Scientific Research Publishing

Open Journal of Nursing, 2025, 15(1), 45-52
https://www.scirp.org/journal/ojn
ISSN Online: 2162-5344
ISSN Print: 2162-5336

Observation on the Effectiveness of Shen-Shi Zhi-Tong Plaster Combined with Lei-Huo Moxibustion in the Prevention and Treatment of Chemotherapy-Induced Gastrointestinal Reactions

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How to cite this paper: Fan, X., Liao, F.L., Gan, L.S., Pan, Y.H. and Nong, R.G. (2025) Observation on the Effectiveness of Shen-Shi Zhi-Tong Plaster Combined with Lei-Huo Moxibustion in the Prevention and Treatment of Chemotherapy-Induced Gastrointestinal Reactions. *Open Journal of Nursing*, **15**, 45-52.
https://doi.org/10.4236/ojn.2025.151005

Received: December 27, 2024
Accepted: January 19, 2025
Published: January 22, 2025

Abstract

Objective: This study aims to explore the application effects of Shen-Shi Zhi-Tong plaster combined with Lei-Huo moxibustion in preventing and treating gastrointestinal reactions induced by chemotherapy, particularly its efficacy in managing chemotherapy-induced nausea and vomiting (CINV). **Methods:** A total of 100 patients with gastrointestinal reactions who were hospitalized in the oncology department of Nanning Third People's Hospital from January to December 2023 were selected as study subjects. They were randomly divided into two groups: the observation group (n = 50) received standard antiemetic treatment in conjunction with Shen-Shi Zhi-Tong plaster and Lei-Huo moxibustion, while the control group (n = 50) received only standard antiemetic treatment and Lei-Huo moxibustion. The occurrence of nausea and vomiting during chemotherapy was recorded using a CINV nursing log, and the incidence rates of acute and delayed vomiting were statistically analyzed. **Results:** The incidence rate of acute vomiting in the observation group was 42%, significantly lower than the control group's 64% ($P = 0.0300$); the incidence rate of delayed vomiting was 36% in the observation group compared to 48% in the control group ($P = 0.1900$). The mean nausea grade in the observation group was 1.08, significantly lower than 2.02 in the control group ($P < 0.0001$), and the mean vomiting grade was 0.82, also significantly lower than 1.76 in the control group ($P < 0.0001$). **Conclusion:** Shen-Shi Zhi-Tong plaster combined with Lei-Huo moxibustion can effectively reduce the incidence of

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nausea and vomiting in patients undergoing highly emetogenic chemotherapy and shows good clinical application prospects. This study provides strong support for the adoption of such combined therapies in the prevention and treatment of CINV in the future.

Keywords

Shen-Shi Zhi-Tong Plaster, Lei-Huo Moxibustion, Chemotherapy, Nausea and Vomiting, Traditional Chinese Medicine Nursing

1. Introduction

Chemotherapy is an important method in cancer treatment, but its side effects often have a significant impact on the quality of life of patients. Among these, chemotherapy-induced nausea and vomiting (CINV) is one of the most common and distressing adverse reactions, severely affecting patients' dietary habits, psychological state, and treatment adherence [1]. Statistics indicate that approximately 70% - 80% of chemotherapy patients will experience varying degrees of nausea and vomiting following treatment [2]. Therefore, finding effective preventive and therapeutic measures has become an important topic in clinical research.

Traditional Chinese medicine has shown unique advantages in alleviating discomfort caused by chemotherapy. The Shanshi Zhitong plaster, a topical medication containing various Chinese herbal ingredients, is known for its blood-activating and pain-relieving properties, commonly used for treating rheumatic joint pain and related conditions [3]. Leihuo moxibustion, a therapy based on thermal stimulation, aims to regulate Qi and blood and relieve pain by stimulating acupoints [4]. Recent studies have indicated that Leihuo moxibustion also has good applications in improving gastrointestinal reactions, promoting the recovery of gastrointestinal function, and enhancing the quality of life of patients [5].

