

Observation on clinical efficacy of warm needling therapy for chronic lumbar strain

温针灸治疗慢性腰肌劳损的临床疗效观察

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Abstract

Objective: To observe the clinical efficacy of warm needling therapy for chronic lumbar strain.

Methods: A total of 60 patients with chronic lumbar strain who met the inclusion criteria were randomized into a treatment group and a control group by the random number table, with 30 cases in each group. The treatment group was treated with warm needling therapy, while the control group was treated with ordinary acupuncture treatment. The treatments were both performed once every other day, and 7 times constituted a course of treatment. Visual analog scale (VAS) score was used to assess the degree of pain and the clinical efficacy was compared between the two groups.

Results: The total effective rate of the treatment group was higher than that of the control group ($P < 0.05$). There was no significant difference in VAS score between the two groups before treatment ($P > 0.05$). After treatment, the VAS scores of both groups decreased significantly, and the intra-group differences were statistically significant (both $P < 0.05$). The VAS score of the treatment group after treatment was statistically different from that in the control group ($P < 0.05$).

Conclusion: Warm needling therapy has a better curative effect than ordinary acupuncture in the treatment of chronic lumbar strain.

Keywords: Warm Needling Therapy; Acupuncture Therapy; Acupuncture-moxibustion Therapy; Sprains and Strains; Low Back Pain; Visual Analog Scale; Pain Measurement

【摘要】目的：观察温针灸治疗慢性腰肌劳损的临床疗效。**方法：**将60例符合纳入标准的慢性腰肌劳损患者按随机数字表法分为治疗组和对照组，每组30例。治疗组采用温针灸治疗，对照组采用常规针刺治疗，隔日治疗1次，7次为1个疗程。采用视觉模拟量表(VAS)评分评估疼痛程度，并比较两组临床疗效。**结果：**治疗组总有效率高于对照组($P < 0.05$)。两组治疗前VAS评分无统计学差异($P > 0.05$)。治疗后两组VAS评分均明显下降，与本组治疗前均有统计学差异(均 $P < 0.05$)。治疗组治疗后VAS评分与对照组比较具有统计学差异($P < 0.05$)。**结论：**温针灸治疗慢性腰肌劳损疗效优于常规针刺治疗。

【关键词】温针疗法; 针刺疗法; 针灸疗法; 扭伤和劳损; 腰痛; 视觉模拟量表; 疼痛测评

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Lumbar strain is the general term for strains of lumbar soft tissues. It is also known as functional low back pain, lumbar dorsal myofascitis, lumbar tissue fibrosis, lumbar myofascial pain syndrome, etc. Main clinical manifestation is chronic low back pain with recurrent attacks. It is a common and frequently-occurring disease^[1]. The lumbar strain belongs to Bi-impediment syndrome in traditional Chinese medicine. Internally, it is caused by failure of the liver, spleen and kidney to nourish and warm muscles and tendons. Externally, it is caused by chronic strain or wind, cold or dampness obstructing the flow of qi and blood^[2].

External treatment of traditional Chinese medicine has a certain effect for lumbar strain^[3-4]. As one of external treatments, warm needling therapy has the effect of both acupuncture and moxibustion. This study observed the clinical efficacy of warm needling therapy in treating lumbar strain.

1 Clinical Materials

1.1 Diagnostic criteria

This study referred to the diagnostic criteria of lumbar strain in the *Criteria of Diagnosis and Therapeutic Effect of Diseases and Syndromes in Traditional Chinese Medicine*^[5]: there is a long history of low back pain with recurrent attacks; pain and discomfort in one or both sides of the lumbosacral

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region, sometimes mild and sometimes severe, lingering unhealed, aggravated after exertion and eased after rest; mild tenderness on one or both sides of sacrospinalis muscle, generally no obvious obstacles of lumbar and leg activities.

1.2 Inclusion criteria

Those who met the above diagnostic criteria of lumbar strain; aged 20 to 70 years old; with duration more than 1 month; who ever had accepted other external treatment or conservative treatment before should taken a washout period for more than 7 d; able to receive the warm needling therapy and complete the treatment; agreed to participate in this clinical trial and signed informed consent.

1.3 Exclusion criteria

Those with lumbar disc herniation, or spinal stenosis; low back pain due to bone or joint tuberculosis, osteomyelitis, ureter or bladder disease; unclear diagnosis of spinal injury with spinal cord injury; patients with severe heart, lung, brain, or blood system disease; diabetics; had severe skin lesions or skin disease in the area to be treated; those who had received lumbar surgery; lumbar deformity; hemorrhagic blood disease patients.

