

## Original Article

# Effect of traditional Chinese medicine nursing on postoperative patients with gastric cancer and its impact on quality of life

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**Abstract:** Objective: To explore the effect of traditional Chinese medicine (TCM) nursing on postoperative patients with gastric cancer and its impact on quality of life. Methods: According to the random number table method, 103 patients with gastric cancer were divided into observation group (n=52, TCM nursing) and control group (n=51, routine nursing). The postoperative recovery of gastrointestinal function, the scores of mental states, inflammatory index, self-esteem scale (SES) and quality of life score (generic quality of life inventory-74 scale, GQOLI-74 scale) before and after intervention were compared between the two groups, and the adverse reactions were recorded. Results: Compared with the control group, the first postoperative exhaust time, the regression time of epigastric distension symptoms, the first defecation time and the time of returning to normal eating in the observation group were shorter than those in the control group (all  $P<0.05$ ). After intervention, the scores of Hamilton Anxiety Scale (HAMA), Hamilton Depression Scale (HAMD) and the levels of serum TNF- $\alpha$ , CRP and IL-1 $\beta$  in the two groups were lower than those before intervention, and those in the observation group were lower than those in the control group (all  $P<0.05$ ). After intervention, the scores of SES and GQOLI-74 in both groups were higher than those before intervention, and those in the observation group were higher than those in the control group (all  $P<0.05$ ). During hospitalization, the total incidence of adverse reactions in the observation group was lower than that in the control group ( $P<0.05$ ). Conclusion: Perioperative TCM nursing for patients with gastric cancer can more obviously improve postoperative gastrointestinal dysfunction, alleviate acute inflammation, improve postoperative unhealthy mental state, reduce the occurrence of postoperative complications, and finally improve the quality of life of postoperative patients, which is worthy of clinical application.

**Keywords:** Traditional Chinese medicine nursing, gastric cancer, mental state, inflammatory state, quality of life

## Introduction

Gastric cancer is a malignant tumor with high incidence, and the 5-year survival rate is very low. For example, the 5-year survival rate of patients with stage III gastric cancer is about 30%, and that of the patients with stage IV is less than 10% [1]. At present, surgical resection is still the main treatment for non-metastatic gastric cancer. However, due to the influence of cancer, gastrointestinal function of patients with gastric cancer is mostly in a state of disorder, and surgery can cause body stress and even induce acute inflammation reaction,

which is not conducive to the recovery of postoperative patients [2]. Therefore, postoperative high-quality nursing is particularly important in promoting the recovery of the postoperative patients. TCM nursing is a series of intervention measures implemented on the basis of TCM syndrome differentiation nursing theory, which is based on the principles of "treating the same disease with different nursing", "treating the different disease with same nursing", "treating both principal and secondary aspects of a disease promptly or slowly" and "determine the treatment based on differentiation of symptoms and signs", combined with patients' spe-

cific TCM symptoms [3]. At present, TCM nursing is mostly used in clinic care, such as after malignant tumor resection and percutaneous coronary intervention (PCI). Such studies have shown that TCM nursing can reduce the risk of recurrence of patients with malignant tumor resection, reduce the incidence of complications after PCI [4, 5]. However, less attention was paid to patients' psychology and postoperative body function, such as gastrointestinal function and sleep quality after operation of gastric cancer. Therefore, this study mainly evaluated the effect of TCM nursing on the recovery and quality of life of postoperative patients with gastric cancer from the aspects of postoperative inflammatory state, mental state and postoperative recovery of gastrointestinal function.

### Materials and methods

#### *The baseline data*

For this prospective study, 103 postoperative patients with gastric cancer hospitalized and treated in our hospital from February 2019 to February 2020 were randomly divided into control group (n=51, routine nursing was given during the perioperative period) and observation group (n=52, TCM nursing was given on the basis of the control group). Inclusion criteria: (1) The patients were 45 to 70 years old. (2) Patients were confirmed by preoperative pathological examination as primary gastric cancer. (3) Patients who met the diagnostic criteria of "epigastric pain" in TCM [6]. (4) Patients undergoing elective radical gastrectomy after comprehensive evaluation of various indicators. (5) Patients who signed informed consent. Exclusion criteria: (1) Perioperative patients with acute and chronic infection. (2) Patients with the diseases of immune system and blood system, or blood coagulation disorders. (3) Patients with malignant tumors. (4) Patients who participated in other research projects at the same time, and so on. This study was reviewed and approved by the medical ethics committee of our hospital.

#### *Methods*

The control group was given routine nursing during the perioperative period, such as preoperative improvement of various examinations, active treatment of primary disease, active pre-

vention of postoperative complications, daily nursing of drainage tube and catheter and other symptomatic treatment measures until the patient was discharged from hospital.

