ORIGINAL RESEARCH

Improved Pressure Ulcer Nursing Combined with Traditional Chinese Medicine in Radical Gastrectomy: A Randomized Controlled Trial

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ABSTRACT

Purpose • To explore the effect of improved pressure ulcer nursing combined with traditional Chinese medicine (TCM) in patients undergoing radical gastrectomy.

Methods • A total of 102 patients undergoing radical gastrectomy from September 2016 to August 2019 were randomly divided into the control group (n = 54) and the study group (n = 48). The control group received improved pressure ulcer nursing, while the study group received TCM treatment (namely syndrome differentiation treatment) besides the improved pressure ulcer nursing.

Results • No significant difference was found in general data between the two groups. The efficacy of the study group was significantly higher than that of the control group (79.17% vs 55.56, P = .012). The recovery of gastrointestinal function, anxiety, and depression in the study group was better than that in the control group (35.46±1.29 vs 47.21±2.43; 29.28±1.96 vs 38.93±2.05; all P < .05). The study group had a lower incidence of complications (χ^2=6.00, P = .014) and a higher quality of life and satisfaction (χ^2=17.66, P < .001) than the control group.

Conclusion • In patients undergoing radical gastrectomy, improved pressure ulcer nursing combined with TCM treatment can reduce complications and improve quality of life. (*Altern Ther Health Med.* [E-pub ahead of print.])

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INTRODUCTION

Gastric cancer (GC) is a significant global health concern and is among the most common malignancies worldwide. The incidence of GC varies geographically, with the highest rates reported in Eastern Asia, particularly in countries like China, Japan, and Korea. In these regions, GC is a leading cause of cancer-related deaths.[1,2] According to the International Agency for Research on Cancer (IARC), in 2020, there were an estimated 1 089 103 new cases of stomach cancer worldwide. The highest incidence rates of GC are observed in Eastern Asia, particularly in countries like China, Japan, and Korea. In these regions, GC is a major public health issue. In 2020, there were an estimated 491 000 new cases of stomach cancer in China, accounting for 45% of the global incidence; there were approximately 53 000 new cases of stomach cancer in Japan; there were around 29 000 new cases of stomach cancer in Korea.

At present, surgery is still the only radical treatment option for GC. However, postoperative challenges exist, particularly in advanced cases or when lymph node involvement is present. Adequate lymphadenectomy and complete tumor removal are crucial for optimal outcomes, but these procedures can be technically demanding and carry a risk of complications. Moreover, the management of postoperative complications, such as surgical site infections, anastomotic leaks, and delayed gastric emptying, requires a multidisciplinary approach and can impact patient recovery and long-term prognosis.[3,4] In addition to surgical challenges, systemic treatment options for advanced or metastatic GC are limited, and the prognosis remains poor. Chemotherapy, targeted therapies, and immunotherapy have shown some promise in improving survival outcomes, but further research is needed to identify effective treatment strategies and overcome resistance mechanisms.[5]

As it was explained in the past, pressure sores resulted from the long-term oppression of local tissues of patients, which caused prolonged poor blood flow to tissues, leading to further necrosis.[6] Accordingly, pressure ulcer nursing plays an important role in clinical practice, and with the continuous development and renewal of the nursing concept, pressure ulcer nursing has continued to advance.[7] However, for patients with GC, an appropriate nursing program is necessary not only to reduce the occurrence of complications but also to conduct effective

treatment programs for postoperative treatment.[8] Therefore, traditional nursing methods are insufficient to meet the needs of patients. Improved pressure ulcer nursing provides a new mode of nursing for patients with such conditions. Tailored to the specific needs of patients, the designated nursing program plays an important role in preventing pressure ulcers.

TCM encompasses a comprehensive system of healthcare that focuses on restoring balance and promoting the body's natural healing mechanisms. It includes various modalities such as herbal medicine, acupuncture, and massage, which have been utilized for centuries in the management of diverse health conditions.

Existing evidence and theories support the use of TCM in the context of postoperative gastric cancer patients.[9] TCM therapies have shown potential benefits in wound healing, pain management, reducing inflammation, enhancing immune function, and improving overall well-being. For example, certain herbal medicines have exhibited anti-inflammatory and wound-healing properties, while acupuncture and massage may help alleviate pain, reduce stress, and improve blood circulation. Moreover, TCM approaches are often tailored to the individual patient, taking into account their specific symptoms, constitution, and underlying imbalances. This personalized approach aligns with the need for individualized care in postoperative gastric cancer patients, who may have unique characteristics and treatment requirements.

