



Efficacy of Combined Acupuncture, Medication, and Moxibustion in Improving Constipation and Abdominal Distension in Elderly Patients with Stable Thoracolumbar Fractures

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Abstract: *Objective:* This study observed the therapeutic efficacy and safety of a combined acupuncture, medication, and moxibustion regimen in bedridden elderly patients with stable thoracolumbar fractures, specifically regarding constipation and abdominal distension, aiming to provide a reference for the clinical management of such patients. *Methods:* A total of 80 elderly patients with stable thoracolumbar fractures admitted to our hospital from January 2025 to June 2026 were enrolled. Using a computer-generated random number table, all cases were divided into a study group and a control group, with 40 patients in each group. The control group received oral lactulose. The study group received all treatments of the control group plus oral Shangke Tongfu Decoction, combined with acupuncture and moxibustion as a combined intervention. The study compared abdominal distension manifestations and defecation-related conditions before and after treatment between the two groups. *Results:* The total effective rate was 90.00% in the study group and 70.00% in the control group, with a statistically significant difference between groups ($p < 0.05$). Before treatment, the PAC-SYM scores of the two groups were similar, with no statistically significant difference ($p > 0.05$). After treatment, the scores of both groups decreased, and the scores in the study group were lower than those in the control group, with a statistically significant difference ($p < 0.05$). *Conclusion:* Elderly patients with stable thoracolumbar fractures are prone to constipation and abdominal distension after bed rest. The combined treatment of acupuncture, medication, and moxibustion can achieve favorable therapeutic effects, alleviate constipation and abdominal distension-related symptoms, and provide a certain reference for clinical practice.

Keywords: Acupuncture; Chinese herbal medicine; Moxibustion; Elderly stable thoracolumbar fractures; Constipation; Abdominal distension

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1. Introduction

As the proportion of elderly people in China continues to rise, we are compelled to confront thoracolumbar fractures caused predominantly by osteoporosis and violent trauma, which pose a tremendous threat to

the physical health and even life safety of the elderly. Clinically, spinal fractures are mostly located in the T11–L2 segments, accounting for 90% of all spinal fracture cases ^[1]. The thoracolumbar segment lies at the junction between the thoracic and lumbar vertebrae, where the physiological curvature of the spine transitions from kyphosis to lordosis. This region bears concentrated forces transmitted from above and below, making fractures more likely to occur at this segment ^[2]. When elderly patients with such fractures choose conservative treatment and prolonged bed rest, gastrointestinal dysfunction is a relatively common complication. Available research data show that after thoracolumbar fractures, the incidence of gastrointestinal dysfunction can reach 40–88% ^[3,4]. Abdominal distension and constipation are among the most common complications of this type of fracture, exerting certain effects on patients' psychological state, daily activities, food intake, sleep quality, and even disease recovery. In Western medicine, for abdominal distension and constipation after bed rest in patients with thoracolumbar fractures, drugs such as bisacodyl, glycerine enema, and lactulose are generally used for symptomatic management. After repeated use of these drugs, patients' intestinal stress response capacity may decline, and some patients may develop intestinal dysfunction, with constipation symptoms actually worsening further ^[5]. Faced with this problem, clinical practice needs to identify safe and effective intervention methods that also align with the diagnostic and therapeutic principles of traditional Chinese medicine, in order to improve constipation and abdominal distension caused by prolonged bed rest in elderly patients with stable thoracolumbar fractures. The authors believe that after a thoracolumbar fracture, the circulation of Qi and blood in the human body is obstructed; Qi stagnation and blood stasis mutually affect each other; turbid Qi within the body cannot be discharged normally; and the movement of fu-Qi is unsmooth. Turbid Qi accumulates in the stomach and intestines, thereby producing abdominal distension. When Qi movement in the middle jiao is obstructed, patients experience difficulty eating, and defecation is also impeded, manifesting as abdominal distension and constipation. Based on the theoretical approach of “treating different diseases with the same method” in traditional Chinese medicine, and drawing on previous experience with Shangke Tongfu Decoction in treating constipation in elderly patients with hip fractures, this study combined acupuncture and moxibustion as two external therapeutic methods to observe the actual effects of this comprehensive intervention on constipation and abdominal distension in bedridden elderly patients with stable thoracolumbar fractures.