On this basis, the observation group was given TCM nursing until the patients were discharged: (1) TCM psychological care: The nursing staff communicated with patients face to face before operation, caring and comforting the patients with kind attitude and language, and telling the patients to use the methods of self-cultivation and emotional victory to eliminate the unhealthy mentality of tension and anxiety, and to welcome the operation with the best mentality [7]. After the operation, it was also necessary to communicate with the patients in time to comfort them. The targeted psychological counseling was given to patients in time for there were large mood fluctuations in them. The control measures of the self-cultivation method, emotional victory method and so on were explained to patients once again. (2) Syndrome differentiation nursing: As radiotherapy and chemotherapy were often needed for gastric cancer after operation, the immune function of the patients was decreased, and most of them were with deficiency [8]. Therefore, it is necessary to follow the principle of "treat the acute by incidental and treat the chronic by fundamentals", and the measures of "treating the same disease with different nursing" were carried out according to the individual, time and local conditions. (3) Dietetic nursing: After the operation, patients were advised to eat more liquid and digestible food, with many meals but little food at each time. Food was chosen according to the principle of syndrome differentiation of TCM to achieve the coordination of cold and heat and the combination of five flavors. According to their postoperative recovery, a semi-liquid diet was transited, and a low-fat diet with high protein and vitamins was given. (4) Nursing of auricular-plaster therapy of TCM: The auricular points of spleen, stomach, sympathy, endocrine, large and small intestines were selected [9]. The auricular points such as spleen, stomach, sympathy, endocrine, large and small intestines were selected. After disinfection, the appropriate size adhesive plaster was selected with the cowherb seeds pressing on it. Then, the adhesive plaster with the cowherb seeds was placed on to the auricular points, and they were pressed with thumb and index finger for 2 to 3 min/times, 3 times a day.

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**Table 1.** Baseline data of the two groups of patients (n,  $\bar{x} \pm sd$ )

Indexes	Observation group (n=52)	Control group (n=51)	$\chi^2/t$	P
Gender (n)			0.474	0.491
Male	28	24		
Female	24	27		
Age (years)	54.4±5.5	55.1±6.3	0.600	0.550
Course of disease (years)	2.18±1.02	2.23±1.10	0.239	0.812
Tumor location (n)			1.292	0.731
Fundus of stomach	16	18		
Cardia	17	13		
Body of stomach	10	8		
Gastric antrum	9	12		
TNM staging (n)			1.238	0.538
Stage I	20	17		
Stage II	15	20		
Stage III	17	14		
Postoperative pathology type (n)			0.772	0.680
Adenocarcinoma	40	42		
Squamous cell carcinoma	8	7		
Adeno-squamous carcinoma	4	2		

reactions in patients between the two groups during hospitalization, such as dyspepsia, diarrhea, biliary vomiting, dysphagia, etc., the total incidence of adverse reactions = the number of adverse reactions/the total number of cases × 100% was calculated.

### Statistical analysis

SPSS 20.0 was used to analyze the data. The enumeration data were expressed in n (%) and compared with the  $\chi^2$  test. The measurement data were expressed in  $\bar{x} \pm sd$ . Paired t test was used for comparison before and after intervention in the same group, and independent t test was used for comparison between the two groups.  $P < 0.05$  was considered that the difference was statistically significant.

### Outcomes measurement

The main outcomes: (1) The recovery of gastrointestinal function was compared between the two groups, and the first postoperative exhaust time, the regression time of epigastric distension, the first defecation time and the recovery time of normal eating were recorded. (2) Hamilton anxiety and depression scales (HAMA and HAMD) were used to evaluate anxiety and depression before and after intervention. The higher the score, the more serious the degree of anxiety and depression [10, 11].

The secondary outcomes: (1) About 3 mL of venous blood was collected from patients before and after intervention. After centrifugation, serum was separated, and the levels of tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ), C-reactive protein (CRP) and interleukin-1 $\beta$  (IL-1 $\beta$ ) were detected by ELISA. (2) The SES scale was used to evaluate the patients' self-esteem before and after the intervention [12]. The total score was 10-40, and the higher the score, the stronger the patients' self-esteem. (3) GQOLI-74 scale was used to evaluate the quality of life before and after the intervention [13]. The total score was 76-380, and the higher the score, the better the quality of life. (4) The adverse

## Results

### Comparison of the baseline data

There was no statistical difference in the baseline data between the two groups (all  $P > 0.05$ ), and they were comparable. The details were shown in **Table 1**.

### Recovery of gastrointestinal function after operation

Compared with the control group, the first postoperative exhaust time, the regression time of epigastric distension, the first defecation time and the time of returning to normal eating in the observation group were shorter than those in the control group (all  $P < 0.05$ ). The details were shown in **Table 2**.

