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Review Article

Comprehensive nursing reduces psychological pressure and improves the quality of life of breast cancer patients during the perioperative period

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Abstract: Objective: Comprehensive nursing can reduce psychological pressure and improve the quality of life (QOL) of breast cancer (BC) patients during the perioperative period. Methods: Altogether 168 BC patients admitted to our hospital were selected as the research participants, of which 98 patients received comprehensive care as the research group (RG). The other 70 patients received only routine care as the control group (CG). The curative effect, adverse reactions, nursing satisfaction, VAS pain, psychological state, QOL, prognosis, survival, and MMSE of the two groups were compared. Results: The patients in RG who were very satisfied were significantly more satisfied than those in CG (P<0.05). After treatment, the pain, psychological state, and QOL in RG were all better than they were in the CG (P<0.05). Conclusion: Comprehensive nursing intervention can effectively reduce the adverse reactions and pain in BC patients during the perioperative period, improve their psychological state and QOL, and has a great clinical application value.

Keywords: Comprehensive nursing, breast cancer, perioperative period, psychological pressure, quality of life

Introduction

Breast cancer (BC) is a malignant tumor with a high incidence rate among females worldwide [1]. Data indicate that there are more than 1 million new BC patients worldwide every year, and in recent years there has been a rising trend [2, 3]. Breast cancer is mostly found in the mammary epithelium, mainly in middle-aged and elderly women, but more and more studies show that the proportion of young patients is increasing [4]. Moreover, breast cancer, a malignant tumor with a high metastasis rate, has a poor prognosis [5]. Published date indicate that breast cancer mortality is second only to cervical cancer worldwide [6, 7]. At present, the pathogenesis of breast cancer is unclear, and some researchers believe that it has a certain relationship with heredity, diet, and breast disease history [8]. The most common treatment for breast cancer is surgery, and it can be cured by tumor resection [9]. However, the operation is invasive and causes great damage to the patient's body. How to effectively improve the recovery of breast cancer patients after the operation is currently a hot research topic.

Some studies have pointed out that nursing intervention methods can effectively improve the rehabilitation of children with brain tumors and colorectal cancer [10, 11], which shows that nursing methods have a key influence on the rehabilitation of tumor patients. However, there is still little perioperative nursing guidance for breast cancer patients, and there is also a lack of clinical research for reference. Comprehensive nursing intervention, a nursing mode widely used in clinical practice in recent years, carries out the corresponding intervention measures from psychology, physiology, diet and exercise, postoperative rehabilitation, and other fields to meet the needs of patients during the perioperative period. At present, it has been proved to have an extremely high application value in many tumor diseases [12, 13]. However, in the face of increasingly serious breast cancer diseases, most studies

focus on clinical exploration, and there is little research on how comprehensive nursing intervention affects the prognosis of breast cancer patients. Therefore, this experiment pays more attention to the influence of comprehensive nursing on the prognosis of breast cancer patients, aiming to provide a better theoretical reference for future clinical nursing intervention with breast cancer patients.

Data and methods

General information

Altogether 168 BC patients from April 2015 to April 2018 were selected as the study cohort, of which 98 patients received comprehensive care during their hospitalization and were regarded as the study group (SG). The other 70 patients received only routine care during their hospitalization and were regarded as the control group (CG). This experiment was approved by the Ethics Committee of our hospital. All the study participants signed an informed consent.

Inclusion and exclusion criteria

Inclusion criteria: Patients did not undergo chemotherapy, radiotherapy, or endocrine therapy before the surgery or puncture; patients who were diagnosed with BC by a pathological examination; patients who were treated in our hospital after their diagnosis; patients who had complete case data and agreed to cooperate with the medical staff in our hospital; patients or their immediate family members signed the informed consent form.

Exclusion criteria: Patients with other malignant tumors; patients with multiple chronic diseases; patients with other cardiovascular and cerebrovascular diseases; patients with organ dysfunction; patients with drug allergies; patients with mental diseases or physical disabilities who could not take care of themselves; patients with surgical contraindications, and patients transferred from another hospital.