2. Materials and methods

2.1. General information

This study enrolled a total of 80 subjects. All cases were bedridden elderly patients with stable thoracolumbar fractures who presented with constipation and abdominal distension and were admitted to the Department of Orthopedics, Fangta Hospital of Traditional Chinese Medicine, Songjiang District, Shanghai, from January 2025 to June 2026. All cases were grouped using a computer-generated random number allocation method. The study group and control group each included 40 patients. The study group comprised 24 males and 16 females, with an age range of 65–82 years and a mean age of 73.32 ± 5.677 years. The control group comprised 23 males and 17 females, with an age range of 65–82 years and a mean age of (73.84 ± 6.536) years. Fracture sites in both groups were concentrated at T11–L2. There were no statistically significant differences between the two groups in age, sex proportion, fracture site, disease duration, or baseline symptom data before treatment ($p > 0.05$), indicating that the two groups were comparable.

2.1.1. Inclusion criteria

- (1) Subjects had to meet the diagnostic criteria for thoracolumbar fracture (Qi stagnation and blood stasis with possible concurrent Qi and blood deficiency syndrome) and gastrointestinal dysfunction;
- (2) Age ≥ 60 years, disease duration ≤ 2 weeks;
- (3) No confirmed intestinal organic disease before fracture onset, and no history of long-term laxative use;
- (4) Defecation interval > 3 days;
- (5) Normal mental status, able to cooperate with the entire treatment process, aware of the study content, and having signed informed consent.

2.1.2. Exclusion criteria

- (1) During the study, subjects did not follow medical advice regarding medication, refused to cooperate with treatment, or privately used other drugs that could interfere with study results;
- (2) Subjects experienced drug allergy, severe gastrointestinal discomfort, or other adverse reactions during treatment.

2.2. Treatment methods

The control group received oral lactulose solution at a single dose of 10 mL, three times daily. When patients had dry, hard stools that were difficult to pass, glycerine enema was administered to assist defecation. The study group retained all therapeutic measures of the control group and additionally received oral Shangke Tongfu Decoction, combined with concurrent acupuncture and moxibustion interventions. The composition of Shangke Tongfu Decoction was as follows: *Scrophulariae Radix* 30 g, *Ophiopogonis Radix* 25 g, *Rehmanniae Radix* (raw) 25 g, *Astragali Radix* 20 g, *Codonopsis Radix* 9 g, *Atractylodis Macrocephalae Rhizoma* 9 g, *Angelicae Sinensis Radix* 15 g, *Persicae Semen* 10 g, *Carthami Flos* 10 g, *Citri Reticulatae Pericarpium* 10 g, *Rhei Radix et Rhizoma* 9 g, and *Natrii Sulfas* 4.5 g. The medicinal materials were decocted with cold water. A total of 5 doses were prepared, and each dose yielded 400 mL of decoction after decoction. The decoction was divided into 2 bags, and patients took the decoction warm half an hour after breakfast and dinner.

Acupuncture treatment: With the patient in a supine position, needles were inserted at Taichong (LR3), Tianshu (ST25), Zusanli (ST36), Yaoshu (GV2), Zhongwan (CV12), Zhigou (TE6), and Hegu (LI4). The appearance of soreness, numbness, distension, or pain after insertion was considered favorable. Electronic stimulation was applied to enhance acupoint stimulation. After DeQi, the needles were retained for 30 min. The treatment was administered once every 2 days, 3 times per week, for a total of 1 week.

Moxibustion treatment: Concurrently with acupuncture, a moxibustion box was used to apply moxibustion at bilateral Zusanli (ST36), Shenque (CV8), and Guanyuan (CV4) for approximately 15 minutes. Local warmth and redness without burning pain were considered appropriate. The treatment was administered once every 2 days, 3 times per week, for a total of 1 week.

2.3. Observation indicators

- (1) According to the Criteria of Diagnosis and Therapeutic Effect of Diseases and Syndromes in Traditional Chinese Medicine, the effective criterion was defined as: after treatment, bowel movements occurred once every 1 to 2 days, no laxatives were required, and abdominal distension disappeared. The improvement criterion was defined as: defecation time was shortened compared with before,

symptoms improved to some extent, laxatives were occasionally required, and abdominal distension was significantly alleviated. The ineffective criterion was defined as: no relief of constipation or abdominal distension.

