

Research progress of TCM external treatment of constipation after fracture operation

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Abstract: Constipation after fracture surgery is a common symptom after fracture surgery, which not only seriously affects the quality of life of patients, but also causes internal environment disorders, which can induce anal fissures and hemorrhoids over time, and even increase the incidence of cardiovascular and cerebrovascular diseases. Patients with constipation who have not been cured for a long time will also have mental disorders and even suicidal tendencies. For the treatment of postoperative constipation after fracture, western medicine shows a rapid effect, but its duration is short, requiring frequent dosing, and long-term outcomes are not satisfactory. Traditional Chinese Medicine (TCM) external treatment methods, including acupuncture, massage, acupoint application, moxibustion, and auricular therapy with bean-seed pressing, have been widely used in clinical practice due to their good efficacy, simple operation, and lack of significant adverse reactions in treating postoperative constipation after fracture. This article reviews and briefly analyzes the etiology of postoperative constipation after fracture, the understanding of this condition in TCM, and the reports on the use of TCM external treatment methods for this condition.

1. Introduction

Constipation refers to primary persistent constipation caused by non-systemic diseases or intestinal diseases^[1]. Clinically, it is characterized by difficulty in excreting stool, long or short bowel cycle, dry and hard stool, or poor excretion despite bowel intention, and a sense of rectal obstruction or obstruction during defecation, and manual assistance is required for defecation^[2]. Long-term constipation can lead to complications such as anal fissures, hemorrhoids and colon diseases^[3], and even increase the incidence of cardiovascular and cerebrovascular diseases, affecting the quality of life^[4]. At present, it is usually treated by irritant laxatives, gastrointestinal motility enhancing drugs, enemas, and intestinal microecological environment regulation in clinical practice. However, long-term oral drugs produce various adverse reactions on the body of patients. Due to their dependence on drugs, gastrointestinal peristalsis is slowed down after drug withdrawal, which weakens patients' spontaneous bowel reflex and aggravates symptoms, resulting in a vicious cycle. Therefore, it is particularly important to seek effective intervention methods. The Chinese medicine has unique advantages in the treatment of this disease, including internal administration of

traditional Chinese medicine and external treatment, which has remarkable clinical efficacy. As a safe, easy to operate and non-invasive therapy, the external treatment has attracted increasing attention of researchers.

2. Etiology

Constipation is a common complication after orthopaedic surgery. Studies have shown that the incidence of constipation after orthopaedic surgery can reach 50%. Nowadays, with the rapid development of society and economy and the frequent occurrence of traffic accidents and accidental fall injuries, the incidence of spinal fracture is on the rise^[5]. The most commonly used clinical treatment after fracture is surgical treatment, so patients need to stay in bed for a long time to observe the recovery effect^[6], resulting in an increased probability of postoperative constipation. In the process of long time in bed, the patient's gastrointestinal peristalsis is slow and the water is over-absorbed due to postoperative dietary problems. Affected by the operation, the position of defecation is uncomfortable, and the bone needs to be reconstructed or absorbed^[7]. As a result, the movement is limited and the amount of exercise is insufficient due to immobilization, the blood circulation to the intestine is reduced, and the gastrointestinal peristalsis is weakened. Surgical trauma, anesthetic drugs and analgesic methods all affect postoperative digestive function and inhibit gastrointestinal function, leading to constipation^[8]. In addition, the negative emotions caused by fractures, such as anxiety and resistance to getting out of bed and defecation, and then reduce drinking water and eating, resulting in abdominal distension, constipation, urinary retention and other symptoms^[9-10], which in turn will cause loss of appetite, nausea, and even dyspnea in severe cases, increasing the pain and difficulty of recovery for patients. The postoperative recovery time was significantly prolonged. Not only that, if the sleep is stored in the intestine for too long, toxins will be absorbed, causing internal environment disorders, such as bad breath, acne, long spots, and dark skin; Prolonged constipation can induce diseases such as anal fissures, hemorrhoids and colon cancer. The elderly are prone to cardiovascular and cerebrovascular accidents due to hard work during defecation; Patients with constipation who have not been cured for a long time will also have mental disorders and even suicidal tendencies^[11], which seriously affect people's quality of life.