Nursing content

The control group was subjected to the conventional nursing mode, that is the nurse instructed the patients in the rational administration of the drug, explained the disease to the patients, performed assigned tasks, including infusions, and vital sign monitoring, and gave appropriate psychological counseling, life guidance, and other nursing interventions. The study group applied comprehensive nursing intervention on this basis. First of all, the medical staff engaged in hospital education for the patients and their families so as to improve their correct understanding of breast cancer diseases, and they described successful cases so as to enhance the confidence of the patients and their families. They also strictly required the patients to eat a healthy diet and they gave effective guidance to the patients and their families. Finally, the health care staff strictly required the patients to exercise their upper limbs and they provided professional guidance to ensure a balanced diet. They also urged the patients to engage in appropriate outdoor exercise and to keep an optimistic attitude. If the patients had adverse reactions, they were appeased right away, and certain methods were adopted to improve the patients' discomfort and prognosis.

Outcome measures

The main outcome measures: The clinical curative effect of the two groups of patients was observed. Referring to the cancer rehabilitation guidelines, the target lesions were evaluated according to RECIST [14]. The therapeutic effects, adverse reactions, nursing satisfaction, VAS pain, psychological state SAS and SDS, and quality of life (QOL) of the two groups were compared.

Secondary outcome measures: The MMSE of the two groups was compared, and the prognosis was analyzed.

Statistical methods

SPSS 22.0 was applied to analyze the data. GraphPad 7 software was used to draw the figures. The counting data were expressed by (rate). Chi-square tests were applied for the comparisons between groups. The measurement data were expressed as (mean ± standard deviation), and the comparison among multiple groups applied t tests. $P<0.05$ indicated that the difference was statistically significant.

Results

There was no difference in general data between the two groups

There were no differences in terms of age, BMI, living environment, education level, smoking

Table 1. General data

	Study group (n=98)	Control group (n=70)	t or x^2	P
Age (years)	42.3±6.6	43.2±7.5	0.823	0.412
BMI (KG/cm^2)	23.52±3.05	24.46±4.72	1.567	0.119
Living environment			0.021	0.886
Urban	69 (70.41)	50 (71.43)		
Rural	29 (29.59)	20 (28.57)		
Education level			1.255	0.263
< high school	31 (31.63)	28 (40.00)		
≥ high school	67 (68.37)	42 (60.00)		
Smoking history			3.100	0.078
Yes	18 (18.37)	21 (30.00)		
No	80 (81.63)	49 (70.00)		
Drinking history			0.364	0.546
Yes	32 (32.65)	26 (37.14)		
No	66 (67.35)	44 (62.86)		
Family medical history			0.329	0.566
Yes	52 (53.06)	34 (48.57)		
No	46 (46.94)	36 (51.43)		
Nationality			1.129	0.288
Han	81 (82.65)	62 (88.57)		
Minorities	17 (17.35)	8 (11.43)		
Leukocyte ($\times10^9$/L)	6.85±2.08	6.74±1.89	0.351	0.726
Erythrocyte ($\times10^{12}$/L)	4.85±0.52	4.73±0.43	1.582	0.116
Platelets ($\times10^9$/L)	246.52±46.21	237.23±43.26	1.319	0.189
Pathological staging			1.039	0.308
I~II	78 (79.59)	51 (72.86)		
III~IV	20 (20.41)	19 (27.14)		

Table 2. Comparison of the clinical efficacy in the two groups of patients [n (%)]

	Study group (n=98)	Control group (n=70)	x^2	P
Completely relieved	39 (39.80)	28 (40.00)		
Partially relieved	34 (34.69)	20 (28.57)		
Stable	17 (17.35)	12 (17.14)		
Progressive	8 (8.16)	10 (14.29)		
Total efficiency	74.49	68.57	0.710	0.400

history, drinking history, family medical history, nationality, leukocyte, erythrocyte, or platelet levels in the two groups (P > 0.05). See **Table 1**.

There was no difference in the total effective rate between the two groups

In the SG, 39.80% of the patients (39 cases) were completely relieved, 34.69% of the patients (34 cases) were partially relieved, 17.35% of patients (17 cases) were stable, 8.16% of patients (8 cases) were progressing, and the effective treatment rate was 74.49%. In CG, 40.00% of the patients (28 cases) were completely relieved, 28.57% of the patients (20 cases) were partially relieved, 17.14% of the patients (12 cases) were stable, 14.29% of the patients (10 cases) were progressing, and the effective treatment rate was 68.57%. The effective treatment rate of the SG was higher than of the rate in the CG (P=0.400). See **Table 2**.

