

Original Article

Effect of humanized nursing intervention in breast cancer patients undergoing chemotherapy

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Abstract: Objective: To explore the clinical effect of humanized nursing intervention model in breast cancer patients undergoing chemotherapy. Methods: A total of 108 patients with breast cancer who were treated in Nanfang Hospital, Southern Medical University from April 2018 to October 2019 were selected for this retrospective study, which were divided into control group (n = 54) and observation group (n = 54). The patients in the control group were given routine nursing, while the patients in the observation group were treated with humanized nursing intervention. Quality of Life Questionnaire (QLQ-C30), self-rating depression scale and self-rating anxiety scale were used to compare the quality of life and mental state of the two groups before and after nursing. The compliance, the incidence of adverse reactions after chemotherapy and nursing satisfaction after nursing between the two groups were compared. Results: After nursing, the QLQ-C30 scores of patients in observation group were significantly higher than those of control group ($P < 0.05$). After nursing, the scores of SAS and SDS in observation group were significantly lower than those in the control group (45.35 ± 6.62 and 46.62 ± 8.79 vs. 49.23 ± 4.19 and 51.41 ± 5.18 respectively, all $P < 0.01$). The incidence of adverse reactions in observation group was significantly lower than that of the control group, while the nursing satisfaction and treatment compliance in the observation group were significantly higher than those in control group (all $P < 0.05$). Conclusion: Compared with the traditional nursing model, humanized nursing intervention can improve the quality of life of breast cancer patients undergoing chemotherapy, reduce the incidence of adverse reactions after chemotherapy and improve the patients' nursing satisfaction.

Keywords: Humanized nursing intervention, chemotherapy, breast cancer, clinical effect analysis

Introduction

Breast cancer is a common malignant tumor in women with the highest morbidity among women worldwide, which locates in epithelial part of the terminal ductal lobular unit of the breast [1, 2]. The global incidence of breast cancer increases at about 3% a year, seriously endangering the health and safety of women [3]. At present, the main clinical treatment is operative therapy or chemotherapy, especially for the infiltrating cancer, which was often treated by chemotherapy. In the process of chemotherapy, patients often have a variety of adverse reactions and clinical complications, such as nausea, alopecia, dermatologic disease, bleeding of the digestive tract and so on, which have brought a lot of physical pain and psychological pressure to patients, seriously affecting their quality of life and treatment compliance [4, 5]. Therefore, how to nurse these patients and

improve their quality of life is a problem that needs to be solved.

Humanized nursing is a new nursing model proposed in recent years, which advocates "people-oriented", pays attention to patients themselves on the basis of routine nursing, protects patients' privacy and dignity, and provides safety and high-quality of nursing care, making patients feel nursing care and service initiative. Humanized nursing intervention was carried out from the aspects of patients' mental state, social function and quality of life [6]. It has been reported that humanized nursing intervention can reduce the complications of chemotherapy and pain in patients, and improve their treatment compliance and long-term quality of life [7]. At present, humanized nursing intervention has been applied in gynecology, liver surgery, urology and other departments, and the incidence of postoperative complications was gen-

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erally reduced, and the nursing satisfaction was improved [8, 9]. However, there are no reports of the effect of humanized nursing intervention on breast cancer.

Therefore, our study aimed to explore the intervention effect of humanized nursing intervention on breast cancer patients undergoing chemotherapy.

Patients and methods

Subjects

A total of 108 patients with breast cancers who were treated in Nanfang Hospital, Southern Medical University from April 2018 to October 2019 were selected for this retrospective study. The patients were divided into control group ($n = 54$) and observation group ($n = 54$). The study was approved by the Ethics Committee of Nanfang Hospital, Southern Medical University, and all the patients signed the informed consent.

Inclusion criteria

Patients were female and were diagnosed by relevant clinical and histopathological tests that were in accordance with the clinical diagnostic criteria of the Chinese guidelines for diagnosis and treatment of breast cancer 2018 [10]; patients received postoperative chemotherapy for the first time; patients and their families knew and agreed with the aims and content of this study, and cooperated voluntarily; patients could communicate normally and the follow-up cycle was completely.

Exclusion criteria

Patients with incomplete clinical data; patients with cancer recurrence; patients with tumor metastasized; patients accompanied by other serious systemic diseases; patients with severe mental illness or a previous history of mental illness; patients with contraindications to chemotherapy; patients were other research project participants.

Nursing methods

Patients in the control group were given routine nursing care, which included routine admission arrangements, disease detection, timely administration of drugs, regular visits and related health education, etc.

