

# Meta-Analysis of Efficacy and Safety of Mongolian Medical Warm Acupuncture in the Treatment of Lumbar Disc Herniation

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**Abstract:** *Objective:* To systematically evaluate the safety and efficacy of Mongolian medical warm acupuncture in the treatment of lumbar disc herniation (LDH). *Methods:* CNKI, Wanfang, VIP, Pubmed, Embase, Cochrane Library, and other databases were searched. The randomized controlled trials (RCTs) on the treatment of LDH with Mongolian medical warm acupuncture were manually searched in the Chinese Journal of Ethnic Medicine, Chinese Journal of Mongolian Medicine, Journal of Inner Mongolia University for Nationalities, and Journal of Inner Mongolia Medical University. The search time limit was from January 2000 to October 2023. RevMan5.4 software was used to analyze the included and excluded literature. *Results:* A total of 8 RCTs involving 1,042 patients with LDH were included, with 551 patients in the observation group and 491 patients in the control group. The results of the meta-analysis showed that a total of 8 randomized controlled trials were included in the treatment of LDH with Mongolian medical warm acupuncture compared with simple acupuncture (RR = 1.18, 95% CI = [1.12, 1.23],  $P < 0.00001$ ). *Conclusion:* The total effective rate of Mongolian medical warm acupuncture for LDH is higher than that of simple acupuncture. However, due to the low quality of the literature included in this study, multi-dimensional, large sample size, and more rigorous clinical randomized trials are needed for further verification in the future. **Keywords:** Mongolian medical warm acupuncture; Lumbar disc herniation; Meta-analysis; Systematic review

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## 1. Introduction

Lumbar disc herniation (LDH) is a degenerative disease characterized by degenerative cartilage damage at the joint of the lumbar disc and reactive hyperplasia of the joint edge and subchondral bone. The main clinical manifestations of LDH are joint pain, tenderness, stiffness, joint swelling, and limited activity caused by aging, obesity, fatigue, and trauma<sup>[1]</sup>. This disease often causes great pain and seriously affects the quality of life of patients. However, up to now, there is still no effective drug to prevent the progression of the disease, which is only used to relieve the pain<sup>[2]</sup>. However, Mongolian medicine has unique advantages and rich experience in the treatment of degenerative osteoarthopathy<sup>[1]</sup>. Mongolian medical warm acupuncture, as a safe and non-invasive therapy, has been widely used in the clinical treatment of degenerative osteoarthopathy and has achieved significant curative effects.

Traditional Chinese medicine believes that LDH is caused by liver and kidney deficiency, qi stagnation and blood stasis, and external pathogens<sup>[3]</sup>. Acupuncture, as one of the treatment methods of traditional Chinese medicine, is reported to have a good effect on relieving low back pain, leg pain, and lumbar spine dysfunction, and can increase the  $\beta$ -EP levels in the blood<sup>[2]</sup>. According to Mongolian medicine, LDH is the imbalance of Heyi, Xila, and Badagan at TMM points. Qi and Xiri Wusu are concentrated in the lumbar joints, surrounding tissues, muscles, and fascia, leading to dysfunction of the white vessel. Therefore, LDH is considered a “white vein disease”<sup>[2]</sup>. Currently, several studies have found that Mongolian medical warm acupuncture can improve the curative effect of LDH. In a study of 73 patients with LDH treated with Mongolian medical warm acupuncture at the three points of the spine and Badagan points. After 20 days of treatment, the overall effective rate was 94.59%. After 20 days of treatment, the VAS score and serum IL-1 $\beta$  and TNF- $\alpha$  levels were significantly lower than before treatment<sup>[2]</sup>. Other clinical practices have also shown that Mongolian medical warm acupuncture can improve the curative effect of LDH in a short time and reduce the degree of pain in patients<sup>[2]</sup>. However, due to the limitation of research quality, it is relatively difficult to provide reliable scientific guidance for clinical practice. Therefore, this study uses the method of evidence-based medicine to analyze the effect of Mongolian medical warm acupuncture on LDH, thereby providing a reference for clinical practice.

