

Progress in the Application of Traditional Chinese Medicine Treatment in Postoperative Rehabilitation of Colorectal Cancer

Lei Zheng^{1,a}, Jingtao Sha^{2,b,*}

¹Shaanxi University of Chinese Medicine, Xianyang, Shaanxi, 712046, China

²Xi'an Affiliated Hospital of Shaanxi University of Chinese Medicine, Xi'an, Shaanxi, 710021, China

^a704464381@qq.com, ^b1245328255@qq.com

*Corresponding author

Abstract: As one of the common malignant tumors of the digestive tract, colorectal cancer has a hidden disease and a poor prognosis. The disease has a high incidence rate and mortality, which seriously threatens the normal life of human beings. At present, the preferred treatment method for this disease is surgery, supplemented by radiotherapy, chemotherapy, and targeted therapy. However, postoperative complications and recurrence rates are high in patients, and radiotherapy and chemotherapy can cause serious adverse reactions, affecting the quality of life of patients. With the continuous development of traditional Chinese medicine and the accumulation of clinical experience, its clinical advantages in preventing and treating adverse reactions after colorectal cancer surgery have become increasingly prominent. Its treatment philosophy is people-oriented, and various internal and external treatment methods are used to alleviate postoperative complications, improve the quality of life of postoperative patients, and prevent disease recurrence and metastasis, which has important clinical value.

Keywords: Traditional Chinese Medicine; Rectal cancer; Postoperative rehabilitation

1. Introduction

Colorectal cancer, also known as colorectal cancer, includes colon cancer and rectal cancer. According to WHO statistics, more than one million people in the world are diagnosed with colorectal cancer every year, and the number of deaths is close to 500000. The incidence rate and mortality rate both rank the fourth in China's cancer and the first in malignant tumors of the digestive tract, with a rising trend year by year ^[1]. According to the global cancer statistics report released by the International Agency for Research on Cancer in 2020, the incidence rate of colorectal cancer in the world is the third among all cancers, and the mortality rate is the second; There are about 550000 newly increased cases of colorectal cancer in China, with more than 280000 deaths. Both the incidence rate and mortality are higher than the world average ^[2]. The early symptoms of this disease are not obvious, and most patients are diagnosed in the late stage. Not only does it seriously damage the digestive system, but the tumor is also prone to metastasis, damaging lymph nodes, liver, lungs, bones, etc. The causes of its onset are complex and often related to diet, living environment, genetic factors, etc ^[3]. At present, surgical treatment is still the preferred treatment for colorectal cancer. Most patients choose to resect a portion of the rectum or colon based on the lesion site, but there are many postoperative complications. The intestinal absorption function decreases due to the reduction of intestinal mucosal area, which reduces the immune function of the body, leading to diarrhea, abdominal pain, intestinal obstruction, etc ^[4]. A research ^[5] has shown that traditional Chinese medicine treatment has the advantages of low toxicity, multi pathway, and multi target effects. It can also be combined with other therapies to treat colorectal cancer. It plays a key role in improving clinical symptoms, enhancing immunity, reversing chemotherapy resistance, preventing cancer recurrence and metastasis, and reducing the incidence of postoperative adverse reactions and complications in patients.

2. Traditional Chinese Medicine's Understanding of Colorectal Cancer

2.1. Disease name attribution

Traditional Chinese medicine believes that colorectal cancer belongs to the categories of diseases

such as "accumulation of symptoms and masses" and "scrofula caused by galls and tumors". According to different lesion sites and tissue morphology, it can be named as "intestinal prolapse" and "locking anal hemorrhoids"; According to the cause of its onset, it can also be named as "intestinal wind", "visceral toxin", etc ^[6]; According to its symptoms and signs, it can also be named as a disease category such as "intestinal bleeding" and "bloody stool" ^[6]. Zhang Guicai et al. ^[7] believe that its occurrence is caused by the combined action of internal and external pathogenic factors, resulting in pathological qi stagnation, blood stasis, phlegm coagulation, dampness accumulation, and heat accumulation. Professor Sun Guizhi ^[8] believes that the occurrence and development of cancer are closely related to the deficiency of vital energy, and that the six pathogenic factors, seven emotional internal injuries, improper diet, and excessive fatigue can all cause diseases. He also proposed the theory that "all five organs and six organs can transform fire and produce toxins" and the theory that "endogenous evil stagnates and transforms fire".