While both pressure ulcer nursing and Traditional Chinese Medicine (TCM) have been investigated independently in various contexts, there is a notable gap in the current literature regarding their combined application for postoperative gastric cancer patients. Existing research has primarily focused on the individual effects of pressure ulcer nursing interventions or TCM therapies in different patient populations, but there is limited evidence on their integrated use specifically for postoperative gastric cancer patients.

By investigating the combined application of pressure ulcer nursing and TCM in postoperative gastric cancer patients, healthcare professionals can gain insights into the feasibility, effectiveness, and potential synergies of integrating these approaches. This knowledge can inform the development of comprehensive care protocols and contribute to improved patient outcomes, enhanced quality of life, and optimized resource allocation in the management of postoperative gastric cancer patients.

To this end, the aims of this study are to assess the feasibility and acceptability of combining improved pressure ulcer nursing interventions with Traditional Chinese Medicine (TCM) therapies in postoperative gastric cancer patients, and to evaluate the effectiveness of the combined treatment approach in preventing and managing pressure ulcers in this patient population. To achieve these objectives, we will employ a prospective, randomized controlled trial design. The methodology section will provide a detailed description of the study design, participant selection criteria, intervention protocols, outcome measures, data collection methods, and statistical analysis plan.

DATA AND METHODS

Clinical data

A total of 102 patients undergoing radical gastrectomy from September 2016 to August 2019 were randomly divided into the control group (n = 54) and the study group (n = 48). All patients and their families were informed of the study and signed informed consent forms. The study was approved by the Ethics Committee of The Second Affiliated Hospital of Zhejiang University School of Medicine (No. 2016/01-328), and the protocol conformed to the Declaration of Helsinki.

Randomization was performed using a computer-generated random number sequence. The randomization sequence was generated by an independent statistician who was not involved in the patient enrollment or data collection processes.

We determined a conservative estimation and use a medium effect size (Cohen's d = 0.5) to calculate the sample size. Using a power of 80% (0.8) and a significance level of 0.05, we performed a two-sample independent t-test using a sample size calculation formula. Assuming an equal number of participants in both the control and study group:

- Control group (n1) = 54
- Study group (n2) = 48

The total sample size (N) would be: N = n1 + n2 = 54 + 48 = 102
The effect size (d) is estimated as: d = 0.5

Inclusion and exclusion criteria

Patients were eligible for inclusion if they: 1) were aged from 18 to 80 years old; 2) had GC diagnosed by pathological diagnosis; 3) received radical gastrectomy for GC. Patients were excluded if they had 1) other malignant tumors, severe infectious diseases, or severe liver and kidney dysfunction; 2) emotional or communication disorders; 3) poor compliance with the study.

Intervention method

The control group received improved pressure ulcer nursing, while the study group received TCM treatment in addition to improved pressure ulcer nursing. Specific measures of improved pressure ulcer nursing were as follows: 1) Patients' conditions were evaluated. Patients and their families' knowledge of pressure sore prevention was strengthened, and their understanding of skincare, nutrition care and products for preventing pressure sores was introduced, particularly avoiding local pressure for a long time. Their families were guided to master the ability to assist patients in changing their positions. 2) The sheets and bedding were changed regularly, and patients' skin was cleaned and massaged regularly to improve local blood circulation. 3) Digestible, high-vitamin, and high-protein foods were provided to promote intestinal peristalsis. 4) Patients with sound recovery could be encouraged to shift their body positions on their own. 5) During the treatment, nursing staff should provide patients with health education, primarily on the occurrence, prevention, and treatment of

pressure sores, as well as teach patients how to move in bed and under bed for the purpose of continuously enriching the knowledge of pressure sore prevention for patients and their families. 6) Patients' unpleasant psychological emotions were dredged and resolved.

