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Effects of Duhuo Jisheng Decoction Combined with Warm Acupuncture and Moxibustion on ODI Index and Lumbar Activity of Patients with Lumbar Disc Herniation

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Abstract: *Objective:* To explore the effect of combining Duhuo Jisheng decoction with warm acupuncture and moxibustion in the treatment of patients with lumbar disc herniation. *Methods:* Using a random number table method, a total of 100 patients with lumbar disc herniation treated at Xianning Matang Hospital of Traditional Chinese Medicine from January 2021 to December 2023 were divided into a control group of 50 patients treated with Duhuo Jisheng decoction and a study group of 50 patients treated with Duhuo Jisheng decoction combined with warm acupuncture and moxibustion. The TCM syndrome scores, lumbar function, lumbar pain, and lumbar activity were compared between the two groups. *Results:* After intervention, the TCM syndrome scores, ODI, and VAS scores of both groups showed a decreasing trend compared to before intervention, and the decreasing trend was more significant in the study group ($P < 0.05$). After intervention, the JOA and lumbar activity indicators of both groups showed an increasing trend compared to before intervention, and the increasing trend was more significant in the study group ($P < 0.05$). *Conclusion*: Duhuo Jisheng decoction combined with warm acupuncture and moxibustion is an effective and safe treatment method for lumbar disc herniation, which can improve lumbar function and activity.

Keywords: Lumbar disc herniation; Lumbar function; Warm acupuncture and moxibustion; Lumbar activity; Duhuo Jisheng decoction

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1. Introduction

In recent years, the prevalence of lumbar disc herniation has been rising, making it a highly concerned low back pain disease. The mechanism of this disease is mainly related to the degenerative changes of the lumbar

intervertebral disc, leading to the rupture of the annulus fibrosus and the protrusion of the nucleus pulposus, which stimulates or compresses nerve roots. Although Western medical treatment methods are widely used, the effects cannot fully meet the needs of patients.

Duhuo Jisheng decoction is a classic traditional Chinese medicine prescription that has shown significant efficacy in the treatment of lumbar disc herniation. Its main mechanism of action is to improve the pathological state of patients, reduce pain and inflammatory reactions by nourishing the liver and kidney, harmonizing Qi and blood. The mechanism of warm acupuncture and moxibustion involves improving the microcirculation of peripheral nerve tissue, interfering with the transmission of neurotransmitters, reducing inflammatory reactions, etc., which can significantly relieve pain and bring significant benefits to patients.

Professor Zhen Wanxiong is the fourth-generation representative inheritor of the national intangible cultural heritage "Zhen's Rheumatism Nux Vomica Therapy". He is one of the top ten famous doctors in southern Hubei. He is proficient in classic theories of traditional Chinese medicine and has been engaged in the treatment and research of rheumatism with traditional Chinese medicine for more than 50 years. He has rich experience in the treatment of rheumatism. This study summarizes the efficacy of Professor Zhen's treatment of lumbar disc herniation with Duhuo Jisheng decoction combined with warm acupuncture and moxibustion, to find a more effective treatment plan.

2. Materials and methods

2.1. General information

Using a random number table method, a total of 100 patients with lumbar disc herniation admitted to Xianning Matang Hospital of Traditional Chinese Medicine from January 2021 to December 2023 were divided into two groups. The control group consisted of 28 males and 22 females, aged between 23 and 69 years (average age 47.25 ± 4.72 years), including 17 cases at L3–4 segment, 19 cases at L4–5 segment, and 14 cases at L5–S1 segment. The study group included 26 males and 24 females, aged between 22 and 70 years (average age 48.57 ± 4.25 years), with 16 cases at L3–4 segment, 18 cases at L4–5 segment, and 16 cases at L5–S1 segment. There was no significant difference in general information between the two groups ($P > 0.05$).

The inclusion criteria consisted of: (1) Diagnosed by X-ray and CT and meet the diagnostic criteria for lumbar disc herniation in both Chinese and Western medicine [1]; (2) The patient is informed and voluntarily participates.

