment group was treated with moxa cone wen acupuncture on the basis of common acupuncture. ***Results:*** Control group effectiveness: 90.5%, treatment group efficiency is 95.2%, between the two groups there is a comparative significant difference ($p<0.05$), treatment group pain score improvement and joint activity improvement is superior to the control team, with statistical significance ($p <.05$). ***Conclusion:*** The treatment of joint synovitis by warm acupuncture in control group and treatment group was more effective in alleviating knee pain and improving functional activities than acupuncture alone.

Keywords: knee synovitis, thermal acupuncture, therapeutic effectiveness observation

1. Introduction

In clinic, knee synovitis is a common disease in pain department. When the synovial membrane in the knee joint is injured, it will lead to the rapid expansion of the synovial blood vessels, so that the plasma, red blood cells, white blood cells, etc. in the blood vessels leak into the joint fluid, resulting in the deposition of fibrin in the joint fluid, which in turn promotes the proliferation of the knee joint synovial membrane and secretes a large number of mucus containing mucus, fibrin, bilirubin and other components. As a result, hyperplasia, adhesion and infection of the synovial membrane of the knee joint occur, which seriously affects the function of the knee joint and reduces the quality of life of the patients (Tong Yu, Luan Minghan, Wang Yong, et al., 2012). The common method of western medicine in the treatment of traumatic synovitis of the knee joint is to take non-steroidal anti-inflammatory drugs or anti-inflammatory analgesics, and inject drugs such as glucocorticoids, ozone and sodium hyaluronate into the joint cavity (Lin Xiaodong & Li Huahua, 2014; He Hong-rang & Su Xiao-long, 2012; Xiao Zhanhong, 2013). However, due to the slow absorption of intra-articular effusion, this method has a long treatment cycle, which is easy to cause joint adhesion and other phenomena, affecting the treatment effect. Warm acupuncture and moxibustion is used in the treatment of knee synovitis in our department, and the therapeutic effect is satisfactory. Now the case data are sorted out and analyzed in order to promote its application in clinical practice.

2. Information and Methods

2.1 General Data: Collection of 42 Cases of Knee Arthritis Patients Who Came to the Pain Department Clinic and Hospitalized During March 2021-2022 February

Among them, 19 men and 23 women; the age of the youngest 24 years, the maximum 68 years; the shortest duration of the disease, up to 32 days; 38 cases on one side, 4 cases on two sides.

Differences in general data between the two groups of patients were not statistically significant (P>0.05).

2.2 Diagnostic Criteria

According to the "TCM diagnostic and Therapeutic Criteria" (State Administration of Traditional Chinese Medicine, 1995), the following criteria were formulated: knee joint swelling and pain, knee flexion difficulty; A history of trauma; Perforation of the joint.

The puncture fluid was light yellow or light red liquid, without fat droplets on the surface. The floating patella test was positive.

2.3 Inclusion of Standards

First, patient meets the diagnosis of traumatic mucosa of the knee joint in Western medicine; Second, patients are over 18 years of age; Third, patients voluntarily join this study; Forth, patients can receive conventional Western medicine treatment, therapeutic acupuncture and so on.

2.4 Exclusion Criteria

1) Patients who did not meet the diagnostic criteria; Puerpera and pregnant women; Patients with poor physical fitness; 2) patients with low immunity; 3) patients with nervous system, blood system, brain diseases, organ diseases and other diseases; 4) patients with needle sickness; 5) poor cooperation mothers.

2.5 Criteria for Clinical Effectiveness

(1) Pain rating criteria Visual Simulation Score (VAS) (Grant S, Aitchison T, Henderson E, et al., (1999): A 10 cm long mobile scale, divided into 10 degrees, from 0 to 10, 0 indicates painless, 10 indicates unbearable intense pain, when used clinically, allowing the patient to mark on the straight scale the corresponding position that can represent their degree of pain, the doctor scores according to the location marked by the patient. The activity of the knee joint is measured by an angular meter. VAS assessment and knee joint activity measurement were performed respectively before the treatment of the patient, after 1 course of treatment and after 2 courses of treatment.