1.4 Elimination and dropout criteria

Drop out because of accidents during evaluation, or poor compliance during treatment.

1.5 Adverse events

Any adverse events such as faint during acupuncture treatment, stuck needle, needle breakage, or burns occurred during the clinical study were observed.

1.6 Statistical method

All data were statistically analyzed by the SPSS version 17.0 statistical software. The measurement data were first tested for normality, and those in normal distribution were expressed as mean \pm standard deviation ($\bar{x} \pm s$), and *t*-test was applied. If data did not meet the normal distribution, non-parametric test was applied. Chi-square test or non-parametric test was applied to the comparison of counting data and ranked data. *P*<0.05 was considered to indicate a statistically significant difference.

1.7 General data

A total of 60 cases were selected from Acupuncture and Tuina Department of Jiaying Hospital of Traditional Chinese Medicine Affiliated to Zhejiang Chinese Medical University, between January 2016 and December 2016. They were randomly divided into a treatment group and a control group by the random number table, with 30 cases in each group. There were no statistically significant differences in the general data between the two groups (all *P*>0.05), indicating that they were comparable (Table 1).

Table 1. Comparison of general data between the two groups

Group	<i>n</i>	Gender (case)		Average age ($\bar{x} \pm s$, year)	Average duration ($\bar{x} \pm s$, month)
		Male	Female		
Treatment	30	17	13	52.3 \pm 7.6	23.2 \pm 6.5
Control	30	16	14	52.3 \pm 9.1	22.6 \pm 6.4

2 Treatment Methods

2.1 Treatment group

Acupoints: lumbar Jiaji (EX-B 2) points, Mingmen (GV 4), Yaoyangguan (GV 3), and bilateral Houxi (SI 3), Shenshu (BL 23), Pangguangshu (BL 28), Ciliao (BL 32) and Weizhong (BL 40).

Methods: The patient took a prone position. The physician perpendicularly punctured the points listed above using Hwato brand disposable sterile acupuncture needles of 0.25 mm in diameter and 40 mm in length. After arrival of qi, the even reinforcing-reducing manipulation was performed for 1 min. Then the physician applied warm needling therapy to 2-3 lumbar Jiaji (EX-B 2) points, Mingmen (GV 4), Yaoyangguan (GV 3), and Shenshu (BL 23) or Pangguangshu (BL 28), that is to slub moxa floss of about 2 cm in diameter (about 0.6 g in weight) on the needle handle, 3 cm away from the skin, and to ignite it after fixed. It was replaced with a new moxa ball after burnt out, twice for each acupoint every time. The needles were retained for 30 min. The treatment was performed once every other day, 7 times as a course of treatment, for 3 courses in total.

2.2 Control group

Acupoints: Same as those in the treatment group.

Methods: The acupuncture method, needle size, needle retention time, and course of treatment were all the same as those in the treatment group, but without warm needling moxibustion after the acupuncture.

3 Observation of Curative Efficacy

3.1 Degree of pain

Visual analog scale (VAS)^[6] score was used to assess the degree of low back pain. A 10 cm line was marked '0' and '10' respectively on the left and right ends to represent no pain and unbearable pain. The patient was asked to mark on the line to represent the degree of the pain, and the doctor recorded the score of the degree of low back pain according to the patient's mark. The higher the VAS score, the more severe the pain.

3.2 Criteria of curative efficacy

According to the *Criteria of Diagnosis and Therapeutic Effect of Diseases and Syndromes in Traditional Chinese Medicine*^[5], the curative efficacy of lumbar strain was assessed.

Cured: The symptoms of low back pain disappeared and the movement was normal.

Improved: Low back pain relieved and the lumbar movement recovered basically.

Invalid: The symptoms did not improve.

3.3 Results

No adverse events or dropout cases occurred during the treatment.

3.3.1 Comparison of clinical efficacy

The total effective rate of the treatment group was higher than that of the control group. The comparison result of the curative effect of the two groups was presented as $Z=-2.094$, $P=0.036$ by non-parametric rank-sum test, which suggested that the difference in clinical efficacy between the two groups was statistically significant, and the treatment group was superior to the control group (Table 2).

Table 2. Comparison of clinical efficacy between the two groups (case)

Group	<i>n</i>	Cured	Improved	Invalid	Total effective rate (%)
Treatment	30	21	7	2	93.3 ¹⁾
Control	30	13	12	5	83.3

Note: Compared with the control group, 1) $P<0.05$

3.3.2 Comparison of VAS score

There was no significant difference in VAS score between the two groups before treatment ($P>0.05$). After treatment, the VAS score of both groups decreased significantly, and the intra-group differences were statistically significant (both $P<0.05$). The VAS score of the treatment group after treatment was lower than that of the control group, and the difference was statistically significant ($P<0.05$), (Table 3).