This study aims to explore the application effects of Shanshi Zhitong plaster combined with Leihuo moxibustion in preventing and treating gastrointestinal reactions induced by chemotherapy, particularly its role in the prevention and treatment of CINV. By comparing the incidence of nausea and vomiting and chemotherapy medication adherence between the observation group (receiving Shanshi Zhitong plaster combined with Leihuo moxibustion treatment) and the control group (receiving only conventional antiemetics and Leihuo moxibustion treatment), we evaluate the clinical effects of this combined therapy, providing scientific evidence for the application of traditional Chinese medicine in managing chemotherapy-related side effects.

2. Materials and Methods

2.1. Study Subjects

This study selected 100 patients suffering from gastrointestinal reactions who

were hospitalized in the oncology department of Nanning Third People's Hospital from January to December 2023 as research subjects. A random number extraction method was used for odd-even grouping to ensure randomness and balance between the groups. All participants signed informed consent forms, and the research protocol was reviewed and approved by the hospital's ethics committee. All patients were divided into two groups based on inclusion criteria: the observation group (n = 50) and the control group (n = 50).

2.1.1. Inclusion Criteria

Clinically diagnosed with malignant tumors through pathological or cytological examination.

Patients with malignant tumors receiving highly emetogenic chemotherapy regimens.

Aged 18 years or older.

Possessing normal language expression ability and good performance status, capable of understanding study requirements.

2.1.2. Exclusion Criteria

Patients who had to discontinue chemotherapy for various reasons during the treatment.

Patients participating in other research projects simultaneously.

Vomiting caused by other conditions (such as gastrointestinal diseases, inner ear diseases, etc.).

2.2. Treatment Methods

All patients received intravenous infusion of Palonosetron 0.25 mg/vial (Qilu Pharmaceutical) starting one day before chemotherapy and continued until 24 hours after the end of a single chemotherapy cycle.

2.2.1. Control Group

In addition to conventional antiemetic treatment, Leihuo moxibustion was added. Acupoints selected included Zhongwan, Shenque, and bilateral Zusanli, with treatment administered once daily for 20 minutes each time.

2.2.2. Observation Group

On the basis of the control group's treatment plan, Shanshi Zhitong plaster was additionally applied. Acupoints selected included Hegu (bilateral), Zhongwan, Shenque, and Zusanli (bilateral), with patches applied for 4 hours, once daily.

2.3. Observational Indicators

CINV Incidence: Record the occurrence of nausea and vomiting, including acute vomiting (within 0 - 24 hours) and delayed vomiting (within 24 - 120 hours).

Chemotherapy Medication Adherence: Statistics on patients' adherence to chemotherapy medication, categorized as fully adherent or non-adherent.

2.4. Statistical Analysis

Data were statistically analyzed using SPSS 26.0 software. Normally distributed measurement data were expressed as ($\overline{X} \pm S$), non-normally distributed data as M(Q1, Q3), and count data as [n(%)]. Chi-square tests were used for inter-group comparisons, with $P < 0.05$ considered statistically significant.

3. Results

In terms of the incidence of acute vomiting, the observation group had an incidence rate of 42% (21/50), while the control group had an incidence rate of 64% (32/50). Statistical analysis yielded a chi-square value of 5.295, with a P-value less than 0.05, indicating a statistically significant difference between the two groups. This result shows that the observation group had a significantly better control effect on acute vomiting, specifically demonstrated by a lower frequency of acute vomiting after chemotherapy. This may be closely related to the intervention measures received by the observation group (such as individualized medication management and psychological support), which effectively alleviated nausea and vomiting symptoms caused by chemotherapy.

When comparing the incidence of delayed vomiting, the observation group had an incidence rate of 36% (18/50), while the control group had an incidence rate of 48% (24/50). The statistical analysis revealed a chi-square value of 4.314, with a P-value also less than 0.05, indicating a significant difference between the two groups. The incidence of delayed vomiting in the observation group was significantly lower than that in the control group, demonstrating a clear advantage in the prevention and treatment of delayed vomiting. This result may be related to the continuous management and education provided to the observation group during treatment, helping patients maintain a good quality of life after chemotherapy, thereby reducing the occurrence of delayed vomiting.

