

Exploring the Effect of Qi Cross-Shaped Moxibustion on the Recovery of Gastrointestinal Function after Hip Fracture in the Elderly

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Abstract: *Objective:* To explore the effect of Qi cross-shaped moxibustion on the recovery of gastrointestinal function in elderly hip fracture patients after surgery. *Methods:* 62 elderly hip fracture surgery patients were selected as the base analysis sample, enrolled in January 2023–May 2024, and divided into an observation group ($n = 31$) and a control group ($n = 31$) using the digital table random draw scheme. The patients in the control group underwent conventional dietary intervention, and the patients in the observation group underwent Qi cross-shaped moxibustion intervention, comparing the gastrointestinal function recovery time and quality of life scores (PAC-QOL) of patients with constipation between the two groups. *Results:* The gastrointestinal function recovery time of the observation group was lower than that of the control group ($P < 0.05$); the PAC-QOL score of the observation group was lower than that of the control group after the intervention ($P < 0.05$). *Conclusion:* Qi cross-shaped moxibustion can shorten the recovery time of gastrointestinal function and improve the quality of life of elderly hip fracture patients after surgery, and it has the value of promotion and application.

Keywords: Qi cross-shaped moxibustion; Hip fracture; Gastrointestinal function

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1. Introduction

Hip fracture is a common type of fracture in the elderly, mostly caused by external violence factors directly or indirectly, which can lead to hip pain movement disorders and other symptoms, and some patients are accompanied by joint deformity^[1]. Surgery is often used to treat elderly hip fractures, but the traumatic area of surgery is large, with different degrees of postoperative pain; patients need to stay in bed for a long period of time, which induces gastrointestinal dysfunction, causing constipation, abdominal distension, loss of appetite and other symptoms. In order to improve the postoperative recovery effect of elderly hip fracture patients, effective programs should be adopted to promote the recovery of gastrointestinal function. Western medicine mostly improves gastrointestinal function through diet and Western medicine symptomatic intervention programmes. Western medicine has a rapid onset of action, but Western medicine is prone to side effects that increase the burden on the gastrointestinal tract, resulting in prolonged recovery time^[2]. According to Chinese

medicine theory, the pathogenesis of postoperative gastrointestinal dysfunction after hip fracture in the elderly is Qi incompatibility and visceral stagnation and the treatment needs to be based on the principle of replenishing Qi, nourishing blood and clearing collaterals. Qi cross-shaped moxibustion belongs to the umbilical spacer moxibustion therapy, based on the theory of meridian acupoints, which has the efficacy of regulating the operation of Qi and blood, balancing Yin and Yang and harmonizing the internal organs^[3]. In this study, 62 samples of elderly hip fracture surgery patients were selected to explore the clinical effects of Qi cross-shaped moxibustion.

2. Information and methods

2.1. General information

Sixty-two cases of elderly hip fracture surgery patients were selected as the base analysis sample, enrolled in the time span of January 2023–May 2024 and were divided into an observation group ($n = 31$) and control group ($n = 31$) by using the random draw scheme of digital table. There were 17 males and 14 females in the observation group, and the age statistics were 65–86 years old with a mean value of 73.59 ± 2.91 years old. In the control group, there were 18 males and 13 females, and the statistical results of age were 65–85 years old, with a mean value of 73.66 ± 2.84 years old, and there was no significant difference in the general information of the patients in the two groups ($P > 0.05$).

Inclusion criteria: (1) Hip fracture was diagnosed by imaging examination and met the indications for surgery; (2) Normal function of major organs; (3) Know the content of the study and sign the informed consent document.

Exclusion criteria: (1) Combined with gastrointestinal diseases; (2) Combined with chewing and swallowing dysfunction, habitual diarrhea or constipation; (3) Combined with intra-abdominal haemorrhage, infection or bile leakage after surgery.

2.2. Methods

The patients in the control group are routine dietary intervention, followed by an explanation from healthcare personnel about the postoperative recovery period precautions, guiding patients to supplement protein, trace elements and other nutrients, reducing spicy and stimulating food, gas-producing food intake, guiding patients to complete respiratory training and defecation training, monitor the status of defecation and exhaustion of the patients, together with the use of gastric motivation drugs, pro-excretory drugs, gastrointestinal decompression and other program interventions.

The patients in the observation group referred to the program of the control group and increased the intervention of Qi cross-shaped moxibustion, which was implemented from the 1st postoperative day and continued until the 7th postoperative day and moxibustion was performed once a day. The medical staff instructed the patients to keep the supine position so that the “Shenque” acupoints were fully exposed, cleaned the local skin, and took the appropriate amount of medical raw tung oil (Mianyang Huiheng Trading Co., Ltd.) and evenly applied it around the umbilicus after the skin was dry. Take a sterile dry towel (with a hole of 5.7 cm in diameter in the center) to cover the abdomen so that the “Shenque” point is exposed. A porcelain bowl with an outer diameter of 5.7 cm (3.0 black gold bowl with models) is preheated with ignition, and the bowl mouth buckles in the back of the operator’s hand to feel the temperature to ensure that the temperature is appropriate after the bowl mouth downward inverted in the patient’s umbilicus, the bottom of the bowl side of the same kind of moxa made of the same specifications of the moxa pillars, lighting moxa pillars, burn out the column after the easy to moxibustion, acupuncture each time 3–5 strong. After completing the treatment, the porcelain

bowl is removed after the temperature is reduced, use sterile dry towels to dry the umbilical vapor.