3. Understanding of constipation after fracture operation in traditional Chinese medicine

Constipation, the motherland medicine is also known as "stool difficult", "stool hard", "no stool", etc., the basic pathogenesis is the large intestine conduction dysfunction. The disease is located in the large intestine, related to the lung, spleen, stomach, liver and kidney, and can be divided into solid secret and empty secret. After fracture, there are fractures of muscles and bones, qi and blood stasis, meridians damage, blood overflow outside the veins and congestion accompanied by abdominal posterior wall, turbidities accumulation, rise and fall disorder, viscera disorders resulting in fu-organ qi obstruction, abdominal fullness; Lung for the cover, in a high position, the report of "gold" gas, is the body of Qing Su, its sex main down, and lung Xuanfa out of turbidiqui, is also the work of the line of Su down, lung and large intestine, lung Qi Xuanfa Su down can promote the large intestine to transfer the drogs, the two through the rise and fall of the Qi linked, lung qi not Su will cause intestinal no transport, resulting in constipation; Liver qi stagnation, qi impassability, resulting in large intestine conduction disorder, constipation also occurs. In addition, dryness and heat caused by internal obstruction of fu-organs will also aggravate the occurrence of constipation. Deficiency and mystery refers to the inability of large intestine conduction caused by various diseases and fatigue or deficiency of old age, and the inability of body fluid to moisten the large intestine, thus making dross difficult to discharge. The main causes are deficiency of Qi, blood, Yin

and Yang ^[12]. After operation, qi and blood were weak, spleen and stomach transport was disordered, and intestinal conduction was dereluded, resulting in poor stool; Large intestine and lung surface, Qi deficiency is lung qi down impermanent, large intestine conduction difficulties, appear weak, sitting down, defecation time extension or even difficult to discharge; Yin blood has the function of nourishing and nourishing, Yin deficiency blood deficiency is large intestine inhonor, bowel loss moisten, so the stool quality dry, stool difficult; The secret of Yang deficiency is due to the deficiency of Yang Qi, the endogenous Yin cold, the loss of warmth in the intestine, the formation of Yin cold with dregs, and the main contraction and stagnation of cold, resulting in dry or dry stool, but difficult to discharge ^[13-14]. Patients suffering from asthenia after fracture surgery, extensive surgical trauma, a protracted duration, and substantial blood loss are more susceptible to postoperative blood deficiency, coupled with fluid depletion, manifesting as qi deficiency and blood deficiency, and prolonged postoperative immobility leading to qi stagnation, ultimately resulting in a high incidence of postoperative constipation.

4. Treatments

4.1 Acupuncture

Needle method is the use of different needles, piercing the human body acupoint, and applying needle manipulation, so as to achieve the purpose of regulating meridians and preventing diseases. As a suitable technique of traditional Chinese medicine, acupuncture has also achieved remarkable results in the treatment of postoperative constipation after fracture. Acupuncture mainly plays a role in promoting intestinal motility, regulating intestinal flora, regulating cerebro-intestinal axis, alleviating intestinal inflammatory response, and improving rectal hyposensitivity from multiple angles and in multiple ways ^[15]. Its stimulation of acupuncture points is more direct, improve the gastrointestinal motor function at the same time, promote the large intestine peristalsis function, body fluid secretion, improve internal pressure, promote the brain to produce defecation reflex, accelerate the excretion of gastrointestinal waste, for regulating emotions and improving the related functions of organs, but also played a certain role, more conducive to excretion of stool.

Zhang Min ^[16] randomly divided 64 patients with postoperative constipation after thoracolumbar compression fracture into control group and treatment group. The control group was treated with oral lactulose solution, while the treatment group was treated with acupuncture. Zhongwan, Tianshu (double), Shangjuxu (double) and Zusanli (double) were selected, and the results showed that the total effective rate of the treatment group was 96.87%. It was much higher than the control group (84.37%). Zhang Yougui ^[17] used acupuncture to treat 35 patients with abdominal distension and constipation after thoracolumbar fracture, taking guigou, Weizhong, middle-pole Qi Hai, Tianshu, branch ditch, and upper Ju deficiency, and found that acupuncture was effective in treating abdominal distension pain and constipation after thoracolumbar fracture. Zhong Suzhen et al. ^[18] analyzed the therapeutic effectiveness of acupuncture with press-acupoint embedding for postoperative constipation in patients with thoracolumbar fracture, and randomly divided them into control group (dietary guidance and acupoint massage and traditional Chinese medicine care) and observation group (acupuncture with press-acupoint embedding). The results showed that the total effective rate of constipation treatment in the observation group (96.97%) was much higher than that in the control group (66.66%). The acupuncture method can promote defecation, improve the level of gastrointestinal hormone and quality of life of patients, and improve the curative effect. Cao Chengan et al. ^[19] included 76 patients with thoracolumbar burst fracture after surgery to explore the therapeutic effect of electroacupuncture combined with exercise therapy. The results showed that the effective rate of the therapy was as high as 94.74%, and the postoperative symptoms of the patients were improved, the complication rate was low, the function of the lower