The observation group adopted the humanized nursing intervention, including five aspects: (1) Mental nursing. As most patients have negative emotions such as depression, anxiety and sense of loss after mastectomy, medical staff should actively communicate with patients and understand their mental state. When communicating, the attitude should be earnest and the language should be sincere and gentle, with the goal to relieve the psychological crux of the patient. The medical staff should encourage patients, correct their cognitive mistakes, help them build up confidence in treatment, and enhance their yearning for life [11]. (2) Nursing during chemotherapy. The nurses should pay attention to the details of operation of intravenous administration to reduce possible mechanical injury. The nurses should also pay attention to regular inspection to prevent the occurrence of liquid extravasation. At the same time, due to the specificity of patients and the reduction of immunity, aseptic operation should be strictly followed to reduce the occurrence of complications, such as infection. (3) Diet and hygienic nursing. Patients often have strong response in the early stage of chemotherapy and they would have adverse reactions such as nausea and vomiting. The nurses should guide the patients to have more meals a day but little food at each, with more vegetables and fruits to ensure the intake of trace elements. The environment of the patient ward should be kept clean, hygienic and comfortable, and maintain ventilation and regular disinfection. (4) Exercise nursing intervention. According to the patient's personal physical condition and state of illness, individualized exercise program was designed to help the patients do more relief-based relaxing exercise. Staying in the bed for long time or exercising too much was prohibited. (5) Nursing of adverse reactions and complications. Chemotherapy is often accompanied by varying degrees of complications. Related drugs should be provided to patients to relieve their symptoms. For example, dexamethasone (Tianjin Lisheng Pharmaceutical) is administrated to patients who were vomiting. If patients have hair loss or skin discomfort due to chemotherapy, the nurses should guide the patients and their families to take corresponding measures to relieve their discomfort, such as avoiding the use of irritant shampoo or washing hair with warm water [12]. The purpose of treatment and the causes of various adverse reactions were explained to patients. The nurse should urge patients and their families to actively cooperate

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Table 1. Comparison of clinical data (n, $\bar{x} \pm sd$)

Groups	n	Age range (years)	Average ages (years)	Body weight (kg)	BMI (kg/m ²)	Type of breast cancer (n)	
						Non-invasive cancer	Invasive cancer
Control group	54	36-59	45.20±7.30	54.32±8.71	19.42±2.14	44	10
Observation group	54	38-61	44.70±9.50	56.52±10.43	20.15±3.42	42	12
t/ χ^2			0.307	1.190	1.330	0.228	
P			0.760	0.237	0.187	0.633	

Note: BMI: body mass index.

with nursing implementation to minimize the degree and impact of adverse reactions.

Outcome measures

Primary outcomes: Quality of life questionnaire (QLQ-C30), self-rating anxiety scale (SAS) and self-rating depression scale (SDS) were used to compare the quality of life and mental states of patients in the two groups before and after nursing [13, 14]. The collection time after nursing was the time after chemotherapy, and the collection was performed in the form of question and answer. The QLQ-C30 questionnaire was used to mainly analyze and compare the five functional scales, which included cognitive function, emotional function, physical function, role function and social function. The total score of each item was 100, and high score indicated high quality of life. As for SAS, the high score indicated serious anxiety of patients; the score less than 50 was regarded as normal, 50-59 as mild anxiety, 60-69 as moderate anxiety, and more than 70 as severe anxiety. As for SDS, the high score indicated serious depression of patients; the score below 53 were regarded as normal, 53-62 as mild depression, 63-72 as moderate depression, and more than 72 as severe depression.

Secondary outcomes: The treatment compliance, the incidence of complications and nursing satisfaction were compared between the two groups. The treatment compliance was divided into relatively complete compliance and incomplete compliance. The relative complete compliance was defined as the patients could basically be coordinated in accordance with the treatment plan, while the incomplete compliance was defined as the patients had poor compatibility and the chemotherapy process was completed with many times of persuasion. The treatment compliance rate (%) = the number of cases of relative complete compliance/

total case number \times 100. The incidence of complications (%) = the case number of complications/total case number \times 100. Nursing satisfaction was evaluated by self-made questionnaire (See Table S1), of which the level was divided into satisfactory, general and unsatisfactory. Nursing satisfaction rate (%) = (satisfactory + general) case number/total case number \times 100.

Statistics analysis

All the data in this paper were processed by the statistical software of SPSS15.0. The counting data are expressed by number of cases and percentage (n, %) and analyzed by chi-square (χ^2) test. The measurement data in accordance with normal distribution were expressed by mean \pm standard deviation ($\bar{x} \pm sd$); the comparison between groups was carried out by independent t-test, and paired t-test was used for comparison within a group. $P < 0.05$ represented that the difference was statistically significant.

Results

Comparison of clinical data

There was no significant difference in the general clinical data of patients between the two groups, such as age range, average age, body mass index (BMI), body weight and disease degree. See Table 1.