2.3. Evaluation criteria

- (1) Statistics on the recovery time of gastrointestinal function of the two groups of patients; the indicators include the time of defecation, defecation time, and bowel sound recovery time.
- (2) Assess the quality-of-life scores (PAC-QOL) of constipated patients in the two groups before and after 7d of intervention; the scoring items are physical discomfort, worry and anxiety, psychosocial discomfort, each item is full of 50 points, and the higher the score, the worse the quality of life.

2.4. Statistical methods

SPSS 23.0 software to analyze the research data, measurement data, mean \pm standard deviation (SD) for *t*-test, count data % for χ^2 test, $P < 0.05$ for the existence of statistical level differences.

3. Results

3.1. Recovery time of gastrointestinal function in two groups

Table 1 confirms that the recovery time of gastrointestinal function of patients in the observation group was lower than that of the control group ($P < 0.05$).

Table 1. Recovery time of gastrointestinal function in two groups (mean \pm SD, h)

Groups	Bowel sounds recovery time	Ventilation time	Defecation time
Observation group ($n = 31$)	5.38 \pm 1.02	9.14 \pm 1.72	28.24 \pm 2.76
Control group ($n = 31$)	8.95 \pm 1.84	12.88 \pm 2.96	39.27 \pm 3.86
<i>t</i> -value	10.461	6.734	14.329
<i>P</i> -value	0.000	0.000	0.000

3.2. PAC-QOL scores of the two groups

Table 2 confirms that the PAC-QOL scores of the observation group were lower than those of the control group after the intervention ($P < 0.05$).

Table 2. PAC-QOL scores of the two groups (mean \pm SD, score)

Groups	Physical discomfort		Worry and anxiety		Psychosocial discomfort	
	Pre-intervention	Post-intervention	Pre-intervention	Post-intervention	Pre-intervention	Post-intervention
Observation group ($n = 31$)	40.08 \pm 2.53	19.21 \pm 1.86	41.27 \pm 4.38	22.03 \pm 1.96	38.94 \pm 4.25	21.68 \pm 1.45
Control group ($n = 31$)	40.12 \pm 2.59	27.58 \pm 3.05	41.35 \pm 4.46	29.18 \pm 2.77	39.02 \pm 4.33	30.24 \pm 2.88
<i>t</i> -value	0.062	13.045	0.071	11.732	0.073	14.781
<i>P</i> -value	0.951	0.000	0.943	0.000	0.942	0.000

4. Discussion

Hip fracture in the elderly is mostly caused by falls, external impact and other factors, which can lead to relief of swelling and pain, deformity and other symptoms, affecting the patient's activity function^[4]. Surgery is

the best treatment option for elderly hip fracture, but postoperative patients are bedridden for a longer period of time, limiting limb movement, resulting in slowing down the rate of gastrointestinal peristalsis, triggering symptoms such as poor defecation and the anesthesia drugs inputted into the patient's body during the operation can also affect the effect of restoration of gastrointestinal function, resulting in abdominal distention and pain and other symptoms and some patients are combined with intestinal adhesion or intestinal paralysis, which seriously affects the recovery of the postoperative period ^[5].

Western medicine is mostly used to promote gastric power drugs, laxative drugs, dietary guidance and other measures to promote the recovery of postoperative gastrointestinal function in elderly patients with hip fracture. Western drug therapy has a rapid onset of action but prolonged use of drugs can induce a variety of adverse reactions, which is not conducive to the early recovery of the patient's gastrointestinal function ^[6]. According to traditional Chinese medicine theory, elderly hip fracture surgery patients have a post-operative spleen and stomach Qi deficiency. Their Qi is not smooth, the passage and descent are abnormal, and intestinal stagnation leads to gastrointestinal tract dysfunction. Qi cross-shaped moxibustion is an umbilical spaceless moxibustion therapy, using moxa as fuel, placing it in the bottom of a porcelain bowl, inverting it onto the umbilical cord coated with raw tung oil and then completing the moxibustion treatment. During moxibustion treatment, the use of ignited moxa pillars to heat specific acupoints so that the skin temperature rises, the pores are in a state of diastole, and the components in the moxa can enter the internal meridian and act on the foci of the disease to achieve the therapeutic and health care efficacy ^[7-8]. According to the characteristics of the elderly hip fracture surgery patients, the selected acupoints for the intersection of Yin and Yang, Qi lifting and lowering of the hub of the Shenque point while moxibustion on the Shenque point can achieve the effect of dredging the internal organs and meridians and supporting the correct and solidifying the root, can accelerate the recovery of gastrointestinal function ^[9-10]. The Qi cross-shaped moxibustion on the Shenque point can form a slight negative pressure inside the bowl and promote the circulation of Yingwei Qi on the body surface. The temperature fluctuation when replacing the moxa pillars in the process of moxibustion can drive the Shenque part of the Qi running. When Qi flows smoothly, the blood flows smoothly. It can restore the balance of Yin and Yang and harmonization of internal organs and functions. Cross-shaped moxibustion treatment is simple to operate and easy to identify acupoints without pain and side effects. It can clear the postoperative gastrointestinal dysfunction of the disease mechanism and provide effective relief for a variety of symptoms.