Specific measures of TCM were as follows. Syndrome differentiation treatment was performed based on the patient's particular conditions. 1) Spleen-strengthening TCM compounds were applied, including Radix Pseudostellariae, Ginseng, Poria cocos, fried atractylodes, white lentils, Jiang Banxia, and Pericarpium Citri Tangerinae, with the support of concha Ostreae and Prunellae Spica for softening hardness and resolving phlegm. 2) Syndrome differentiation: spleen deficiency syndrome: Decoction of Four Noble Drugs for strengthening the spleen and replenishing Qi; Blood deficiency syndrome: Decoction of Four Ingredients for tonifying Qi and blood; Spleen and kidney deficiency syndrome: Fuzi Lizhong Decoction and Yougui Pill for tonifying the spleen and kidney; Phlegm-dampness syndrome: Er Chen Decoction for relieving phlegm-and dampness; Heat-toxin syndrome: Stomach-Clearing Powder or Xie xin Decoction for clearing away heat and toxic materials; Blood stasis syndrome: infradiaphragmatic stasis-expelling decoction for activating blood circulation and removing blood stasis. 3) On the basis of the TCM compound for tonifying the spleen, the medication was added or subtracted according to syndrome differentiation. The administration of the medication was oral decoction, one dose per day and twice per day. Weekly medication adjustments were made based on the clinical syndrome differentiation. TCM interventions were administered by qualified TCM practitioners or healthcare professionals trained in TCM principles and techniques. The involvement of experienced TCM practitioners would ensure proper diagnosis, prescription, and monitoring of the TCM treatments. The indicators of the two groups were compared after one month of treatment.

Outcome measures

The curative effects after treatment were judged using the RECIST solid tumor curative effect evaluation standard,[10] which included disease progression (lesions increased by more than 20% or new lesions occurred), disease stabilization (lesions did not change significantly, or increased without disease progression, or reduced without partial remission), partial remission (measurable lesions reduced by more than 30%) and complete remission (all lesions disappeared).

The gastrointestinal function, including the recovery time of bowel sounds and the first exhaust time, was evaluated and compared between the two groups.

Self-rating Anxiety Scale (SAS) and Self-rating Depression Scale (SDS)[11] were applied to evaluate the psychological negative emotions of the two groups before and after nursing. The higher the score, the more severe the symptoms.

The complications of the two groups were compared, including pressure sores, incision infection, lung infection, and anastomotic leakage. A structured data collection form was designed to record the occurrence of complications. The form included relevant variables such as patient identification, group allocation, date of surgery, and details about each specific complication (presence/absence, severity, onset time, etc.). The collected data was entered into a computerized database, ensuring accuracy and completeness. The entered data was double-checked for any errors or inconsistencies.

Once the data was entered, statistical analysis was performed to compare the complications between the control and study groups.

Quality of Life Questionnaire Core 30 (QLQ-C30)[12] was applied to evaluate the quality of life of patients in both groups before and after nursing, assessing a total of 5 items (body, role, emotion, society and cognition) and 30 items. The higher score represents a higher quality of life. It is a multidimensional instrument that covers various domains of quality of life, including physical functioning, emotional functioning, cognitive functioning, social functioning, role functioning, fatigue, pain, nausea and vomiting, dyspnea, insomnia, appetite loss, constipation, diarrhea, and financial difficulties. The questionnaire uses a Likert-type response format, where patients rate their experiences and symptoms on a four-point scale (ranging from "Not at all" to "Very much"). The QLQ-C30 has demonstrated good internal consistency reliability, which is typically assessed using Cronbach's alpha coefficient, with values above 0.70 considered acceptable. Each scale in the QLQ-C30 (e.g., physical functioning, emotional functioning, fatigue) is scored separately. The scores range from 0 to 100, with higher scores indicating better functioning or higher symptom burden. These scores can be calculated by averaging the responses to the items within each scale.

Patients' satisfaction with the intervention was investigated through a self-made questionnaire survey, which included three options (very satisfied, satisfied, and dissatisfied). Intervention satisfaction rate = (Very satisfied + Satisfied) / Total cases.

The introduction and instructions were provided, explaining the purpose of the survey and any necessary instructions for completing the questionnaire. Respondents were assured about the confidentiality and anonymity of their responses.

Demographic information was collected at the beginning of the questionnaire, including age, gender, occupation, and any relevant medical details (e.g., type of treatment received, duration of hospital stay).