2.2. Etiology, pathogenesis, and traditional Chinese medicine syndrome types

Traditional Chinese medicine believes that the occurrence of cancer is often due to internal deficiency in the body, combined with various factors such as feeling evil toxins, emotional discomfort, dietary damage, and persistent old diseases, resulting in dysfunction of the viscera and abnormal circulation of qi and blood, resulting in the accumulation of various pathological products in the five organs and six organs, as well as the four limbs and bones, and forming over time. In the book "Essential Reading of the Medical School: Accumulation" ^[6], it is described that "when accumulation is achieved, there is a lack of righteous energy, and then evil energy resides. The positive qi of the body plays a leading role in the occurrence and development of cancer. Deficiency of body elements, or internal deficiency caused by prolonged illness or old age, can lead to imbalance of yin and yang in the organs, causing external evil to take advantage of the deficiency and enter. Therefore, the six yin and evil toxins are also important factors leading to the occurrence of cancer. In the book "Classification of Symptoms and Treatment-Stagnation Syndrome" ^[6], it is said that the stagnation within the seven emotions begins to damage the qi mechanism, and then affects the blood circulation. Eating disorders are a major factor leading to dysfunction of the qi and blood functions of the organs. Eating spicy and stimulating foods, such as fat, sweet, and greasy foods, can lead to dysfunction of the spleen and stomach. In the book "Miscellaneous Diseases: Blood in Stool" ^[6], it is mentioned that intestinal wind originates from external wind and cold sensation in the gastrointestinal tract, as well as factors such as diet and daily life, which cause stagnation of qi in the middle energizer and blood to flow out of the large intestine. Dirty toxins originate from dietary toxins in the intestines and stomach, or from excessive consumption of alcohol that accumulates toxins, leading to stagnation of heat and heat in the large intestine.

In the 1994 publication of the "Comprehensive Collection of Traditional Chinese Medicine for the Prevention and Treatment of Tumors" ^[9], it was pointed out that this disease can be divided into six syndrome types: dampness heat injection type, liver stomach yin deficiency type, stasis toxin internal accumulation type, qi and blood deficiency type, liver kidney yin deficiency type, and spleen kidney yang deficiency type. In the second edition of "Internal Medicine of Traditional Chinese Medicine" published in the new century ^[10], colorectal cancer is further divided into four syndrome types: dampness heat stagnation toxin type, stasis toxin internal obstruction type, spleen kidney dual deficiency type, and liver kidney deficiency type. Domestic scholars such as Si Fuchun et al. ^[11] have statistically classified the research on the diagnosis and treatment of colorectal cancer in traditional Chinese medicine included in the Chinese journal database in the past 20 years, and summarized seven major syndrome types of this disease, namely: dampness heat internal accumulation, stasis and toxin internal obstruction, spleen and kidney yang deficiency, qi stagnation and blood stasis, liver and kidney yin deficiency, spleen deficiency and dampness stagnation, and qi and blood dual deficiency. Another scholar, Rong Jingyu et al. ^[12], conducted a retrospective study on colorectal cancer and found that surgical treatment for colorectal cancer can cause damage to the patient's positive qi, leading to a transition from a combination of positive and negative syndromes to a deficiency syndrome. As the course of colorectal cancer progresses, the positive qi will gradually shift from solid to deficiency, and the transformation pattern is roughly as follows: the forced type under damp heat changes to spleen and kidney deficiency type, and the large intestine stasis and toxin type changes to spleen and kidney deficiency type.