Scores comparison of quality of life between the two groups

The quality of life of the two groups was evaluated in terms of cognitive function, emotional function, physical function, role function and social function. There was no significant difference in quality of life scores between the two groups before nursing ($P > 0.05$). After nursing, the quality of life scores of patients in the

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Table 2. Comparison of quality of life scores after nursing ($x \pm sd$)

Projects	Control group		Observation group	
	Before nursing	After nursing	Before nursing	After nursing
Cognitive function	70.88±15.38	72.18±13.23	71.11±16.98	78.32±14.68* [#]
Emotional function	58.54±16.16	59.94±15.14	59.03±16.16	67.03±16.34* [#]
Physical function	69.23±14.21	71.33±16.82	68.72±15.74	77.17±10.27* [#]
Role function	48.69±14.77	50.61±18.17	47.73±15.27	57.43±15.88* [#]
Social function	47.82±15.46	48.22±15.19	48.11±14.69	56.51±14.08* ^{##}

Note: Compared with the control group after nursing, [#]P < 0.05, ^{##}P < 0.01; compared with the patients in the same group before nursing, *P < 0.05.

Table 3. Comparison of SAS and SDS scores after nursing ($x \pm sd$)

Groups	n	SAS		SDS	
		Before nursing	After nursing	Before nursing	After nursing
Control group	54	57.01±6.69	49.23±4.19***	57.51±4.22	51.41±5.18***
Observation group	54	55.78±5.23	45.35±6.62*** ^{##}	56.27±5.16	46.62±8.79*** ^{##}

Note: Compared with the control group after nursing, ^{##}P < 0.01; compared with before and after nursing in the group, ***P < 0.001. SAS: self-rating anxiety scale; SDS: self-rating depression scale.

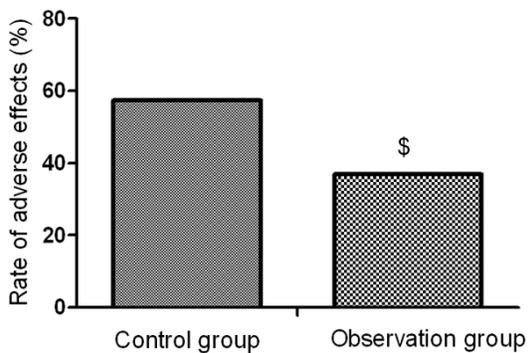


Figure 1. Comparison of adverse reactions. Compared with the control group, ^{\$}P < 0.05.

observation group were significantly improved ($P < 0.05$), and that in the control group was improved to some extent but the difference was not significant ($P > 0.05$). After nursing, the quality of life score in the observation group was significantly higher than that in the control group ($P < 0.05$). See **Table 2**.

Comparison of SAS and SDS scores between the two groups

There was no significant difference in SAS and SDS scores between the two groups before nursing ($P > 0.05$). After nursing, the scores of SDS and SAS in the observation group were significantly lower than those in the control group (45.35±6.62 and 46.62±8.79 vs 49.23±4.19

and 51.41±5.18 respectively, with all $P < 0.01$). Compared with before nursing, SAS and SDS scores in both groups reduced significantly after nursing ($P < 0.001$). See **Table 3** for details.

Comparison of adverse reactions between the two groups

During the treatment, there were different types of adverse reactions appeared in the two groups. In the control group there were nausea ($n = 6$), dry skin ($n = 9$), dyspepsia ($n = 10$) and alopecia ($n = 6$), with the total incidence of adverse reactions of 57.41%. In the observation group, there were nausea ($n = 4$), dry skin ($n = 4$), dyspepsia ($n = 7$) and alopecia ($n = 5$), with the total incidence of adverse reactions of 37.04%.

The incidence of adverse reactions in the observation group was significantly lower than that in the control group, and the difference was statistically significant ($P < 0.05$), as shown in **Figure 1**.

Comparison of treatment compliance between the two groups

The treatment compliance rate of patients in the control group was 75.93%, which was significantly lower than that in the observation group (90.74%, $P = 0.039$). See **Table 4**.

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Table 4. Comparison of treatment compliance rate between the two groups (n, %)

Groups	n	Relative complete compliance	Incomplete compliance	Compliance rate	χ^2/P
Control group	54	41 (75.93)	13 (24.07)	75.93%	4.267/0.039
Observation group	54	49 (90.74)	5 (9.26)	90.74%	

Table 5. Comparison of nursing satisfaction between the two groups (n, %)

Groups	n	Satisfaction	General	Dissatisfaction	Satisfaction rate
Control group	54	14 (25.93)	22 (40.74)	18 (33.33)	36 (66.67)
Observation group	54	19 (35.19)	28 (51.85)	7 (12.96)	47 (87.04)
Z			-2.054		
P			0.040		

Comparison of nursing satisfaction rate between the two groups

The nursing satisfaction rate of patients in the control group was 66.67% (36/54), which was significantly lower than that in the observation group (87.04%, 47/54). The difference was statistically significant ($P < 0.05$). See **Table 5**.