A question was included to ask respondents to rate their overall satisfaction with the healthcare service provided. This was presented as a Likert scale question or a numerical rating scale.

Questions were asked about specific aspects of patient care and services to measure satisfaction. These included areas such as communication with healthcare providers, waiting times, cleanliness of facilities, information provided about diagnosis and treatment, pain management, and staff

Table 1. General data

Factor	Study group (n = 48)	Control group (n = 54)	χ^2	*P* value
Gender (Male/Female)	25/23	28/26	0.001	.981
Age (years)			0.014	.906
≤61	21(43.75)	23(42.59)		
>61	27(56.25)	31(57.41)		
BMI (kg/m^2)			0.020	.888
≤23	26(54.17)	30(55.56)		
>23	22(45.83)	24(44.44)		
Smoking (Yes/No)	20/28	25/29	0.221	.638
Location			0.500	.779
Antrum	15(31.25)	20(37.04)		
Body	19(39.58)	21(38.89)		
Cardiac part	14(29.17)	13(24.07)		
Pathological types			0.002	.987
Glandular cancer	25(52.08)	27(51.92)		
Squamous carcinoma	23(47.92)	25(48.08)		
Operation time (min)	64.43±10.11	65.32±10.27	0.006	.995

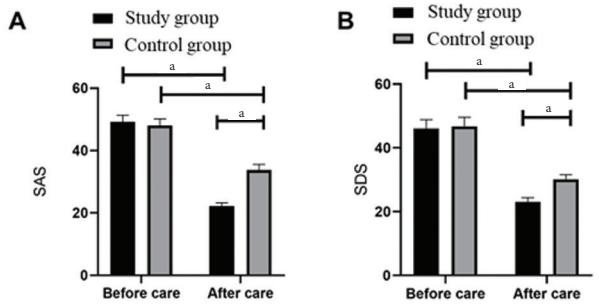
Table 2. Clinical efficacy of the two groups (n, %)

	Complete remission	Partial remission	Stabilization	Progression	Total effective rate
Study group (n = 48)	8	30	8	2	38(79.17)
Control group (n = 54)	3	27	18	6	30(55.56)
χ^2					6.375
P value					.012

Table 3. Recovery of gastrointestinal function (±s, min)

	Recovery time of bowel sounds	First exhaust time
Study group (n = 48)	35.46±1.29	29.28±1.96
Control group (n = 54)	47.21±2.43	38.93±2.05
t	29.95	24.22
P value	<.001	<.001

Figure 1. Comparison of negative emotion scores between two groups of patients: **A**: SAS; **B**: SDS.



[a]indicates *P* < .001.

Table 4. Comparison of incidence of complications (n, %)

	Pressure sore	Incision infection	Lung infection	Anastomotic fistula	Total incidence rate
Study group (n = 48)	0	1	1	0	2
Control group (n = 54)	0	3	5	3	11
χ^2					6.00
P value					.014

Table 5. Comparison of quality of life (±s, points)

	Body	Role	Emotion	Cognition	Society
Study group (n = 48)	92.56±4.18	85.22±3.18	84.63±3.92	91.43±4.75	63.80±2.33
Control group (n = 54)	82.95±4.01	71.53±2.79	71.88±2.52	81.92±2.64	51.22±2.15
t	11.84	23.16	19.75	12.68	28.36
P value	<.001	<.001	<.001	<.001	<.001

responsiveness. A combination of Likert scale questions, multiple-choice questions, and open-ended questions was used to capture a wide range of responses. All these parameters were assessed one month following the intervention.

Statistical analysis

SPSS 20.0 (ND Times) was applied for statistical analysis. The measurement data were expressed by means ± standard deviations and compared using the *t* test, while the enumeration data were compared using the Chi-square test. $P < .05$ indicated that the difference was statistically significant.

RESULTS

General information

Gender, age, BMI, smoking history, location, and disease type were not significantly ($P > .05$) different between the two groups, as shown in Table 1.

Surgical effects

The numbers of complete remission, partial remission, stabilization and progression in the study group were 8, 30, 8, and 2, respectively, and the total effective rate was 79.17%. Those in the control group were 3, 21, 24 and 6, respectively, with a total effective rate of 55.56%. Table 2 shows that the study group's total effective rate was significantly ($P = .012$) higher than the control group.