- (2) The Patient Assessment of Constipation Symptoms (PAC-SYM) scale was used to record the severity of constipation and abdominal distension in both groups before and after treatment.
- (3) Research staff recorded the occurrence of various adverse reactions throughout the treatment in both groups.

2.4. Statistical methods

SPSS 26.0 statistical software was used for data processing in this study. Count data were expressed as percentages and tested using the χ^2 test. Measurement data were expressed as $\bar{x} \pm s$ and compared between groups using the t -test. $p < 0.05$ indicated that the difference between groups was statistically significant.

3. Results

3.1. Comparison of Sex and Age Between the Two Groups

The baseline sex distribution and age levels of the two groups were compared. No statistically significant differences were found between the groups ($p > 0.05$), indicating that the data were comparable. The specific data are shown in **Table 1**.

Table 1. Comparison of sex and age between the two groups ($\bar{x} \pm s$)

Group	n	Female	Male	Age (years) ($\bar{x} \pm s$)
Study group	40	16 (48.48%)	24 (51.06%)	73.32 $\pm$ 5.677
Control group	40	17 (51.52%)	23 (48.94%)	73.84 $\pm$ 6.536
Total	80	33	47	
Statistical test	$\chi^2 = 0.052$			$t = -0.300$
p value	0.820			0.765

3.2. Comparison of PAC-SYM indicators between the two groups before and after treatment

Before treatment, no statistically significant difference was found in the PAC-SYM scale scores between the two groups ($p > 0.05$). After all treatment procedures were completed, the scale scores of both groups decreased compared with their respective pre-treatment values, and the scores in the study group were lower than those in the control group, with a statistically significant difference between the groups ($p < 0.05$). The detailed data are presented in **Table 2**.

Table 2. Comparison of PAC-SYM indicators between the two groups before and after treatment (mean $\pm$ SD)

Group	Number of cases	Before treatment	After treatment	t value	p value
Study group	40	35.44 $\pm$ 3.15	8.92 $\pm$ 7.10	20.876	0.000
Control group	40	33.36 $\pm$ 2.66	15.08 $\pm$ 6.62	21.262	0.000
t value		-1.116	-3.173		
p value		0.270	0.003		

3.3. Comparison of treatment efficacy between the two groups

The effective rate in the study group was 90.00%, which was higher than 70.00% in the control group ($p < 0.05$), as shown in Table 3.

Table 3. Comparison of treatment efficacy between the two groups (n, %)

Group	Number of cases	Cured	Improved	Ineffective	Effective rate
Study group	40	16 (40.00%)	20 (50.00%)	4 (10.00%)	36 (90.00%)
Control group	40	8 (20.00%)	20 (50.00%)	12 (30.00%)	28 (70.00%)
χ^2					6.67
p					0.036