back was recovered well, and the quality of life was improved, which was worthy of application. Qin Aiping et al.^[20] discussed the effect of electroacupuncture combined with auricular point sticking on the intervention effect of postoperative constipation patients with thoracolumbar and lumbar compression fractures. Electro-acupuncture selected bilateral Zhongwan, Zusanli, Tianshu and Fenglong points, and auricular points selected large intestine, sanjiao and constipation points, and the results showed that the total effective efficiency was as high as 94.34%. Huang Linjuan^[21] took 62 patients with constipation after lumbar spine fracture as observation objects, and randomly divided them into observation group (press-acupuncture combined with umbilical therapy) and control group (press-acupuncture combined). Umbilical therapy powder consisted of angelica sinensis, astragalus, cistanche, raw rhubarb, fructus aurantii, sesame seed and peach kernel. As a result, the total effective rate of the observation group (93.6%) was higher than that of the control group (74.2%). It can effectively reduce and eliminate the corresponding symptoms of patients.

4.2 Other Therapies

Traditional Chinese medicine external treatment also includes massage, acupoint application, moxibustion and ear point pressure bean. Massage therapy through the human acupoints, meridians and other techniques to push, take, according to the action between the patient's gastrointestinal function, accelerate the gastrointestinal function of peristalsis, in order to achieve the effect of thinning channels and collaterals, regulating qi and promoting blood; Acupoint application is the characteristic external therapy of traditional Chinese medicine. Drugs are affixed to certain acupoints to enable them to be absorbed through the skin and mucosa, and diseases are treated through the joint action of drugs and acupoints^[22], which can not only avoid the stimulation of gastrointestinal tract by oral drugs, but also amplify the efficacy through acupoint stimulation^[23]. Moxibustion can be transmitted to acupoints through moxa heat and stimulate the qi activity during menstruation, thus achieving the functions of warming the meridian and dispelling cold, promoting blood circulation, improving the circulation of zang fu organs, and improving the gastrointestinal function of the body. Auricular point pressure bean therapy is the use of tape to place and fix the Chinese medicine at the auricular point tenderness point, the use of appropriate massage techniques, so that patients have distension, pain, acid, numbness and other stimulating feelings, so as to relieve the condition of the treatment. Studies abroad have long shown that auricular point stimulation can regulate sympathetic and parasympathetic nerves through thalamic system, relieve spasm of visceral smooth muscle, and regulate endocrine disorders^[24]. By applying auricular point to constipation points, auricular point, nerve and body fluid regulation can be produced, thereby preventing the occurrence of functional gastrointestinal disease^[25].

In clinical practice, comprehensive therapy is often used to treat postoperative constipation after fracture. Shao Haiyan et al.^[26] used Runchang Tongbei recipe combined with abdominal massage to treat 60 cases of postoperative abdominal distension and constipation after senile hip fracture. Runchang Tongbei recipe was composed of grain salt, rhubarb, poncirurus aurantii, magnolia officinalis, sesame seed, coix seed, ophiopogon and scrophulariae. Results The total effective rate was 93.33%. Li Guolan et al.^[27] treated 74 elderly patients with femoral fracture surgery by applying auricular point pressure Dou combined with moxa moxibustion. The former selected points such as Shenmen, sympathia, lower cortex and hip, while the latter selected points such as bilateral Dhan-shu, Tianshu and Shangju-xu. The incidence of postoperative constipation was 2.7%, which could significantly relieve postoperative pain and shorten the time of first defecation and interval of defecation. Increase satisfaction. Lv Qiuxia et al.^[28] observed the effect of ear point pressure on Dou (large intestine, small intestine, lower rectum, cortex and sensitive points at the main point, lung, stomach, sympathetic and liver at the corresponding points) combined with