Recovery of gastrointestinal function

The study group required significantly less recovery time of bowel sounds and the first exhaust time (35.46±1.29 min and 29.28±1.96 min) than the control group (47.21±2.43 min and 38.93±2.05 min) ($P < .001$), as shown in Table 3.

Negative emotion scores

SAS and SDS scales were applied to evaluate the psychological negative emotions of the two groups before and after nursing. The results showed that there was no significant ($P > .05$) difference in SAS and SDS scores between the two groups before nursing. After nursing, the negative emotions scores of the two groups were significantly improved compared with those before nursing. Still, the improvement of the study group was more significant than that of the control group ($P = .021$; .017), as shown in Figure 1.

Complications

In the study group, the numbers of patients with pressure ulcers, incision infection, lung infection, and anastomotic leakage were 0, 1, 1, and 0, respectively, with a 4.18% complication rate.

Those numbers of the control group were 0, 3, 5, and 3, respectively, with an incidence of complications at 20.37%. As indicated in Table 4, the study group had a significantly lower incidence of problems than the control group ($P = .014$).

Quality of life

Compared with the control group, the scores of all dimensions of quality of life of patients in the study group were significantly greater after nursing (all $P < .001$), as demonstrated in Table 5.

Intervention satisfaction

The numbers of patients in the study group who were very satisfied, satisfied, and dissatisfied with the intervention were 81, 25 and 2, respectively, with an intervention satisfaction rate of 97.02%. By contrast, 59 patients were very satisfied with the intervention, 20 were satisfied, and 23 were dissatisfied in the control group, with an intervention satisfaction rate of 64.81%. The study group had significantly higher satisfaction than the control group ($P < .001$). The intervention satisfaction data between the two groups are shown in Table 6.

Table 6. Comparison of nursing satisfaction (n, %)

	Very satisfied	Satisfied	Dissatisfied	Total satisfaction
Study group (n = 48)	23	24	1	47
Control group (n = 54)	19	16	19	35
χ^2				17.66
P value				<0.001

DISCUSSION

In this study, all patients received improved pressure ulcer nursing, achieving satisfactory therapeutic effects. Patients undergoing radical gastrectomy are often bedridden for a long time after operation, which leads to additional complications during hospitalization, especially pressure sores, hindering recover.[17] Improved pressure ulcer nursing is now widely applied in clinical practice. Compared with traditional pressure sore nursing in the past, the improved nursing is more comprehensive and targeted, making the treatment tailored to the patient's risk of developing pressure sores.[18] Improved pressure ulcer nursing in clinical practice has been proven effective in previous studies. According to several research studies,[19] pressure sore nursing can effectively minimize ulcerative pressure sores in surgical patients and ease body inflammation. Therefore, we have implemented improved pressure ulcer nursing for all patients with GC to improve postoperative recovery. However, in addition to traditional radiotherapy and chemotherapy, alternative viable, effective treatments for GC patients must be investigated.

In the study group, TCM was adopted to optimize the treatment effect. In China, TCM has been widely applied to prevent and treat GC. The combined effects of body deficiency and pathogenic excess were considered as the culprits of the onset and development of GC.[20] As a result, we suggested that the combination of improved pressure ulcer nursing and TCM treatment could promote the postoperative recovery of GC patients. Therefore, syndrome differentiation treatment was performed on GC patients according to the specific conditions after an operation. For patients with weak spleen and stomach, ginseng, Pseudostellaria heterophylla, Poria cocos, fried atractylodes, and white lentils were applied as principal medications to exert the efficacy of strengthening the spleen and replenishing Qi, and Pinellia ternata, dried tangerine peel, oyster and Prunella vulgaris as assistant drug to nourish spleen and enrich Qi, soften hardness, and resolve phlegm. According to the symptoms, such as blood deficiency and phlegm dampness, the patients were given symptomatic drugs. After one month of treatment, we first evaluated and compared the curative effects of two groups of patients. The results showed that the total effective rate of the study group was significantly higher than that of the control group, implying that the combined application could effectively boost the curative effect. Then, the recovery of gastrointestinal function was compared between the two groups. For patients undergoing radical gastrectomy, factors such as high tumor consumption, digestive tract reconstruction, and postoperative stress reaction will induce gastrointestinal dysfunction, and the recovery of gastrointestinal function is also a process after surgery. Once gastrointestinal function is disordered, it may lead to a series of complications.[21] Our results revealed that the recovery time of gastrointestinal function in the study group was significantly shorter than that in the control group, indicating that Chinese medicine treatment is beneficial in promoting the recovery of gastrointestinal function after radical gastrectomy. In the process of improving the nursing care of pressure sores, there are relatively few targeted nursing measures for the recovery of gastrointestinal function, whereas our TCM primarily strengthens the spleen and replenishes Qi, conducive to the recovery of gastrointestinal function and effectively compensating for the shortcomings of improving the nursing care of pressure sores.