3. External treatment with traditional Chinese medicine to improve postoperative complications

Despite the continuous improvement of surgical techniques, some patients with colorectal cancer still inevitably experience various complications after surgery, such as exhaust and defecation disorders, postoperative infections, pain in the surgical area, and gastrointestinal dysfunction ^[13]. In recent years,

many clinical trials have confirmed that external treatment with traditional Chinese medicine can improve the symptoms of postoperative complications in colorectal cancer patients and alleviate their pain.

3.1. Acupoint Massage

Domestic scholars have used the timed acupoint massage method ^[14] to intervene in postoperative patients with colorectal cancer. They are divided into three groups: the timed massage group, which massages Hegu and Zusanli acupoints at regular intervals every day. Control group 1 receives timed massage, while control group 2 receives routine care. The research results show that timed massage can improve abdominal distension in postoperative patients with colorectal cancer and ensure smooth postoperative ventilation. Moreover, according to Feng Shunli's clinical research ^[15], timing acupoint massage can not only shorten the time for the recovery of bowel sounds and defecation in patients with colorectal cancer after surgery, promote the recovery of gastrointestinal function, but also reduce the postoperative abdominal pain score, abdominal distension score, and traditional Chinese medicine syndrome score of colon cancer patients, and improve postoperative gastrointestinal function symptoms. And shorten the postoperative hospitalization time of patients. In addition, another scholar, Ren Guangzhuo et al. ^[16], found in their study that applying acupoint massage combined with functional exercise to postoperative patients with colorectal cancer can promote their recovery process, improve their postoperative adverse symptoms, and shorten their hospital stay.

3.2. Traditional Chinese Medicine Enema

Enema is an indispensable treatment method in traditional Chinese medicine, which involves direct contact between traditional Chinese medicine and the intestinal cavity. Therefore, sufficient contact between tumor cells and the effective ingredients of traditional Chinese medicine can not only improve the killing power of tumor cells, but also repair the colorectal mucosa, reducing the absorption burden of drug toxicity on the liver ^[6]. Gao Yannan et al. ^[17] used traditional Chinese medicine enema to treat patients with intestinal paralysis after minimally invasive colorectal cancer surgery, which shortened the first time for patients to exhaust, defecate, and recover their bowel sounds. Liu Hongru et al. ^[18] will use traditional Chinese medicine Jiedu Huben decoction retention enema on 20 patients with colorectal cancer after radical surgery in the observation group. The results show that this formula retention enema can reduce the adverse reactions of adjuvant chemotherapy after colorectal cancer surgery and improve the body's immunity to a certain extent. Zhou Lin et al. ^[19] performed traditional Chinese medicine enema on postoperative patients with rectal cancer, and the patient's wound edema and exudation were significantly reduced. The VAS score was lower than the control group, and the levels of inflammatory factors IL-6 and IL-8 were significantly reduced. This indicates that traditional Chinese medicine enema has a significant therapeutic effect on patients and promotes wound healing. Hong Yuming et al. ^[20] performed traditional Chinese medicine enema on patients with anastomotic fistula after rectal cancer surgery, and the results showed that this method can avoid secondary fistula diversion surgery, reduce urination disorders, and reduce the incidence of perianal abscess.

3.3. Hot compress therapy

Li Yanchun ^[21] randomly divided 92 postoperative patients with colon cancer into a conventional treatment group and a combination of conventional treatment and traditional Chinese medicine heat and smoke bag external application. The research results showed that traditional Chinese medicine heat and smoke bag external application can shorten the time for patients to recover their bowel sounds after surgery, first exhaust and defecation, and alleviate postoperative gastrointestinal dysfunction. Zhou Xueling et al. ^[22] also added white vinegar seasoned ginger pinellia to conventional treatment for postoperative chemotherapy patients with colorectal cancer. The research results showed that this treatment method can significantly improve the adverse reactions of nausea and vomiting in patients after chemotherapy, and promote their postoperative recovery.