(2) Criteria for determining therapeutic effectiveness Reference to the "Chinese Medical Certificate for Diagnostic Effectiveness of Treatment" (State Administration of Traditional Chinese Medicine, 1995). Healing: therapeutic effectiveness indicates the number ≥ 90%, patient knee function restored, pain, swelling, palpitation and other symptoms disappeared, fluttering test (-); effective: 90% > therapies index ≥ 70%, patients knee joint function basically recovered, pain and swelling and palpitations symptoms are basically eliminated, Fluttering trial (-), effective: 70% > therapy effect index > 30%, patients symptoms and body signs have slightly improved Patient knees function has been improved, pains, swellings, palpation, etc. Symptoms have been reduced, Flutination trial (-); ineffective: Therapies effect index <30%, patients with knee arthritis function has not improved significantly, clinical symptoms still exist, Fl Total healing rate = (recovery number + effect number + effective number) / total case number × 100%.

2.6 Statistical Methods

The result used SPSS 26.0 software for data processing, measurement data represented in $\bar{x}\pm s$, using t testing, counting data with percentage representation, using $\chi 2$ testing, $P < 0.05$ for the difference has statistical significance.

3. Methods of Operation

3.1 The Observation Group Selected Acupoints: Dubi, Yinlingquan, Yanglingquan, Xuehai, Liangqiu, Sanyinjiao, Ashi Point

Specific operation: Patients lie down, after local routine disinfection, take 0.3 mm * 40, 0.35 mm * 75 stainless steel needles, oblique insertion dubi to the joint cavity direction.

Lifting and thrusting reduction method after getting the Qi.

Each injection is kept for 20 minutes, 10 days for one course, 1 course ends with a break for 2 days, then continues with the next course, a total of two courses of treatment.

The treatment group selected acupoints: Dubi, Yinlingquan, YanglingQuan, Xuehai, Liangqiu, Sanyinjiao, ashi point.

Specific operation: Patients lie down, after conventional disinfection, take 0.3 mm * 40, 0.35 mm * 75 stainless steel needles, oblique insertion dubi to the direction of the joint cavity, the remaining acupoints are directed, are applied to the infusion method.

After getting the Qi, the length of the 2 cm pillar will be lighted on the needle handle, the bottom of the pillar is 2-3 cm away from the skin, 2 pillar / time, every 20 minutes, 1 time / day, 10 days for a course, 1 course ended

with a break for 2 days, then continue the next course, a total of two treatments.

4. Results

4.1 Comparison of Clinical Efficacy Between the Two Groups

The total clinical response rate of the two groups was 90.5% and 95.2%, respectively, which was higher in the treatment group compared with the control group ($p<0.05$). (Table 1)

Table 1. Clinical Efficiency Assessment of Two Groups of Patients

group	Number	excellence	Effective	ameliorate	invalid	Total effective rate
Control group	21	4（19%）	7（33.3%）	8（38.1%）	2（9.5%）	90.5%
Treatment group	21	12（57.1%）	7（33.3%）	1（4.8%）	1（4.8%）	95.2%*

Note: Comparison with the control group, *$p<0.05$.

4.2 The VAS Scores and Joint Activity Degrees

Significant improvement was observed in the treatment group compared with the control group before and after treatment ($P < 0.05$). In the group-to-group comparison, the major symptoms of pain VAS scores, the joint stretching activity after treatment 1 course and after treatment 2 course was significantly improved ($P < 0.05$) (Table 2).

Table 2. Comparison of VAS scores and joint activity in two groups of patients ($n = 21$, $\bar{x} \pm s$)

group	pretherapy		After 1 course of treatment		After 2 course of treatment	
	VAS scores	Joint Aktivity Degrees	VAS scores	Joint Aktivity Degrees	VAS scores	Joint Aktivity Degrees
Control group	5.95±0.8	70.71±19.76	3.57±1.36 #	103.81±15.07 #	1.76±1.45 #	124.76±12.89 #
Treatment group	5.85±0.72	63.76±16.46	2.76±0.83*	121.42±12.56*	0.76±1.14*	135.23±10.54*

Note: pretherapy comparison with the treatment group, # $P < 0.05$; control group comparison with the observation group, * $P < 0.05$.