Then, we compared the complications and negative emotions between the two groups. The complication rate of the study group was significantly lower than the control group's, but both groups' pressure sore complication rates were modest. The study demonstrated that the combination of improved pressure ulcer nursing and TCM treatment resulted in a lower incidence of complications compared to the control group. This finding is clinically relevant as complications can significantly affect postoperative recovery and patient outcomes. By effectively reducing complications, healthcare providers can improve patient safety and enhance the overall quality of care. Patients in both groups improved their negative emotions compared to before the intervention, although the improvement in the study group was more noticeable. This may be due to the fact that TCM treatment can improve the curative effect of patients, promote the recovery of gastrointestinal function of patients, and thereby reduce the occurrence of complications. This helps boost the patient's confidence in their ability to overcome the disease and then improve negative emotions more effectively.[22] The quality of life of patients has become an important index to evaluate the therapeutic effect of cancer and chronic diseases.[23] The quality-of-life scores of the study group were significantly higher than those of the control group. Patients in the study group had significantly higher overall satisfaction with nursing and TCM treatment than those in the control group. These findings are similar to those concluded by Wu et al and Hu et al.[22,23] This outcome is important as the quality of life is a crucial aspect of patient well-being and treatment success. By implementing the combined intervention,

healthcare professionals can positively impact patients' physical, psychological, and social well-being, leading to an improved overall quality of life. This finding is clinically relevant as patient satisfaction plays a vital role in patient-centered care. Higher satisfaction levels indicate that patients perceive the intervention as beneficial and effective, which can enhance their trust in healthcare providers and promote a positive therapeutic relationship. Improved patient satisfaction can also contribute to better treatment adherence and overall patient engagement in their healthcare journey. It is suggested that the combined intervention of improved pressure ulcer nursing and TCM treatment can significantly improve the quality of life and the satisfaction of patients undergoing radical gastrectomy.

Based on the empirical results in this study we can provide evidence-based strategies for medical progress:

1. In patients undergoing radical gastrectomy, the combination of improved pressure ulcer nursing and traditional Chinese medicine (TCM) treatment can reduce complications and improve quality of life.
2. Improved pressure ulcer nursing includes evaluating patients' conditions, enhancing patients' and their families' knowledge of pressure sore prevention, introducing skin care, nutrition care, and products for pressure sore prevention, regular changing of sheets and bedding, regular cleaning and massaging of patients' skin to improve local blood circulation, providing digestible, high-vitamin, and high-protein foods to promote intestinal peristalsis, encouraging patients with sound recovery to shift their body positions, and providing health education to address patients' unpleasant psychological emotions.
3. TCM treatment involves syndrome differentiation based on patients' specific conditions, such as strengthening the spleen with TCM compounds, adjusting medication based on syndrome differentiation, and administering oral decoctions once or twice a day. Medication adjustments are made weekly based on clinical syndrome differentiation.
4. The curative effects after treatment can be assessed using the RECIST solid tumor evaluation standard, including disease progression, disease stabilization, and disease remission. Additionally, the recovery of gastrointestinal function, improvement in anxiety and depression, incidence of complications, quality of life, and patient satisfaction can be evaluated.

These evidence-based strategies can contribute to medical progress by providing effective nursing and treatment approaches for patients undergoing radical gastrectomy.