### Mental state

After intervention, the scores of HAMA and HAMD in the two groups were lower than those before intervention, and those in the observation group were lower than those in the control

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**Table 2.** Recovery of gastrointestinal function after operation in the two groups ( $\bar{x} \pm sd$ )

Groups	Observation group (n=52)	Control group (n=51)
The first exhaust time after operation (h)	40.03±4.40 <sup>#</sup>	49.10±5.86
The regression time of epigastric distension (d)	7.44±2.22 <sup>#</sup>	10.09±2.03
The first defecation time (h)	60.09±6.66 <sup>#</sup>	68.85±6.49
The time of returning to normal eating (d)	8.88±2.03 <sup>#</sup>	11.84±2.36

Note: Compared with the control group, <sup>#</sup>P<0.05.

**Table 3.** HAMA and HAMD scores of the two groups before and after intervention ( $\bar{x} \pm sd$ , scores)

Groups	HAMA score	HAMD score
Observation group (n=52)		
Before intervention	7.69±1.29	7.94±1.29
After intervention	5.90±1.23 <sup>*#</sup>	6.08±1.07 <sup>*#</sup>
Control group (n=51)		
Before intervention	7.84±1.04	8.03±1.22
After intervention	6.80±1.11 <sup>*</sup>	7.02±1.05 <sup>*</sup>

Note: Compared with before intervention, <sup>\*</sup>P<0.05; compared with the control group, <sup>#</sup>P<0.05. HAMA: Hamilton Anxiety Scale; HAMD: Hamilton Depression Scale.

**Table 4.** The levels of inflammatory factors in the two groups before and after intervention ( $\bar{x} \pm sd$ , scores)

Groups	TNF- $\alpha$ (ng/mL)	CRP (mg/L)	IL-1 $\beta$ (pg/mL)
Observation group (n=52)			
Before intervention	29.97±5.40	87.59±10.03	98.27±10.02
After intervention	10.03±2.38 <sup>*#</sup>	36.46±7.77 <sup>*#</sup>	57.79±9.92 <sup>*#</sup>
Control group (n=51)			
Before intervention	29.65±4.99	88.20±12.27	97.70±12.28
After intervention	16.68±3.95 <sup>*</sup>	52.89±8.07 <sup>*</sup>	67.88±9.84 <sup>*</sup>

Note: Compared with before intervention, <sup>\*</sup>P<0.05; compared with the control group, <sup>#</sup>P<0.05. TNF- $\alpha$ : tumor necrosis factor- $\alpha$ ; CRP: C-reactive protein; IL-1 $\beta$ : interleukin-1 $\beta$ .

**Table 5.** SES and GQOLI-74 scores of the two groups before and after intervention ( $\bar{x} \pm sd$ , scores)

Groups	SES score	GQOLI-74 score
Observation group (n=52)		
Before intervention	25.50±3.33	264.49±20.20
After intervention	34.98±3.08 <sup>*#</sup>	306.38±23.39 <sup>*#</sup>
Control group (n=51)		
Before intervention	24.78±3.89	262.88±18.94
After intervention	30.09±4.22 <sup>*</sup>	284.44±19.27 <sup>*</sup>

Note: Compared with before intervention, <sup>\*</sup>P<0.05; compared with the control group, <sup>#</sup>P<0.05. SES: self-esteem scale; GQOLI-74: generic quality of life inventory-74.

group (all P<0.05). The details were shown in **Table 3**.

### Levels of inflammatory factors

After intervention, the levels of serum TNF- $\alpha$ , CRP and IL-1 $\beta$  in the two groups were lower than those before intervention, and those in the observation group were lower than those in the control group (all P<0.05). The details were shown in **Table 4**.

### The scores of SES and GQOLI-74

After intervention, the scores of SES and GQOLI-74 in the two groups were higher than those before intervention, and those in the observation group were higher than those in the control group (all P<0.05). The details were shown in **Table 5**.

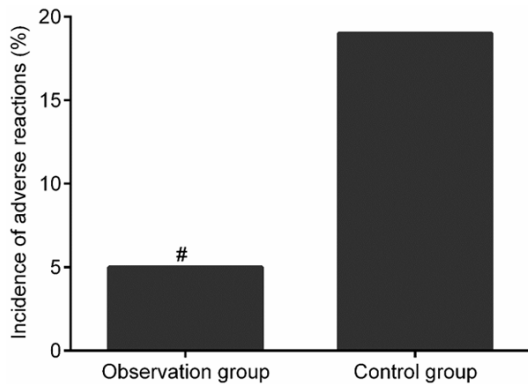
### Adverse reactions

The total incidence of adverse reactions during hospitalization was 5.77% in the observation group (1 case of dyspepsia and 2 cases of dysphagia) and 19.61% in the control group (2 cases of dyspepsia, 3 cases of diarrhea, 1 case of biliary vomiting and 4 cases of dysphagia). During hospitalization, the total incidence of adverse reactions in the observation group was lower than that in the control group (P<0.05). The details were shown in **Figure 1**.