Exclusion criteria: (1) Presence of mental disorder; (2)Combined with chronic diseases such as coronary heart disease, malignant tumors, diabetes, etc.; (3) Severe osteoporosis; (4) Lumbar trauma; (5) Coagulation dysfunction; (6) Withdraw from the study midway.

2.2. Methods

The control group was treated with Duhuo Jisheng decoction. The composition of the prescription includes 15g each of prepared *Rehmannia* root and *Codonopsis*, 12g each of angelica, white peony root, and Chuanxiong, 10g each of huai beef knee, cinnamon, single live, *Eucommia*, Poria cocos, mulberry parasitism, and large-leaved gentian, 9g of windproof, 6g of moxibustion licorice, and 3g of *Asarum*. For patients with lower extremity numbness symptoms, an additional 10g of black snake and earthworm can be added. When patients experience chills and severe pain, an additional 3g of Chuan Wu can be added. Add the medicinal materials to 1000ml of water, boil them into a 300ml medicinal juice, take it warm twice a day, morning and evening, one dose per day.

The study group introduced warm acupuncture on the basis of the control group, using medical alcohol for comprehensive disinfection. Choose disposable acupuncture needles, and use the twisting and inserting technique to acupuncture the bilateral jiaji acupoints, shenshu acupoints, and the affected side's huantiao acupoints, zhibian acupoints, weizhong acupoints, yaoyangguan acupoints, and mingmen acupoints vertically. During the acupuncture process, according to the patient's feeling level, flexibly use the flat compensation and flat diarrhea method for acupuncture adjustment. Select an *Artemisia argyi* with a length of 2 centimeters, ignite one end, and insert the ignited end into the handle of the disposable acupuncture needle. Lay a piece of paper on the skin surface to prevent the *Artemisia argyi* from harming the skin. Two *Artemisia argyi* are used for each treatment, and the treatment is performed once a day. Both groups were treated continuously for 4 weeks.

2.3 Observation indicators

2.3.1. Scores of TCM syndrome

The syndromes were scored based on the criteria of none, mild, moderate, and severe, denoted as 0, 2, 4, and 6 points respectively. The score is directly proportional to the severity of the syndrome.

2.3.2. Lumbar function indicators

The Japanese Orthopaedic Association (JOA) score ranges from 0 to 29, with higher scores indicating less lumbar dysfunction [2]. The Visual Analogue Scale (VAS) ranges from 0 to 10, with higher scores indicating greater pain intensity [3]. The Oswestry Disability Index (ODI) ranges from 0 to 50, with higher scores indicating greater dysfunction [4].

2.3.3. Lumbar range of motion indicators

A goniometer was used to measure the lumbar range of motion during flexion, extension, and lateral bending movements.

2.4. Statistical methods

Data were analyzed using SPSS 22.0 statistical software. Measurement data and enumeration data were expressed as ($\bar{x}\pm s$) and n(%), respectively. The t-test and $\chi 2$ test were used for comparison between groups. A P-value < 0.05 was considered statistically significant.

3. Results

3.1. Comparison of TCM syndrome scores between two groups

There was no significant difference in TCM syndrome scores between the two groups before intervention (P > 0.05). After intervention, the TCM syndrome scores of both groups showed a decreasing trend compared to before intervention and the decreasing trend was more significant in the study group (P < 0.05). See **Table 1**.

Table 1. Comparison of TCM syndrome scores between two groups, ($\bar{x}\pm s$, points)

Group	Lumbar and back pain		Purple tongue	
	Before intervention	After intervention	Before intervention	After intervention
Study group (n = 50)	5.13 ± 0.25	1.82 ± 0.16	4.98 ± 0.16	2.11 ± 0.36
Control grou (n = 50)	5.12 ± 0.28	2.52 ± 0.37	5.02 ± 0.25	2.85 ± 0.21
t-value	0.188	12.279	0.953	12.555
P-value	0.851	0.001	0.343	0.001
Group	**Stiff waist**		**Fatigue and weakness**	
	Before intervention	**After intervention**	**Before intervention**	**After intervention**
Study group (n=50)	5.02 ± 0.21	1.91 ± 0.34	5.01 ± 0.31	2.02 ± 0.28
Control grou (n=50)	5.04 ± 0.23	2.48 ± 0.25	5.02 ± 0.37	2.83 ± 0.29
t-value	0.454	9.551	0.146	14.208
P-value	0.651	0.001	0.884	0.001

Note: Compared with the data before intervention in this group, $P < 0.05$ is denoted by *.