Table 3. Comparison of VAS scores between the two groups before and after treatment ($\bar{x} \pm s$, point)

Group	<i>n</i>	Before treatment	After treatment
Treatment	30	7.25±1.65	2.54±1.23 ¹⁾²⁾
Control	30	7.41±1.73	3.73±1.14 ¹⁾

Note: Compared with the same group before treatment, 1) $P<0.05$; compared with the control group after treatment, 2) $P<0.05$

4 Discussion

The main clinical manifestation of chronic lumbar strain is pain and heaviness in the lumbar region. The pain will be relieved by slight activity, while aggravated by overexertion; relieved after rest but aggravated if the rest is too long. It recurrently attacks often. This disease is often caused by long-term exertion. Alternatively, it may develop from an acute lumbar sprain that was not cured in time^[7-8]. Western medicine believes that the disease is a diffuse aseptic inflammation caused by chronic damage to the soft tissues of the lumbar and hips, so that it is also known as gluteal muscle fasciitis or functional low back pain, which is often the general term for chronic low back pain without organic change^[9-11]. Chinese medicine believes that the low back is the house of the kidney, where the qi of the Kidney Meridian breeds. The kidney is exteriorly and interiorly related to the bladder, and the course of the Bladder Meridian goes through the lumbar region. In

addition, the Conception Vessel, the Governor Vessel, the Thoroughfare Vessel, and the Belt Vessel are also distributed in lumbar region. Therefore, the internal causes of low back pain mostly are kidney deficiency, and the external causes are external contraction of wind-cold-dampness. The interaction between internal and external causes leads to this disease^[12-13].

The chronic lumbar strain is characterized by low back pain as the main clinical manifestation. The combined action of internal and external causes leads to its attack. It is a syndrome of essential deficiency and superficial excess, that is, the kidney deficiency is the core, traumatic injury and external contraction are the superficiality. The lumbar is the house of the kidney, the strains of the kidney or the original kidney deficiency makes the essence of the kidney unable to nourish the tendons, bones, meridians and collaterals. Therefore, the affected area is often accompanied by disharmony of qi and blood or blood stasis and stagnation. The blood is unable to nourish the tendons that the sinews are unable to stretch, which causes the hypertonicity of the sinews and pain in the lumbar region. Kidney deficiency makes the pathogenic wind-cold-dampness easy to invade in, blocking the meridians; or long-term bending work causing the static blood generating from inside. Therefore, the prior treatment of the disease is to tonify the kidney, and then treat according to the different syndrome of pathogenic wind-cold-dampness or blood stasis. Free and unblock the meridian and collateral for the first attack, and tonify the kidney and nourish the blood for patients suffering long-term pain^[14]. Therefore, in this study, Shenshu (BL 23) and Pangguangshu (BL 28) were applied. Shenshu (BL 23) is the Back-Shu point of the kidney, with the effect of tonifying the kidney and replenishing essence. Pangguangshu (BL 28) is the Back-Shu point of the bladder, with the effect of clearing heat, resolving dampness, and tonifying the kidney essence. The combination of these two acupoints made the

synergistic action work^[15]. Houxi (SI 3) is one of the eight confluent points, connected with the Governor Vessel (GV), and is the key acupoint for lumbago and back pain. Weizhong (BL 40) is the key acupoint for all kinds of lumbago and back pain^[16]. Lumbar Jiaji (EX-B 2) points and Ciliao (BL 32) are located at the psoas attachment, and were the application of local points. Mingmen (GV 4) and Yaoyangguan (GV 3) increase the effect of tonifying the kidney and strengthening the lumbar vertebrae. The combination of all the acupoints made the effect of tonifying the kidney and strengthening the lumbar vertebrae, activating blood and resolving stasis, freeing the collateral vessels and relieving pain^[17]. In this study, warm needling therapy was applied, that is to slub the moxa floss onto the needle handle and ignite it for moxibustion. The moxa has the effect of warming the meridian to dissipate cold. The burning heat of the moxa can double the effect of moving qi to free the collaterals^[18-19]. The results of this study indicated that warm needling therapy had a better curative effect than ordinary acupuncture in treating chronic lumbar strain.

Conflict of Interest

The authors declared that there was no potential conflict of interest in this article.

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Statement of Informed Consent

Informed consent was obtained from all individual participants or their relatives in this study.

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