There were no differences in the adverse reactions in the two groups

In the SG, incision infections and fatigue were the most common adverse reactions, occurring in 4.08% of the cases (4 cases). They were also the most common reactions in the control group, occurring in 10.00% of the cases (7 cases) and 7.14% of the cases (5 cases) respectively. There was no significant difference in the total incidence of adverse reactions in the SG (15.31%) and in the CG (32.86%) (P > 0.05). See **Table 3**.

The nursing satisfaction of the research group was higher than it was in the control group

There was no significant difference in the SG and the CG in terms of the number of patients who were satisfied (P > 0.05), but the number of patients who were very satisfied in the SG was higher than it was in the CG (P<0.05), and the number of patients who indicated needs improvement in the SG was significantly lower than it was in the CG (P<0.05), but the number of patients who were not satisfied in the SG was lower than it was in the CG (P<0.05). See **Table 4**.

Table 3. Comparison of the adverse reactions in the two groups of patients [n (%)]

	Study group (n=98)	Control group (n=70)	x^2	P
Incision infection	4 (4.08)	7 (10.00)		
Fatigue	4 (4.08)	5 (7.14)		
Nausea and vomiting	2 (2.04)	3 (4.29)		
Paralysis of upper limb	2 (2.04)	3 (4.29)		
Flap necrosis	1 (1.02)	2 (2.86)		
Subcutaneous fluid	2 (2.04)	3 (4.29)		
Incidence of adverse reactions (%)	15.31	32.86	7.186	0.007

Table 4. Comparison of the nursing satisfaction in the two groups of patients

	Study group (n=98)	Control group (n=70)	x^2	P
Very satisfied	65 (66.33)	26 (37.14)	14.010	<0.001
Satisfied	25 (25.51)	24 (34.29)	1.522	0.217
Needs improvement	6 (6.12)	13 (18.57)	6.309	0.012
Dissatisfied	2 (2.04)	7 (10.00)	5.102	0.023

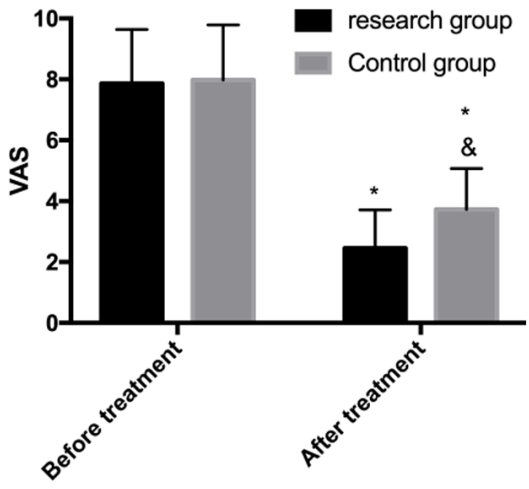

Figure 1. Comparison of the pain in the two groups of patients. * indicates that compared with before treatment, P<0.05; & indicates compared with the research group, P<0.05.

The VAS scores in the research group were lower than they were in the control group

There were no significant difference in the VAS scores in the SG and the CG before the treatment (P > 0.050). The VAS scores in the SG after treatment (2.45 ± 1.26) were significantly lower than the scores in the CG after the treatment (3.73 ± 1.39), P<0.05. See **Figure 1**.

The psychological state of the research group was higher than it was in the control group

There was no significant difference in SAS and SDS scores in the SG and the CG before the treatment (P > 0.05). After the treatment, the SAS scores in the SG were significantly lower than they were in the CG, and the SDS scores in the SG was also significantly lower than they were in the CG, and the SAS and SDS scores in both groups were significantly lower than they were before the treatment (P<0.05). See **Figure 2**.

The MMSE scores in the research group were higher than the MMSE scores in the control group

There were no significant differences in the MMSE scores in the SG and the CG before the treatment (P > 0.05). After the treatment, the MMSE scores were significantly increased, and the MMSE scores in the SG were significantly higher than they were in the CG (P<0.05). See **Figure 3**.