3.2. Comparison of lumbar function between two groups

There were no significant differences in ODI, VAS, and JOA scores between the two groups before intervention ($P > 0.05$). After intervention, the JOA scores of both groups showed an increasing trend compared to before intervention, and the increasing trend was more significant in the study group. The ODI and VAS scores of both groups showed a decreasing trend compared to before the intervention and the decreasing trend was more significant in the study group ($P < 0.05$), as shown in **Table 2**.

Table 2. Comparison of lumbar function between two groups, ($\bar{x}\pm s$, points)

Group	ODI		VAS		JOA	
	Before intervention	After intervention	Before intervention	After intervention	Before intervention	After intervention
Study group (n = 50)	35.13 ± 2.61	13.13 ± 1.61*	6.97 ± 0.13	1.95 ± 0.22*	10.13 ± 1.61	22.67 ± 2.61*
Control grou (n = 50)	35.12 ± 1.47	14.97 ± 1.44*	6.98 ± 0.41	2.26 ± 0.74*	10.15 ± 1.47	19.63 ± 1.28*
t-value	0.024	6.023	0.164	2.839	0.065	7.395
P-value	0.981	0.001	0.870	0.005	0.948	0.001

Note: Compared with the data before intervention in this group, $P < 0.05$ is denoted by *.

3.3. Comparison of lumbar range of motion between two groups

There was no significant difference in lumbar range of motion indicators between the two groups before intervention ($P > 0.05$). After intervention, the lumbar range of motion indicators of both groups showed an increasing trend compared to before intervention, and the increasing trend was more significant in the study group ($P < 0.05$). Refer to **Table 3** for details.

Table 3. Comparison of lumbar range of motion between two groups, ($\bar{x}\pm s$, °)

Group	Forward bend		Left bend	
	Before intervention	After intervention	Before intervention	After intervention
Study group (n = 50)	51.31 ± 2.67	73.16 ± 3.61*	26.31 ± 2.13	32.16 ± 1.61*
Control group (n = 50)	51.28 ± 2.44	68.49 ± 2.22*	26.29 ± 2.74	30.08 ± 1.74*
t-value	0.059	7.792	0.041	6.204
P-value	0.953	0.001	0.968	0.001
Group	**Right bend**		**Back bend**	
	Before intervention	**After intervention**	**Before intervention**	**After intervention**
Study group (n=50)	25.31 ± 2.13	31.97 ± 1.51*	25.16 ± 1.31	31.67 ± 1.62*
Control group (n=50)	25.23 ± 2.47	28.49 ± 1.67*	25.15 ± 1.47	29.62 ± 1.42*
t-value	0.173	10.930	0.036	6.729
P-value	0.863	0.001	0.971	0.001

Note: Compared with the data before intervention in this group, $P < 0.05$ is denoted by *.

4. Discussion

Lumbar disc herniation is a clinically common disease that often occurs due to damage or external impact to the lumbar disc, leading to rupture of the fibrous ring of the disc and protrusion of the internal nuclear pulp material, causing a series of symptoms. Traditional Chinese medicine theory believes that lumbar disc herniation is caused by deficiencies in the liver and kidneys, as well as poor circulation of Qi and blood. The classic Chinese medicine formula Duhuo Jisheng decoction is considered an effective treatment for this disease, achieving comprehensive conditioning effects such as nourishing the liver and kidneys, promoting meridian circulation, nourishing qi and blood, and eliminating dampness and pain [5].

Besides Chinese herbal medicine, acupuncture therapy is also one of the effective methods for treating lumbar disc herniation [6]. As a special acupuncture technique, warm acupuncture effectively promotes blood circulation and accelerates metabolism in the affected area by applying gentle stimulation to specific acupoints, thereby reducing nerve root inflammation and edema in patients. Simultaneously, warm acupuncture can inhibit inflammatory reactions within the lumbar spine and enhance lumbar function [7].