3.4. Acupuncture and moxibustion therapy

Acupuncture and moxibustion, as an important part of traditional Chinese medicine, has remarkable therapeutic effect, and can be used to tonify the spleen and stomach by selecting points based on syndrome differentiation. It was found in the study ^[23] that acupuncture and moxibustion can reduce gastrointestinal disorders in patients with intestinal cancer after operation by regulating the nervous and

humoral systems of the body, such as reducing the content of 5-hydroxytryptamine 3 (5-HT₃) in the peripheral circulation, or affecting its secretion by acting on the brain gut axis to increase gastrointestinal blood flow and repair mucosal damage. Li Feng ^[24] implemented acupuncture combined with Qi Qi Yu Formula on 55 patients with gastrointestinal dysfunction after radical resection of colorectal cancer. After treatment, it was found that the gastrointestinal reaction score of the patients was significantly reduced. In the early study, Han Xu et al. ^[25] conducted acupuncture and moxibustion at specific points in 60 patients after radical resection of colorectal cancer, and another 60 patients were treated with erythromycin. After treatment, it was found that after acupuncture at Zhongwan, Tianshu, Zusanli and other points, the patients were significantly better than erythromycin in terms of gastrointestinal motor function recovery.

4. Oral administration of traditional Chinese medicine to prevent postoperative recurrence and metastasis of cancer cells

Clinical studies have found that traditional Chinese medicine not only has the functions of nourishing the body, eliminating pathogenic factors, and overall regulation, but also restores physiological functions by inhibiting normal cell apoptosis, improving the body's oxidative stress state, inhibiting inflammation and damage, and activating cell autophagy. It can effectively improve the body's immunity and reduce the toxic and side effects of chemotherapy ^[26]. Song Tao et al. ^[27] used Xiangsha Liujuanzi Tang combined with FOL-FOX4 regimen to treat patients after laparoscopic radical resection of colon cancer for 6 months. The research results showed that the total effective rate of the patient's treatment was 85%, with high levels of cytokines and KPS scores, and reduced adverse reactions. Another scholar, Shen Hui et al. ^[28], used the combination of Huangqi Guizhi Wuwu Tang and FOL-FOX4 regimen to treat postoperative chemotherapy patients with colorectal cancer. The growth of blood vessels, inflammatory factors, immune function, and postoperative recurrence were observed as indicators. The research results showed that Huangqi Guizhi Wuwu Tang can effectively reduce various inflammatory factors in postoperative chemotherapy patients with colorectal cancer, improve T cell subpopulations, inhibit tumor angiogenesis and systemic inflammatory response, improve immune function. In terms of the differentiation of colon cancer, a retrospective analysis conducted by early Chinese medicine scholars such as Lin Shengyou et al. ^[29] showed that patients with colon cancer mainly have spleen deficiency syndrome, while there are other syndrome types such as kidney deficiency syndrome and blood stasis syndrome, among which the medicinal decoction is different. (1) Spleen Strengthening Method: Li Miao et al. ^[30] used Tenglong Buzhong Tang, mainly a traditional Chinese medicine for strengthening the spleen. In the maintenance treatment of postoperative chemotherapy for colorectal cancer patients, the addition or subtraction of this decoction can improve the clinical symptoms, quality of life, and immune function of patients. (3) Method of Removing Blood Stasis: Sun Jian ^[31] took traditional Chinese medicine for promoting blood circulation and resolving blood stasis in postoperative colorectal cancer patients with blood stasis syndrome. Research has found that traditional Chinese medicine for promoting blood circulation and resolving blood stasis can reduce the recurrence rate of postoperative metastasis in colorectal cancer patients and improve their quality of life after surgery. Yu Rongjian et al. ^[32] summarized Lin Lizhu's understanding of colorectal cancer, and found that the core cause and pathogenesis of colorectal cancer is "stasis and toxin". (2) Kidney Tonifying Method: Jia Ru et al. ^[33] used chemotherapy combined with Bushen Jiedu Sanjie Formula to treat 81 colorectal cancer patients who received postoperative adjuvant chemotherapy. The results showed that compared with chemotherapy combined with placebo treatment, the decoction group of patients can effectively reduce the postoperative metastasis rate of colorectal cancer patients with adjuvant chemotherapy, reduce the risk of postoperative metastasis, and improve traditional Chinese medicine syndromes, and inhibit the expression of serum vascular endothelial growth factor and matrix metalloproteinase-9.