## **2. Data and methods**

### **2.1. Inclusion criteria**

#### **2.1.1. Literature inclusion criteria**

The studies included mainly randomized controlled trials on the treatment of LDH with Mongolian medical warm acupuncture. According to the Diagnostic Efficacy Criteria of Mongolian Medicine and the External Treatment Method of Mongolian Medicine<sup>[3]</sup>, the patients who were diagnosed with lumbar disc herniation were not limited to age, gender, race, etc.

#### **2.1.2. Intervention measures**

The observation group was treated with Mongolian medical warm acupuncture and the control group was treated with acupuncture therapy. The design of the control group and the observation group was the same, and the conventional treatment was symptomatic treatment such as pain and stiffness.

#### **2.1.3. Quality evaluation criteria**

The bias risk assessment tool provided by Cochrane Reviewers Handbook 5.1 was used to evaluate the quality of the literature. Seven factors were evaluated by “yes” (low risk), “no” (high risk), or “unclear” (unknown risk), including random allocation method, allocation method concealment, subjects and grantor using each other’s blinding method, whether to follow up, data integrity, selective reporting, and other bias factors. In case of disagreement, the decision was made by the discussion group or by consulting experts.

### **2.2. Exclusion criteria**

Non-randomized controlled study literature, exclusion of the observation group using non-Mongolian medical warm acupuncture of LDH literature, repeated income studies, animal experiments and review literature, can not extract the full text of the literature.

### **2.3. Diagnostic criteria**

Diagnostic criteria were based on the “Criteria for the Diagnosis and Efficacy of Diseases and Syndromes of

Mongolian Medicine” and the “Clinical Therapy of Mongolian Medicine”.

## 2.4. Data extraction

The eligible studies were first screened by reading the titles and abstracts of a large number of literatures, and then further screened by reading the full text. If the content of the study is incomplete and the information is missing, the original authors can be contacted to collect the full-text information.

## 2.5. Statistical analysis

RevMan 5.4 software was used to analyze the data for this study. Depending on the heterogeneity of the data, the risk ratio (RR) was used for binary variables, and the variance and 95% confidence interval (CI) were used for continuous data. If  $P > 0.1$  and  $I^2 < 50\%$ , indicating small heterogeneity, a fixed-effect model was used for analysis. The Q test was used for the heterogeneity test, and  $I^2$  was used to describe the extent of heterogeneity. If  $I^2 > 50\%$ , indicating significant heterogeneity, studies with large clinical heterogeneity or poor methodological quality were excluded, followed by a sensitivity analysis of the remaining articles. If the heterogeneity among the results of each study was too large, a descriptive analysis was performed.

## 3. Results

### 3.1. Literature retrieval results

In this study, a total of 276 studies were retrieved according to the research situation and search strategy, and 216 studies were deleted due to duplication and unable to extract the full text. The final number of literatures meeting the criteria was 8.

### 3.2. Basic information of the included studies

Eight randomized controlled trials were included in this study, with 1,042 patients in total, 551 patients in the observation group, and 491 patients in the control group. The primary outcome index of the included literature was the total effective rate. Basic information is provided in **Table 1**.

**Table 1.** Characteristics of the included literature

Literature	Observation group	<i>n</i>	Control group	Treatment duration	Outcome indicators
He 2021 <sup>[8]</sup>	Mongolian medical warm acupuncture	52	Tuina therapy	Once per 2 days for a total of 14 days	Total effective rate
Bao 2021 <sup>[9]</sup>	Mongolian medical warm acupuncture	120	Acupuncture treatment	Once per 2 days for a total of 20 days	Total effective rate
Jing 2016 <sup>[10]</sup>	Mongolian medical warm acupuncture	63	Acupuncture treatment	Once per day for a total of 14 days	Total effective rate
Bai 2016 <sup>[11]</sup>	Mongolian medical warm acupuncture	60	Acupuncture treatment	Once per 2 days for a total of 20 days	Total effective rate
Bai 2023 <sup>[12]</sup>	Mongolian medical warm acupuncture	61	Tuina therapy	Once per 2 days for a total of 28 days	Total effective rate
Nacun 2018 <sup>[13]</sup>	Mongolian medical warm acupuncture	45	Acupuncture treatment	Once per 2 days for a total of 20 days	Total effective rate
Jin 2019 <sup>[14]</sup>	Mongolian medical warm acupuncture	100	Acupuncture treatment	Once per day for a total of 14 days	Total effective rate
Alatengqimuge 2011 <sup>[15]</sup>	Mongolian medical warm acupuncture	50	Acupuncture treatment	Once per 2 days for a total of 14 days	Total effective rate

### 3.3. Quality assessment of included literature

Six out of the eight included studies mentioned randomization, with one study describing the method of randomization. Four studies used the blinding method. However, none of the articles mentioned the use of outcome assessment blinding, attrition bias, or selective reporting. Eight studies reported the overall response rate, two studies reported adverse reactions, and none of the studies mentioned other biases.