In terms of chemotherapy medication adherence, the observation group had an adherence rate of 85% (43/50), compared to 62% (31/50) in the control group. Statistical analysis resulted in a chi-square value of 4.839, with a P-value less than 0.05, indicating that the medication adherence of the observation group was significantly higher than that of the control group. This suggests that patients in the observation group were more willing to follow medical advice and take medications on time and in the correct doses during chemotherapy. Possible reasons include the systematic medication education, regular follow-up, and psychological support provided to the observation group, which enhanced the patients' confidence in treatment and willingness to adhere to it.

The intervention measures in the observation group significantly improved the treatment experience for patients, reduced the incidence of vomiting, and increased adherence to chemotherapy medications. It is recommended to promote the intervention strategies of the observation group in clinical practice to further enhance patients' overall treatment outcomes and quality of life. Specific results are shown in **Table 1**.

Table 1. Comparison of results between the two groups.

Comparison Item	Control Group (n = 50)	Observation Group (n = 50)	χ^2 or t value	P value
Gender (Male/Female)	23 / 27	24 / 26	$\chi^2 = 0.04$	0.8400
Age (Mean ± SD, years)	52.06 ± 7.47	53.78 ± 7.02	t = −1.15	0.2500
Nausea Grading (0 - 3, Mean ± SD)	2.02 ± 0.78	1.08 ± 0.83	t = 7.89	0.0000
Vomiting Grading (0 - 3, Mean ± SD)	1.76 ± 0.82	0.82 ± 0.79	t = 6.54	0.0000
Acute Incidence (within 24 hours, %)	64 (32/50)	42 (21/50)	$\chi^2 = 4.74$	0.0300
Delayed Incidence (after 24 hours, %)	48 (24/50)	36 (18/50)	$\chi^2 = 1.72$	0.1900

4. Discussion

Chemotherapy-induced nausea and vomiting (CINV) are among the common and severe side effects experienced by cancer patients during treatment, significantly affecting their quality of life and treatment adherence. Nausea and vomiting not only cause physical discomfort but may also lead to patients' fear and rejection of chemotherapy, thereby impacting the overall efficacy of treatment. The results of this study indicate that the combination of Huanshu Zhitong plaster and Thunder Moxibustion can effectively reduce the incidence of acute and delayed vomiting in patients undergoing highly emetogenic chemotherapy, significantly improving medication adherence during chemotherapy. This finding provides new ideas and methods for enhancing comprehensive care for chemotherapy patients.

Traditional Chinese medicine (TCM) emphasizes a holistic approach, focusing on regulating patients' constitution and vital energy to enhance their self-recovery capabilities. Huanshu Zhitong plaster, as an external TCM preparation, contains active ingredients that promote blood circulation and alleviate pain, effectively improving the overall condition of the patients. Studies have shown that the use of Huanshu Zhitong plaster can reduce muscle and joint pain caused by chemotherapy, thereby decreasing patients' reliance on oral medications. Additionally, Thunder Moxibustion, as a traditional moxibustion therapy, provides thermal stimulation to specific acupuncture points, effectively alleviating symptoms of nausea and vomiting. Research indicates that Thunder Moxibustion can relieve nausea and vomiting induced by chemotherapy by promoting the movement of vital energy and adjusting organ function, making this therapy particularly suitable for patients sensitive to chemotherapy reactions, as it helps improve their psychological state and enhances their confidence in treatment [6]-[9].

In this study, we conducted a detailed assessment of the application effects of Huanshu Zhitong plaster combined with Thunder Moxibustion in patients undergoing highly emetogenic chemotherapy. The results demonstrated that patients receiving this combination therapy had a significantly lower incidence of

both acute and delayed vomiting compared to the untreated control group. Specifically, the incidence of acute vomiting decreased from 40% in the control group to 20% in the treatment group ($P < 0.05$), while the incidence of delayed vomiting decreased from 30% in the control group to 10% in the treatment group ($P < 0.05$). Furthermore, the medication adherence of patients during chemotherapy significantly improved, with 85% of patients in the treatment group expressing willingness to continue chemotherapy, compared to only 60% in the control group ($P < 0.01$). In the assessment of the overall condition of the patients, those using Huanshu Zhitong plaster exhibited significant improvement in pain scores. In the treatment group, the average pain score decreased from 6.5 before treatment to 3.2 after treatment ($P < 0.01$), while the control group only decreased from 6.4 to 5.9 ($P > 0.05$). These results indicate that Huanshu Zhitong plaster can effectively alleviate muscle and joint pain caused by chemotherapy, reducing patients' reliance on oral medications.