5. Traditional Chinese medicine treatment reduces adverse reactions after chemotherapy

The adjuvant chemotherapy regimen after colorectal cancer surgery often leads to hand foot syndrome in patients, which is an important factor affecting quality of life and chemotherapy tolerance. Currently, there is no significant treatment method in Western medicine in this regard, while traditional Chinese medicine treatment has achieved certain significant efficacy. Xu Chunyan ^[34] treated 30 postoperative colorectal cancer patients with FOL-FOX4 regimen chemotherapy, and on this basis, added the compound canthariding capsule. After treatment, the patient's white blood cell count, nausea, and vomiting were significantly improved, indicating that the compound canthariding capsule can improve the immune function of postoperative chemotherapy patients with colorectal cancer, reduce toxic side

effects caused by chemotherapy drugs, and promote the prognosis of postoperative patients. Wang Hui et al. [35] treated patients after laparoscopic radical resection of colon cancer with oxaliplatin combined with capecitabine for chemotherapy, and then added Shenqi Fuzheng Injection. After treatment, it was found that patients who added Shenqi Fuzheng Injection had a significant increase in peripheral blood red blood cells, hemoglobin, white blood cells, and blood platelets, and a significant decrease in the incidence of bone marrow suppression and gastrointestinal reactions. Zhang et al. [36] administered Huoxue Tongluo Fang, Huangqi Guizhi Wuwu Tang, and placebo hand and foot soaking to 184 patients with numbness in the hands and feet after chemotherapy for colorectal cancer. The results showed that external application of Huoxue Tongluo Fang can improve peripheral nerve damage caused by chemotherapy.

6. Other Traditional Chinese Medicine Treatment Methods

In addition to the aforementioned traditional Chinese medicine therapies, there are also traditional Chinese medicine techniques and music therapy that can be used for postoperative rehabilitation of patients. Early scholars such as Xiang Chunyan et al. [37] conducted music electroacupuncture treatment on 46 postoperative patients with colon cancer. The experimental results showed that combining traditional Chinese medicine's five element music with electroacupuncture can significantly improve patients' anxiety and depression after surgery. Lu et al. [38] randomly divided 90 colorectal cancer patients who received chemotherapy into the Baduanjin exercise group and the routine care group. The study showed that Baduanjin qigong exercise can alleviate the adverse reactions of chemotherapy in colorectal cancer patients and improve their physical activity level and sleep quality.

7. Summary

The incidence rate of colorectal cancer has been increasing year by year, which has seriously threatened human health. Therefore, postoperative rehabilitation of patients has also aroused widespread concern. Although Western medicine treatment can significantly alleviate patients' clinical symptoms, serious adverse reactions often occur, increasing patients' pain and psychological pressure. The focus of traditional Chinese medicine in the treatment of postoperative colorectal cancer is to handle the relationship between "strengthening the body" and "dispelling pathogenic factors" at different stages [39]. In recent years, many research results have shown that traditional Chinese medicine treatment has a significant effect on the postoperative rehabilitation of patients with colorectal cancer, with mild adverse reactions and an important role in improving their gastrointestinal function, postoperative pain, and quality of life. Traditional Chinese medicine treatment can be tailored to the specific situation of patients, reflecting a personalized rehabilitation model and improving the body's immunity. Traditional Chinese medicine treatment methods not only focus on improving the quality of life of patients, but also pay attention to preventing the recurrence and metastasis of cancer cells, forming a complementary relationship with Western medicine. In clinical practice, it enables postoperative patients with colorectal cancer to receive higher quality rehabilitation treatment and long-term prognosis.

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