5. Discussion

The knee joint is the largest load in the human body, the largest activity, and also the largest joint area. The joint mucous tissue is thin and smooth, light red in color, containing a large amount of blood vessels / lymph nodes. Negative pressure within the knee joint cavity favors the absorption of slip, so that a small amount of slip is distributed linearly on the surface of the joint. Because the knee joint has a wide mucous membrane and is located in a rather shallow part of the joint, there is a greater chance of injury or infection. When the amount of movement of the patient is too large or the load is too heavy, it will make the knee joint under pressure in a semi-inclined state, this time the kneel joint cartilage will move backwards independently, if at this point the knee joint suddenly straightened out or other intense movements, will cause the damage of the knee joint half-monthly platelet, inner joint twist, joint ligament damage, knee membrane damage, and so on, causing the occurrence of traumatic mucositis. Traumatic mucous membranes of the knee is a patient's knee joint under acute physical injury, or when in a state of chronic impairment, caused by mucosal damage, rupture, thus succeeding to the swelling of the slime and a non-infectious inflammatory disease in the state of blood, accumulation and so on in the joint cavity. Its clinical manifestations are mainly: the swelling type of the knee joint, mainly with inflammatory disease, the degree of pain varies; non-inflammatory type, mostly with joint pain. Both are accompanied by a state of limited activity. If the disease is treated not thoroughly and unregulated, it is very likely to lead to relapse, recurrence of the condition, and gradually turn into a chronic disease. Temporary or long-term loss of labor function, which has a serious impact on the patient's daily life and work (Wu Wenjun, 2014; CAO G Y, Chen J, Zhou L, et al., 2011). Clinical Western medicine treatment generally uses

oral non-hormonal drugs or hormones, or joint clearance, joint piercing, and local injections, etc., but the drug has side effects, the surgery is also easy to cause secondary injury and postoperative rehabilitation problems, especially the combination of patients with diabetes, long-term effects are not ideal, and the effect of Chinese medicine treatment is very significant. Central medicine believes that the pathogen of traumatic mucous membranes of the knee joint is an outer injury that causes pulse damage, blood flow outside the artery, air blood does not run smoothly, forming hemorrhoids, thereby causing swelling of the limb joint, and limited activity (Zhang Youmei, 2000). Using thermal acupuncture treatment, at the same time as the pain, the thermal effect generated by the combustion of the algae through the needle directly reaches the site, promotes local air circulation, and accelerates the penetration and absorption of inflammatory substances. Sunny Spring, Liang Chou can be through pain, strong muscle and knee; Sunny spring strong muscles and knees have the power of moisturizing water; the sea of blood is the vital hole of living blood, and is also located around the knee joint, the role of the knot joint is adjusted; the nose hole uses a sliding patch, so that the needle directly reaches the joint cavity, through the thermal conducting effect of needle, the heat can quickly penetrate into the joints, to the site of needles, can more effectively eliminate the swelling and pain, and the purpose of removing moisture, living blood dispersion, sputum communication. The holes are combined, and acupuncture is added, so that heat passes through the needle body into the body, playing the role of warmth through communication, respiratory blood, cold and moisture, and swelling pains.

The thermal acupuncture is a combination of acupuncture and moxibustion, and its therapeutic mechanism has the action mechanism of both acupuncture and moxibustion. The heat effect generated by burning moxa wool can be transmitted into acupoints, joints and deep tissues through the needle body, which is difficult to be achieved by general physical therapy. Warm acupuncture and moxibustion can promote local blood circulation, release adhesion and eliminate edema through the transdermal absorption of warm and warm effect, so as to warm the stagnant and blocked meridians, smooth the circulation of qi and blood, warm and nourished muscles, bones and joints, and relieve rheumatism and pain. It has the effect of integrating acupoints, heat therapy, drugs and phototherapy. Modern studies have found that Artemisia moxa and the extracts of its combustion products have the effects of scavenging free radicals and lipid peroxides, increasing vascular permeability in the lesion site, accelerating the metabolism of the tissue, accelerating the absorption of local edema and inflammation, and effectively controlling pain.

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