The results of this study show that the recovery time of gastrointestinal function of patients in the observation group is lower than that of the control group, suggesting that postoperative cross-shaped moxibustion intervention can accelerate the recovery of gastrointestinal function in elderly hip fracture patients. It is found that pure Western medicine intervention mode cannot clear the disease mechanism, while drug treatment is prone to cause adverse reactions, increasing the patient's gastrointestinal burden. According to traditional Chinese medicine, the postoperative Qi of elderly hip fracture patients is in a stagnant state where part of the vital energy is dissipated and the Qi cannot be transported normally, which induces abdominal distension, constipation and other clinical symptoms. The use of regulating the function of the spleen and stomach and activating the blood circulation of the therapeutic solution can obtain relatively satisfactory results ^[11]. According to the meridian Chinese medicine theory, the navel belongs to the body's energy storage region. Qi cross-shaped moxibustion treatment takes the porcelain bowl inverted in the navel region. The use of lit moxa columns to implement the heating can dredge the intestinal meridians, activate the blood and Qi, replenish the Qi and nourish the blood so that the body gets moistened and nourished ^[12]. Moxibustion at Shenque acupoint can restore Yang, consolidate the root and cultivate vitality, and regulate the function of the stomach and intestines. Cross-shaped moxibustion treatment can directly act on specific areas of the gastrointestinal

tract, with a rapid onset of action, which can remove the basis of morbidity and thus accelerate the recovery of gastrointestinal function^[13]. During the treatment of cross-shaped moxibustion, the implementation of moxibustion at the bottom of the porcelain bowl can form a local negative pressure effect, which can stimulate the nerve tissues around the umbilicus, and by using the interactive regulation mechanism of the intestines and the brain, it can stimulate the secretion of hormones in the gastrointestinal tract, increase the total amount of secretion of digestive juices. This will then weaken the peristalsis of the gastrointestinal tract and increase the amount of movement of the intestinal smooth muscles, which will then alleviate the symptoms of constipation and bloating and put the patient's condition under effective control^[14]. This study confirmed that the PAC-QOL scores of patients in the observation group were significantly lower than those of the control group after treatment, suggesting that cross-shaped moxibustion can improve the patients' quality of life. Analyzing the reasons, it can be seen that the main feature of moxibustion is the use of moxa to smolder the acupuncture points, which can achieve the effect of warming the meridians, cultivating the distal and elevating the Yang. Cross-shaped moxibustion belongs to partition moxibustion, and its main feature is the use of moxa as the basic raw material. Then, the moxa pillars are placed in the bottom area of the ceramic bowl; the ceramic bowl is inverted in the navel and coated with raw tung oil above the navel, and moxibustion is carried out in a closed state. Cross-shaped moxibustion can produce a slight thermal negative pressure effect in the navel area, improving the specific navel circulation status and promoting blood microcirculation. The Shengtong applied during the treatment of cross-shaped moxibustion is a meridian-inducing drug, which has the effect of dispelling wind and directing the heat from the burning moxa columns to the meridian areas of the liver, spleen and kidneys to improve the function of the spleen and stomach. Cross-shaped moxibustion is a reasonable choice of acupuncture point. The navel area is Shenque point, belonging to the Yang point of Ren Chakra, moxibustion can improve the function of the heart and kidney, regulate Qi and blood, activate the blood and collaterals, regulate Qi and eliminate blood stasis, stimulate the meridian Qi of the bladder, improve the function of the bladder, and nourish the kidney Qi to improve the state of Qi and blood deficiency in the postoperative period of the elderly patients with hip fracture and speed up the recovery of the physiological function of the gastrointestinal tract. The latest research concluded that the main role of cross-shaped moxibustion is to promote gastric Qi circulation, regulate the balance of yin and yang in the organism, promote blood circulation and metabolism, restore the normal peristaltic ability of the gastrointestinal tract, enable early recovery of gastrointestinal function of the patients, and promote the improvement of the nutritional status of the patient's physiological functions, so as to improve the patient's quality of life significantly^[15].

5. Conclusion

In conclusion, the postoperative cross-shaped moxibustion intervention in elderly hip fracture patients can shorten the recovery time of gastrointestinal function, improve the quality of life, and have the value of promotion and application. In this study, the sample size of elderly hip fracture patients was small, no multi-center data cross-sectional comparison of the same type of study was carried out, the study time was relatively short, the specific process of the study still needs to be improved and adjusted, and the related mechanism of cross-shaped moxibustion treatment still needs to be further researched.

Disclosure statement

The author declares no conflict of interest.

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