The study group showed better results in terms of TCM syndrome scores, ODI scores, and VAS scores compared to the control group ($P < 0.05$). These findings suggest that the combination of Duhuo Jisheng decoction and warm acupuncture is effective in improving lumbar function and lumbar range of motion in patients with lumbar disc herniation. The reasons for these positive effects can be attributed to the specific ingredients of Duhuo Jisheng decoction. For instance,

(1) *Rehmannia glutinosa* can fill the deficiency of essence and blood, meeting the body's nutritional needs;

(2) *Codonopsis pilosula* has the effect of nourishing blood and generating body fluid, effectively improving blood circulation and enhancing immunity;

(3) *Eucommia ulmoides*, *Loranthus parasiticus*, and *Cyathula officinalis* are beneficial to the liver and kidneys, helping to improve their functions and promote metabolism;

(4) The combination of *Cinnamomum cassia*, *Angelica pubescens*, Poria cocos, and *Gentiana macrophylla*

can produce a synergistic effect, dispelling wind and relieving pain, and alleviating physical discomfort;

(5) *Paeonia lactiflora* not only has the effect of calming the liver and relieving pain but also nourishes blood, playing a role in pain relief;

(6) *Saposhnikovia divaricata* can dispel wind, relieve exterior syndromes, and has the effect of promoting blood circulation and relieving pain, suitable for pain caused by wind-cold;

(7) *Asarum sieboldii* can dispel wind, relieve pain, and expel cold from the exterior, having a certain effect on wind-cold pain;

(8) *Angelica sinensis* and *Ligusticum chuanxiong* can promote blood circulation and remove blood stasis, improve blood circulation, and effectively relieve pain symptoms caused by blood stasis;

(9) *Glycyrrhiza uralensis* coordinates with other medicinal herbs, enhancing the overall effect of the prescription and having a synergistic effect on nourishing the liver and kidneys, promoting blood circulation and relieving pain, nourishing blood, and other aspects [8].

Warm acupuncture regulates Qi and blood circulation and promotes physical health by selecting specific acupoints for acupuncture and moxibustion. The acupoints selected in this study include Jiaji, Shenshu, Weizhong, Yaoyangguan, Mingmen, Huantiao, and Zhibian. As an important acupoint connecting the Du meridian and Bladder meridian, Jiaji can effectively regulate Qi and blood circulation and promote physical health and balance through appropriate acupuncture. Shenshu, as one of the key acupoints of the Bladder meridian of Foot Taiyang, can effectively tonify the kidneys and strengthen Yang, enhancing the health status of the waist and bones through timely stimulation. Weizhong, an important confluence point of the Bladder meridian of Foot Taiyang, can effectively relieve tension in the meridians and help soothe physical discomfort through acupuncture [9]. Yaoyangguan, one of the commonly used acupoints in the Du meridian, can effectively dispel cold and dampness, warm the meridians, and promote Qi circulation through acupuncture. Mingmen is located on the Du meridian and is a key acupoint where Qi and blood from the kidneys concentrate on the back. Acupuncture at Mingmen can warm and nourish kidney yang, relax muscles, and stop spasms. Huantiao is one of the acupoints of the Gallbladder meridian of Foot Shaoyang. Acupuncture at this point can relieve rheumatic pain and soothe symptoms of waist and leg discomfort. Zhibian belongs to the Bladder meridian of Foot Taiyang, and appropriate stimulation can clear the meridians and enhance waist and knee strength [10].

Warm acupuncture combines acupuncture and moxibustion, having the effects of dispelling cold and dampness, promoting blood circulation, and dredging meridians. The combination of warm acupuncture and the Chinese herbal medicine Duhuo Jisheng decoction exerts a synergistic effect, achieving better treatment results.

5. Conclusion

In summary, the combination of Duhuo Jisheng decoction and warm acupuncture is an effective and safe treatment method for lumbar disc herniation, which can not only improve lumbar function and range of motion but also reduce pain in the lumbar and back regions.

Disclosure statement

The authors declare no conflict of interest.

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