Discussion

Chemotherapy refers to the use of chemical drugs to suppress the proliferation and metastasis of cancer cells and finally kill the cancer cells [15]. Chemotherapy is the main treatment of cancer at present, but it not only kills the cancer cells, but also damages the normal cells, causing adverse reactions and bringing great pain to patients. It has been reported that nursing intervention and social support in chemotherapy have positive clinical effects on breast cancer, which can relieve patients' psychological pressure, improve treatment belief, and contribute to the promotion of cancer treatment [16, 17].

In the process of chemotherapy for breast cancer, patients are under great psychological pressure and are prone to depression, anxiety and even suicide due to mastectomy, fear of cancer and various discomfort reactions, which affect their normal life and therapeutic effect [18, 19]. Tsaras et al. reported that there were more than 80% of cancer patients who had varying degrees of psychological problems, especially in women [20]. In our study, nurse provided humanized nursing intervention to breast cancer patients through strengthening communication with them and giving them regular psychological counseling to help them

build up confidence in treatment, feel the warmth of society, and enhance their yearning for life. Our results showed that the scores of SAS and SDS in the observation group were significantly lower than those in the control group, suggesting that humanized nursing intervention had a significant effect on improving the psychological state of patients. At the same time, we also found that patients received humanized nursing intervention had better quality of life, suggesting that humanized nursing intervention could effectively reduce the impact and influence of cancer on patients. This is also consistent with the results of Meta-analysis such as Yang et al. [21]. Hence, humanized nursing intervention can significantly help and improve the emotional control and treatment confidence of breast cancer patients undergoing chemotherapy.

The adverse reactions caused by chemotherapy result in physical and mental pain to patients, so how to reduce the adverse reactions in chemotherapy has been one of the key issues of clinical concern. The study of Kottschade, et al. showed that nursing intervention method has a certain impact on the incidence and degree of adverse reactions of patients [22]. Meanwhile, effective diet and exercise nursing also has a very positive effect on patients, which can protect patients' nutritional needs, enhance physical resistance, and improve patients' treatment compliance. The results of our study also showed that the incidence of adverse reactions in the observation group was significantly lower than that in the control group, and the treatment compliance and satisfaction in the observation group were higher than those in the control group. These results suggest that human-

ized nursing intervention plays a positive role in improving the relationship between medical staffs and patients and it improves the patients' trust in seeking medical treatment.

However, there are also some shortcomings. For example, the source of samples are limited to a single center of our hospital, the number of research objects is not sufficient, and the observation cycle of chemotherapy is short. Therefore, further follow-up research is needed.

In conclusion, humanized nursing intervention has a very positive clinical effect on breast cancer patients undergoing chemotherapy, which can improve patients' quality of life and psychological state, and reduce the occurrence of adverse reactions, with high nursing satisfaction rate, which is worth for adoption and promotion.

Disclosure of conflict of interest

None.

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Table S1. Nursing satisfaction questionnaire

Projects	Degree		
	Satisfactory 3	General 2	Unsatisfactory 1
1. When you were admitted to the ward, how about the nurses who received you?			
2. When you first arrived in the ward, did the nurses introduce you about the ward environment and hospital rules?			
3. How about your rest and health environment for the ward (clean, tidy, quiet)?			
4. When you needed helps, did the nurses meet your needs?			
5. When you were ill in bed and could not take care of yourself, did the nurses look after of you?			
6. When you asked a question, did the nurse answer it patiently?			
7. How about the service attitudes and civilized language of the nurses?			
8. How about the skill operations of the nurses?			
9. How about ward nursing operations?			
10. Did the nurse visit the ward regularly?			
11. When you asked the nurse about the nursing knowledge of the disease, what was the answer you got?			
12. How about the nurses instruct you to take the medicine?			
13. When you need surgery or examination, can the nurse explain the matters needing attention to you?			
14. How about nurses instruct you on the methods of rehabilitation exercise and explain the knowledge of prevention and health care?			
15. Did the head nurse and nurse take the initiative to ask for advice when you were discharging?			
16. When you were discharging, did the nurse take the initiative to explain the matters needing attention after discharge?			
17. Who is your most satisfied nurse?			
18. Who is the nurse you are most dissatisfied with?			
19. Do you have any dissatisfaction or reasonable suggestions on nursing work?			