1. The combination of improved pressure ulcer nursing and traditional Chinese medicine (TCM) treatment in patients undergoing radical gastrectomy demonstrates positive effects. This suggests that integrating traditional medicine with modern healthcare could be an effective approach to enhance treatment outcomes. It highlights the importance of exploring the potential of traditional medicine in medical research and incorporating it into modern medical practices.
2. The present study outlines specific measures of improved pressure ulcer nursing, such as regular changing of sheets and bedding, regular cleaning and massaging of patients' skin to improve local blood circulation, etc. The implementation of these nursing measures has a positive impact on reducing complications and improving patients' quality of life. This emphasizes the importance of focusing on the design and implementation of daily care and rehabilitation measures in medical research, which can further improve patients' recovery and treatment outcomes.
3. This study also introduces the application of traditional Chinese medicine treatment in postoperative gastric cancer patients. It provides insights into the potential benefits of incorporating traditional medicine approaches into mainstream medical research, expanding the scope of treatment options, and considering a holistic approach to patient care.

Limitations of this study

Small sample size: The study included a total of 102 patients, with 54 in the control group and 48 in the study group. The relatively small sample size may impact the reliability and generalizability of the results.

Limited selection of outcome measures: Although the study assessed outcomes such as efficacy, gastrointestinal function recovery, anxiety and depression levels, complication rates, quality of life, and satisfaction, there may be other important rehabilitation outcomes specific to gastric cancer patients that were not included in the evaluation.

Single-center study: This study was conducted at a single medical center, which may introduce regional and institutional differences, limiting the generalizability of the study results.

Implications of this study

Enhanced nursing care: The study highlights the importance of improved pressure ulcer nursing in the postoperative care of patients undergoing radical gastrectomy. This finding emphasizes the need for healthcare providers to prioritize and implement effective pressure ulcer prevention and management strategies in this patient population.

Integration of traditional Chinese medicine (TCM): The study suggests that incorporating TCM treatment, specifically syndrome differentiation treatment, alongside conventional nursing care may have additional benefits for patients undergoing radical gastrectomy. This finding opens avenues for exploring the integration of TCM into perioperative care and highlights the potential of combining traditional and modern medical approaches.

Patient-centered outcomes: The study demonstrates the importance of assessing patient-centered outcomes, such as

recovery of gastrointestinal function, anxiety and depression levels, complications, quality of life, and satisfaction. These outcomes provide valuable insights into the overall well-being and experience of patients undergoing radical gastrectomy and should be considered when evaluating the effectiveness of interventions.

Future directions

Long-term follow-up: Long-term follow-up studies are needed to assess the durability and sustainability of the observed benefits. Evaluating the long-term effects of improved pressure ulcer nursing combined with TCM treatment on complications, quality of life, and overall survival would provide a more comprehensive understanding of the intervention's impact.

Mechanistic studies: Further research is needed to explore the underlying mechanisms by which TCM treatment and improved nursing care exert their effects. Mechanistic studies can help elucidate the biological pathways and physiological processes involved, providing insights into the specific therapeutic actions of TCM and informing the development of targeted interventions.

Multicenter studies: Conducting multicenter studies involving multiple healthcare institutions and diverse patient populations would enhance the generalizability of the findings and account for potential regional and institutional variations. Collaborative research efforts can provide more robust evidence and facilitate the translation of research findings into clinical practice.

CONCLUSION

For patients undergoing radical gastrectomy, a combined intervention of improved pressure sore nursing and TCM treatment can enhance the patient's tolerance to radical gastrectomy, promote the recovery of postoperative gastrointestinal function, and reduce the incidence of postoperative complications. These advantages have a significantly effective influence on prognosis, recovery, quality of life, and patient satisfaction, making this approach worthy of wider clinical application.

CONFLICT OF INTEREST

All authors declared that they have no conflict of interest.

FUNDING STATEMENT

No funds were received.

ETHICAL APPROVAL

Prior to participating in the survey, participants were provided with an informed consent form that outlined the purpose of the study, the procedures involved, the potential risks or benefits, and the voluntary nature of participation. The form also explained how their personal information would be used and protected. Participants were given the opportunity to ask questions and clarify any concerns before providing their consent. Measures were taken to ensure the confidentiality and anonymity of participants' responses and personal information. Participants were assured that their individual responses would be kept strictly confidential and would only be used for research purposes. Personal identifiers were either not collected or were stored separately from the survey data to maintain anonymity.

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