### Discussion

The postoperative recovery of gastric cancer is a chronic process. Patients are affected by

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**Figure 1.** The incidence of adverse reactions in the two groups. Compared with the control group, # $P < 0.05$ .

many factors, such as disease, postoperative prognosis and economic pressure. And they are easy to have bad psychology such as anxiety, fear, and even depression [14]. Long-term anxiety and fear can lead to impede circulation of qi and blood, which is not conducive to the prognosis [15]. Studies of Zemla et al. have shown that timely and effective psychological counseling is very important for patients with poor perioperative mental state [16]. The results of this study showed that the scores of HAMA and HAMD in the observation group were lower than those in the control group after intervention, suggesting that the mental state of postoperative patients with gastric cancer could be improved more obviously by adding TMC nursing on the basis of routine nursing. The research of Ye et al. also pointed out that TCM psychological care is extremely effective in improving the unhealthy psychology of patients after operation, and its effect on relieving postoperative anxiety and tension is better than that of routine nursing mode [17].

Most patients with gastrointestinal tumors need to fast before operation, especially for patients with gastric cancer, and longer fasting can cause stomach discomfort. Some studies pointed out that fasting for more than 48 hours can cause gastrointestinal mucosal dysfunction and reduce the absorption of nutrients, which is not conducive to the recovery of patients after operation [18]. In this study, the first postoperative exhaust time, the regression time of epigastric distension symptoms, the first defecation time and the recovery time of normal eating in the observation group were

shorter than those in the control group, suggesting that the addition of TCM nursing on the basis of routine nursing can significantly improve the gastrointestinal dysfunction of patients with gastric cancer after operation and promote the recovery of gastrointestinal function more quickly. The research of Liu et al. also showed that the nursing measures of TCM diet intervention have more obvious effect on the recovery of gastrointestinal function of patients with gastrointestinal tumor after operation, and the body has better nutrients absorption [19]. This is because in the aspect of diet, TCM can coordinate cold and heat and both the five flavors according to the food properties of tropism of nature and taste and cold and heat. It can not only ensure the nutrition of the food, but also balances the drug properties of the food, which is beneficial to the absorption of the body with less stimulation to the gastrointestinal tract, so it is more conducive to the recovery of gastrointestinal function [20].

Radical surgery for gastric cancer can cause great damage to the body, inducing strong stress response and acute inflammatory reaction after operation, which is not conducive to the recovery of various functions of the body after operation [21]. In addition to take medical measures to reduce the inflammatory reaction of the body, reasonable nursing intervention can also alleviate the symptoms of acute inflammation, and the reduction of inflammatory state is very beneficial to the recovery of patients after operation. In this study, the levels of serum  $\text{TNF-}\alpha$ , CRP and  $\text{IL-1}\beta$  in the observation group were lower than those in the control group after intervention, suggesting that the addition of TCM nursing on the basis of routine nursing can obviously alleviate the acute inflammatory state of patients with gastric cancer after operation. Liao et al. also compared the effects of the nursing mode of conventional western medicine and combination of TCM with western medicine on postoperative inflammatory state of patients [22]. The results showed that the nursing mode of combination of TCM with western medicine was more effective in controlling postoperative inflammatory state. It is speculated that due to the rapid recovery of gastrointestinal function and the improvement of immune function under the nursing mode of TCM, the control of inflammation is more effective. However, the specific mechanism of reliev-



ing inflammation is not clear, and the further research is needed to confirm it in the later stage. Finally, this study found that the scores of SES and GQOLI-74 in the observation group were higher than those in the control group, and the total incidence of adverse reactions in the observation group was lower than that in the control group, suggesting that the addition of the TCM nursing on the basis of routine nursing can more effectively enhance patients' postoperative self-esteem, reduce the occurrence of postoperative adverse reactions and improve their postoperative quality of life. However, this study is a single-center study, and the sample size is limited. In the later stage, a multi-center large sample study is still needed to confirm the effect of TCM nursing on the functional recovery of patients with gastric cancer after operation.

To sum up, perioperative TCM nursing care for patients with gastric cancer can more obviously improve postoperative gastrointestinal dysfunction, alleviate acute inflammation, improve postoperative poor mental state, reduce the occurrence of postoperative complications, and finally improve the quality of life of patients after operation, which is worthy of clinical application.

### Disclosure of conflict of interest

None.

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