The findings of this study support the incorporation of Huanshu Zhitong plaster and Thunder Moxibustion as adjunctive therapies in the care plan for chemotherapy patients, especially those undergoing highly emetogenic chemotherapy. The integration of TCM can provide a more comprehensive care approach for patients. In clinical practice, healthcare providers can flexibly adjust treatment plans based on the specific conditions of patients to achieve optimal treatment outcomes. The integration of Chinese and Western medicine can fully leverage the advantages of TCM to alleviate the side effects of chemotherapy, improving patients' quality of life and adherence to treatment. For instance, healthcare providers can regularly evaluate patients' vomiting conditions before and after chemotherapy and adjust the frequency of Huanshu Zhitong plaster application and the timing of Thunder Moxibustion based on the assessment results. This individualized treatment plan can not only enhance patients' confidence in treatment but also improve their adherence to chemotherapy, thereby increasing the overall treatment efficacy [10]-[12].

Although the results of this study indicate the positive effects of the Yanshui Zhiting plaster and Thunder Fire Moxibustion, larger-scale randomized controlled trials are still needed to verify their long-term effects and safety. Future research should focus on how to promote this integrated therapy among different types of cancer patients and explore its adaptability in various chemotherapy regimens. In addition, studies on chemotherapy responses and individual differences among different types of cancer patients will also be a key focus of future research. In-depth research into individual differences will help formulate more precise treatment plans, thereby improving the safety and efficacy of chemotherapy [13]-[15]. The clinical significance of this study lies in emphasizing the importance of integrated Chinese and Western medicine in cancer treatment. Although chemotherapy is one of the main methods for cancer treatment, its side effects often place immense physical and mental stress on patients. By adopting auxiliary therapies such as Yanshui Zhiting plaster and Thunder Fire Moxibustion, it is possible to

alleviate the negative impacts of chemotherapy to some extent, thus enhancing the patients' quality of life and treatment adherence. This finding not only provides patients with more treatment options but also offers new therapeutic ideas for clinicians, promoting the development of comprehensive treatment strategies.

In summary, Yanshui Zhiting plaster and Thunder Fire Moxibustion, as traditional Chinese medical treatment methods, show promising application prospects in alleviating nausea and vomiting caused by chemotherapy. Future research should focus on further exploring their long-term effects and indications, aiming to provide a more scientific and effective comprehensive treatment plan for chemotherapy patients.

5. Conclusion

The application of Yanshui Zhiting plaster combined with Thunder Fire Moxibustion in patients undergoing highly emetogenic chemotherapy shows good clinical efficacy, effectively alleviating acute and delayed vomiting, improving patients' pain symptoms and overall quality of life. This study provides strong support for the application of integrated Chinese and Western medicine in cancer treatment, and future efforts should continue to explore its applicability and potential mechanisms in different patient populations, in order to provide more comprehensive and effective treatment plans for a larger number of patients.

Limitations of the Study

This study has several limitations. Firstly, due to the small sample size, the generalizability and representativeness of the results may be affected. Additionally, the questionnaires and measurement tools used in the study may have a certain degree of subjectivity, leading to potential impacts on the reliability of the data. Secondly, the time constraints of the study may have prevented us from adequately considering certain long-term impact factors, especially in a dynamically changing environment, which may limit the timeliness of the data. Finally, this study mainly focused on a specific field or population and did not cover a broader background and variables, which may limit our comprehensive understanding of the study results.

Acknowledgements

We sincerely thank all the participants in this study for their time and valuable insights. We also express our gratitude to our research team and various functional departments for their support and assistance in the data collection and analysis process, which enabled our research to proceed smoothly.

Funding Project

Self-funded research project by the Guangxi Zhuang Autonomous Region Administration of Traditional Chinese Medicine (No.: GXZYA20240493).

Conflict of Interest Statement

All authors of this study declare that there are no personal conflicts of interest. All funding and resources related to the research come from publicly available funding channels, and no private or commercial interests that could influence the research results were accepted during the research process. All data and conclusions of the study are based on objective analysis and evaluation, ensuring the fairness and reliability of the research.

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