4. Discussion

Abdominal distension and constipation are complications frequently encountered in elderly patients with thoracolumbar fractures undergoing conservative treatment^[6]. Blood stasis develops at the fracture site and spreads into the surrounding tissue spaces, leading to the formation of a retroperitoneal hematoma. The hematoma compresses the adjacent sympathetic nerves, slowing intestinal peristalsis and giving rise to symptoms of abdominal distension and constipation^[7]. Conservative treatment of thoracolumbar fractures requires patients to remain bedridden for prolonged periods. Many patients cannot adapt to defecating in bed and voluntarily suppress the urge to defecate, which inhibits colonic peristalsis and further aggravates constipation^[8]. From the perspective of traditional Chinese medicine, the treatment can refer to the therapeutic principle of “treating obstruction with obstruction.” The focus is on tonifying Qi and blood, dredging the bowels, and resolving blood stasis. The sole use of laxative drugs can damage the patient’s vital Qi, whereas pure tonification may lead to stagnation of the bowel pathways. Only by combining the two approaches—dredging and tonifying—can vital Qi be supported while activating blood and unblocking the bowels. The data from this study show that the overall therapeutic effect in the study group was superior to that in the control group. The PAC-SYM scores in both groups decreased compared with pre-treatment values, with a greater improvement in the study group, and the differences between the two groups were statistically significant (both $P < 0.05$). The combination of Shangke Tongfu Decoction with acupuncture and moxibustion can improve constipation and abdominal distension in elderly patients with thoracolumbar fractures. The experimental results of this group corroborate the conclusions of previous related research by Xue Huohuo^[9]. The formula of Shangke Tongfu Decoction is derived from modifications of Zengye Chengqi Decoction, which has been used in the clinical management of gastrointestinal complications associated with fractures in the elderly. In this formula, Xuanshen (*Scrophulariae Radix*) serves as the sovereign drug, functioning to nourish Yin, moisten dryness, and promote defecation. Shengdihuang (*Rehmanniae Radix*) and Maidong (*Ophiopogonis Radix*) serve as minister drugs; their sweet and cold properties nourish Yin fluids, and the combination of these three herbs constitutes the compatibility concept of Zengye Decoction. Results from animal experiments indicate that Zengye Decoction can regulate the expression levels of NO and AQP3 in the colon of rats with slow-transit constipation, thereby exerting a laxative pharmacological effect^[10]. Huangqi (*Astragali Radix*), Dangshen (*Codonopsis Radix*), and Baizhu (*Atractylodis Macrocephalae Rhizoma*) help tonify the spleen and stomach Qi. Dahuang (*Rhei Radix et Rhizoma*) and Mangxiao (*Natrii Sulfas*) clear heat and purge accumulations. Danggui (*Angelicae Sinensis*

Radix) nourishes and activates blood and also has a bowel-moistening effect. Taoren (*Persicae Semen*) resolves blood stasis and helps lubricate the intestines. Honghua (*Carthami Flos*) activates blood and dissipates stasis, alleviating pain. Chenpi (*Citri Reticulatae Pericarpium*) regulates spleen and stomach Qi; combined with Dangshen and Baizhu, it tonifies Qi while promoting Qi movement, protecting the acquired foundation of the spleen and stomach. The above herbs together serve as assistant drugs. The combined compatibility of all these medicinals can achieve the effects of nourishing Qi, blood, and Yin fluids, resolving blood stasis, and dredging the bowels. Relying solely on oral decoction may yield limited improvement in abdominal distension and constipation in some elderly bedridden patients. In this study, on the basis of oral Chinese herbal medicine, two external therapeutic methods—acupuncture and moxibustion—were added. Acupuncture is relatively safe and can regulate intestinal defecation function. Related studies have shown that acupuncture treatment can alter the composition of intestinal flora in patients with constipation and enhance intestinal peristalsis ^[11]. Acupuncture can also regulate the release of colonic neurotransmitters, and the neuro-humoral regulatory pathway exerts corresponding effects on the enteric nerve plexus ^[12]. Moxibustion can increase local tissue blood flow, relieve intestinal spasm, and help restore disordered bodily functions. Multiple meta-analyses have demonstrated that moxibustion has good safety and therapeutic efficacy in the treatment of constipation ^[13,14]. Chinese herbal decoction, acupuncture, and moxibustion used alone can all produce some improvement in abdominal distension and constipation. However, studies on the combined use of these three modalities for constipation and abdominal distension caused by stable thoracolumbar fractures in the elderly are currently scarce. In this study, moxibustion was applied at Shenque (CV8), Guanyuan (CV4), and Zusanli (ST36); acupuncture was applied at Taichong (LR3), Tianshu (ST25), Zusanli (ST36), Yaoshu (GV2), Zhongwan (CV12), Zhigou (TE6), and Hegu (LI4) in combination, which can regulate Qi movement, dredge the bowels, and eliminate distension. The combination of acupoint intervention and oral decoction can further enhance the therapeutic effect. In this study, no obvious adverse reactions occurred in either group throughout the treatment course. The regimen of Shangke Tongfu Decoction combined with acupuncture and moxibustion has reliable clinical safety and can be promoted for clinical use.

5. Conclusion

Taken together with all the results of this study, the combined treatment of acupuncture, medication, and moxibustion for constipation and abdominal distension caused by bed rest in elderly patients with stable thoracolumbar fractures yields considerable therapeutic effects and ensures overall safety, making it suitable for reference and application in clinical practice.

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Disclosure statement

The author declares no conflict of interest.

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