acupoint application (Zhongwan, Shenque, bilateral Tianshu and Guanyuan) on preventing postoperative constipation in elderly patients with intertrochanteric fracture of femur. Results The effective rate of postoperative constipation (90.63%) was much higher than that of the control group (67.74%). It can be concluded that this therapy can effectively prevent the occurrence of postoperative constipation, promote intestinal peristalsis and speed up postoperative defecation. Chen Xiaojun et al.^[29] treated 60 elderly patients with postoperative constipation after thoracolumbar fracture by applying TCM patch to Shenke point, and the total clinical effectiveness was as high as 93.33%, which could effectively promote exhaust gas and defecation, improve constipation, and improve quality of life. Liu Xinxin et al.^[30] combined with Tongbenchengqi Fang acupoint application treatment on the basis of the conventional treatment group. The prescriptions were rhubarb, ginger, ponciolius aurantii, magnolia officinalis, salt salt and borneol, which were applied on Shenque, Zusanli, Yongquan, Tianshu and Shangjuxu points. The total effective rate was 95.3%, which was much higher than that of the conventional treatment group. For patients with constipation after fracture surgery, the combination of routine abdominal massage and oral administration of laxative Chinese patent medicine can better improve constipation and related symptoms, increase the average weekly spontaneous and complete defecation times, so as to obtain higher clinical efficacy. Zhang Zhenghao et al.^[31] selected 80 patients with constipation after spinal fracture and divided them into the conventional group and the observation group according to different treatment methods. The conventional group was given routine treatment and intervention, and the observation group was given acupuncture point application combined with targeted TCM drug penetration intervention on the basis of this, and finally concluded: The total effective rate of the observation group (95%) was higher than that of the conventional group (77.5%), which could effectively improve the symptoms of constipation, accelerate the recovery of the disease, improve the quality of life of patients, with high safety and significant long-term efficacy. Liang Haisong et al.^[32] gave ginger moxibustion Shenque and Tianshu treatment for preventing constipation after hip arthroplasty of femoral neck fracture in the elderly, and the results showed that this method could significantly reduce the incidence of constipation without adverse reactions. Wang Peipei et al.^[33] divided 168 elderly patients with abdominal distension and constipation after femur neck fracture into two groups for observation, and concluded that the combination of Runchang Tongbei prescription and acupressure in the treatment of elderly patients with abdominal distension and constipation after femur neck fracture can significantly improve clinical efficacy, inhibit the level of inflammatory factors, reduce clinical symptoms, and enhance gastrointestinal function. Tang Ying et al.^[34] applied Stone Needle acupoint massage combined with acupoint application to explore 60 patients with constipation after lower limb fracture surgery, and found that the combined intervention on the disease could improve the patients' first defecation time, daily defecation frequency and abdominal distension, and improve the nursing efficiency of the patients. Han Li^[35] used moxibustion combined with acupressure to observe the effect of postoperative abdominal distension and constipation in 143 elderly patients with thoracolumbar and lumbar compression fractures. The results showed that the effective rate of the treatment was as high as 94.52%, and the curative effect was accurate, which could effectively shorten the improvement time of abdominal distension and constipation.

5. Conclusions

The clinical effect of TCM external treatment for postoperative constipation after fracture has been highly affirmed and repeatedly verified, and its clinical application has also been vigorously promoted, mainly involving acupuncture, massage, acupoint application, moxibustion and ear point pressure bean and other therapies, without relying on drugs, focusing on the patient as a whole,

treating both symptoms and root causes, playing the role of tonifying qi and spleen, patenting sanjiao qi and moistening bowel. It has the advantages of high safety, precise efficacy, few adverse reactions, simple and economical operation^[36]. Many studies have shown that external treatment of traditional Chinese medicine can regulate the gastrointestinal function of the body, improve the excitability of parasympathetic nerve, promote large intestine peristalsis, and accelerate the promotion of feces. It can also regulate the function of the viscera, enhance immunity, improve the internal environment of the body, shorten the emptying time, improve the intestinal smooth muscle tension, and restore the normal intestinal motor function^[37].

Although the external treatment of TCM has achieved certain results in clinical practice, it still has some shortcomings, such as less research on the mechanism of modern medicine, and its international recognition needs to be improved. The clinical design of the study is relatively simple; The lack of recognized diagnosis and treatment guidelines, diagnostic criteria and evaluation indicators are not uniform; Clinical acupuncture point selection is complicated, the law of compatibility is not clear, acupuncture techniques are diverse, intensity is different, lack of standardization; There is a lack of large samples and follow-up in the literature. In future studies, we can combine modern medical scientific research methods to further optimize the program of external treatment of traditional Chinese medicine to prevent constipation after fracture surgery, screen, optimize and combine acupuncture points, quantify the strength and manipulation of acupuncture, and carry out multi-center and large samples, in order to provide practical and stable treatment programs for guiding clinical application better.

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