The QOL scores in the research group were higher than they were in the control group

After observing the QOL of the two groups of patients after the nursing, the results showed that the body, role, emotion, cognition, society, and other dimensions of the quality of life scores in the SG after the nursing were significantly better than they were in the CG (P<0.05). See **Table 5**.

There were no differences in terms of patient survival in the two groups

The two groups of patients were followed up for 3 years, by means of hospital follow up visits. Altogether 168 patients were successfully followed up, for a success rate of 100.0%. Among them, the 3-year survival rate in the SG was 84.69%, and the rate in the CG was 80.00%.

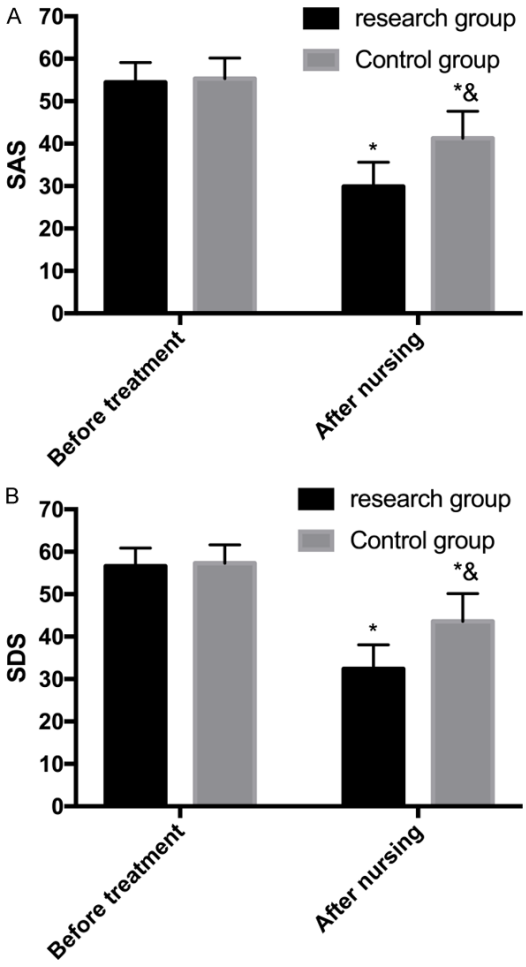

Figure 2. Comparison of the psychological states in the two groups of patients. A. Comparison of the SAS scores in the two groups. * indicates compared with before the treatment, P<0.05; & indicates compared with the research group, P<0.05. B. Comparison of the SDS scores in the two groups. * indicates compared with before treatment, P<0.05; & indicates compared with the research group, P<0.05.

There was no significant difference between the two groups (P > 0.05). See **Figure 4**.

Discussion

Breast cancer will bring serious harm to a woman's physical and mental health, and the incidence rate in recent years is still high [15]. Breast cancer has long been a hot topic in clinical research. Researchers at home and abroad are constantly working to explore and find a new diagnosis and treatment scheme for breast cancer [16], but no significant breakthrough has been made at present. Nursing intervention is one of the necessary measures for tumor patients after their hospital admission.

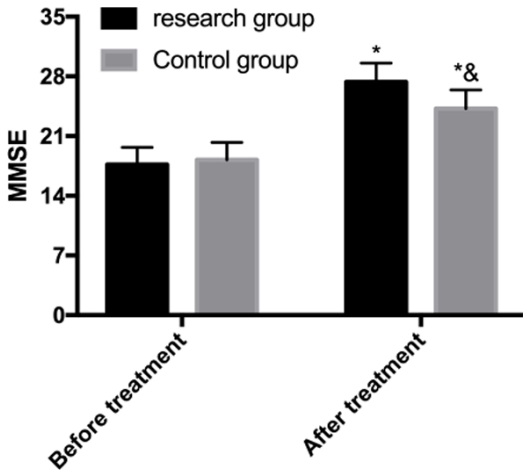

Figure 3. Comparison of the MMSE scores in the two groups. * indicates compared with before the treatment, P<0.05; & indicates compared with the research group, P<0.05.

By improving its application mode, it has been shown to have a great positive impact on tumor rehabilitation, prognosis, and the success rate of surgery [17, 18]. However, there is still controversy about the application of perioperative nursing care for breast cancer patients, so this study has great value for the treatment of BC.