### 3.4. Results of meta-analysis

#### 3.4.1. Total effective rate analysis

A total of 8 studies reported the total response rate, involving 1,042 patients, 551 in the observation group, and 491 in the control group. According to the Q test, there was no heterogeneity ( $P = 0.47$ ,  $I^2 = 0\%$ ), so the fixed effect model was used, and the results were statistically significant [RR = 1.18, 95% CI (1.12, 1.23),  $P < 0.00001$ ]. It can be seen that the effective rate of the observation group was significantly higher than that of the control group (Figure 1).

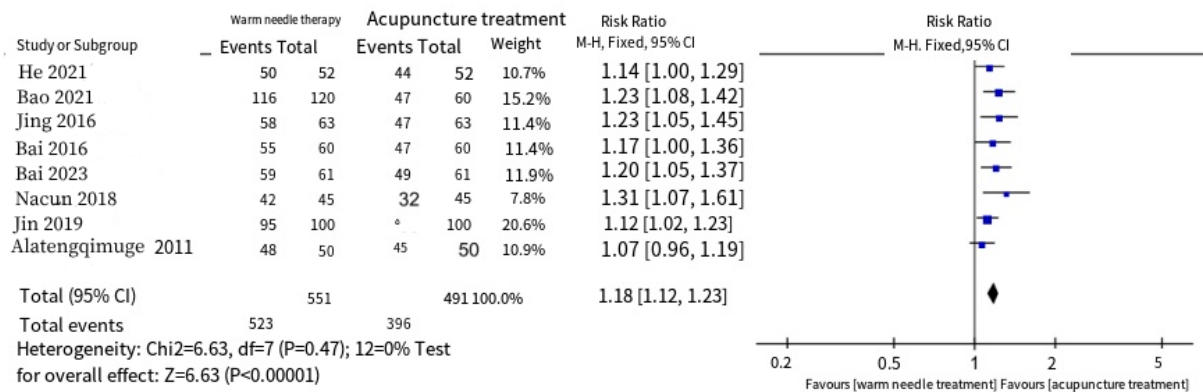


Figure 1. Forest maps for 8 literatures

#### 3.4.2. Publication bias analysis

From the perspective of systematic review, the possibility of bias is unlikely, and many factors such as the low quality of the included studies or small sample size are considered (Figure 2).

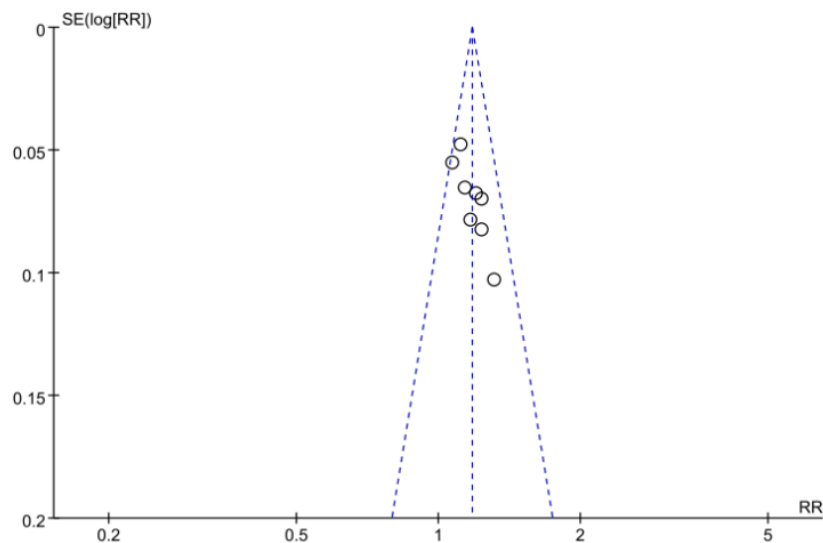


Figure 2. Publication bias plot of the eight articles

## 4. Discussion

In this meta-analysis, 1–3 acupoints were selected from “Segujin,” “Guya,” “Daheimo,” “Baolaqinggaole,” “Baolaqingdaori,” and “Gada Rixia ari” among the 8 included studies for treatment<sup>[8-15]</sup>. The Traditional Therapy of Mongolian Medicine states<sup>[13]</sup>: “The effect of warming acupuncture therapy of Mongolian medicine on LDH is to regulate the circulation law of the three roots, effectively improve the circulation of heyi blood, dredge white veins, and relieve pain.” Mongolian medicine believes that the cause of LDH is the imbalance of the three roots, which leads to the unfavorable circulation of pulse and the obstructed circulation of qi and blood. Mongolian medical warm acupuncture can smooth the local heyi and blood circulation by needling local acupoints and heating stimulation with moxa sticks, thereby achieving pain relief. Therefore, the treatment of LDH needs to start with improving and dredging the aforementioned acupoints on the waist.

From the perspective of neuroanatomy, the “Segujin” point is surrounded by the corresponding spinal nerves, and the acupoint is the intersection point of Baimai and Heyi. Therefore, Mongolian medical warm acupuncture on this acupoint greatly enhances the curative effect on lumbar intervertebral disc issues<sup>[3]</sup>. There is no significant deviation in the funnel plot of the meta-analysis of Mongolian medical warm acupuncture for LDH, which meets the basic requirements of meta-analysis. LDH is often accompanied by facet joint disorder or bone malalignment. Mongolian medical warm acupuncture can relieve the soft tissue of the lumbar intervertebral disc, reduce the pressure on the intervertebral disc, and restore the normal anatomical function sequence of the lumbar intervertebral disc, thereby improving the compression state of the nerve roots. The heat energy from Mongolian medical warm acupuncture can be transmitted to the deep pain site, spreading to the deep muscle tissue and directly reaching the periosteum. This effect cannot be achieved by general external physical therapy<sup>[14]</sup>. This argument supports the theory that warm acupuncture in Mongolian medicine allows heat energy to pass into the body through the needle, improving heyi and blood circulation, dredging white veins, and relieving pain.

The results of this meta-analysis fully verified that Mongolian medical warm acupuncture can significantly improve the clinical symptoms and signs of LDH. However, there is a relative lack of long-term follow-up records in the selected literature. Moreover, there is a lack of unified, standardized, and complete clinical efficacy evaluation indices for the treatment of LDH. Therefore, the results of this study may be limited and one-sided<sup>[4]</sup>.

The quality of the 8 studies included in this study was relatively low. The main reasons are that the generation and allocation schemes of random methods, and the implementation of hidden methods, may not be clear or appropriate, and most of them are not blinded, leading to potential measurement biases. In addition, there was no description of the compliance of the recipients or the number or reasons for withdrawal or dropout<sup>[5]</sup>. In the future, the possibility of various biases can be reduced in the design of clinical trial plans. In the report of clinical trials, the methodology should be described in detail, including the diagnostic criteria of cases, inclusion and exclusion criteria, dropout reasons, and compliance analysis of recipients. It is recommended to select efficacy evaluation indicators that are closer to the recipients and have more practical value, such as the evaluation of quality of life scales, to better assess efficacy and safety<sup>[6]</sup>.

The funnel plot of this study showed asymmetry, which may indicate a risk of publication bias. However, the number of eligible studies was small, and negative results were usually not reported in the literature, impacting the judgment and analysis of the study results<sup>[7]</sup>.

In conclusion, Mongolian medical warm acupuncture has advantages in the treatment of LDH. More high-quality randomized controlled trials are needed to further confirm its curative effect. Multicenter randomized controlled trials with more rigorous designs and larger sample sizes are recommended to evaluate the efficacy and safety of Mongolian medicine warming needle therapy in the treatment of LDH.

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## Disclosure statement

The authors declare no conflict of interest.

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