The results of our experiments indicate that there was no statistical difference in the clinical efficacy between the SG with comprehensive nursing and the CG with routine nursing, but the incidence of adverse reactions is significantly reduced, suggesting that comprehensive nursing can significantly ameliorate the adverse reactions of breast cancer patients during the perioperative period. This was also consistent with the effect of comprehensive nursing intervention mentioned by previous studies [19], which support the results of this experiment. Comprehensive nursing intervention is a holistic, creative, and personalized nursing model, and it requires strengthening the professional skills of the nursing staff and realizing systemic targeted services for the patients [20]. Looking up previous studies, we found that Niedzwiecka [21] applied comprehensive nursing intervention to neonatal pulmonary infection, achieving a good curative effect. Shah [22] confirmed that comprehensive nursing intervention has an important impact on children with severe burns. All the above studies have confirmed the important clinical application significance of comprehensive nursing inter-

Table 5. Comparison of the quality of life in the two groups of patients

	Study group	Control group	t value	*P* value
Body	94.31±4.34	86.43±4.25	11.700	<0.001
Role	83.67±3.48	69.22±3.17	27.530	<0.001
Emotion	87.53±3.15	71.64±3.45	30.980	<0.001
Cognitive	92.69±3.79	83.67±3.63	15.480	<0.001
Society	62.21±4.11	52.73±3.64	15.450	<0.001

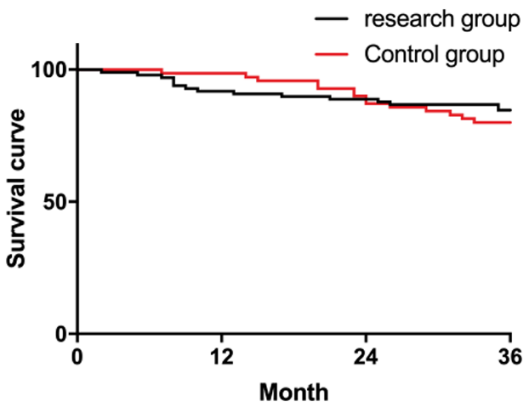

Figure 4. Three-year survival curve of prognosis. There was no difference between the research group and the control group in the prognosis of 3-year survival (P > 0.05).

vention. We speculated that its value is mainly reflected in the following aspects.

Improvement of pain

BC is a malignant tumor disease, and surgical resection is one of the necessary treatment methods for it. But surgery is invasive, and it not only causes greater trauma pain to patients, but it also may cause oxidative stress injury pain in the internal environment after surgery [23]. In the process of the gradual failure of anesthetics, the patients' pain will gradually increase, and the comprehensive nursing intervention effectively reduces the patients' pain and improves the nursing effect through psychological counseling, rehabilitation training guidance and more detailed nursing services for patients. The VAS were compared in SG and CG, and it was also shown in this way.

Improvement of the psychological state

Breast cancer patients will generally show a great resistance and irritability to medical staff due to the unknown disease, their fear of surgery and the psychological burden of possible breast resection [24]. Such negative emotions will greatly affect the endocrine statuses of the patients, increasing the possibility of endocrine disorders, stress reactions, and disputes between doctors and patients. A comprehensive nursing intervention can help patients build confidence in overcoming diseases and reduce their fear of diseases and resistance to treatment through one-on-one psychological counseling, explaining relevant knowledge of diseases to the patients and introducing successful cases of treatment. In addition, in the process of doctor-patient communication, the relationship between the doctors and patients and the psychological state of the patients can be improved. The results of the SDS and SAS scores in the two groups of patients investigated by this study showed the same.

Paying more attention to the details of the nursing content

Through comprehensive nursing intervention and meticulous and targeted nursing services, the adverse reactions of patients during surgery can be reduced, postoperative pain can be relieved, postoperative physical function recovery can be accelerated, adverse effects during perioperative period can be reduced in all aspects, and treatment advantages can be enhanced. Therefore, we investigated the MMSE scores in the SG and CG, and in the SG they were significantly higher than they were in the CG. Through the above intervention, the treatment of patients will achieve more significant results and is more favorable for the prognosis. We further investigated the prognosis QOL of the SG and CG, and found that the QOL in the SG was evidently better than the CG, which also confirmed our above conjecture and the application value of our comprehensive nursing intervention to breast cancer patients. However, we found no evident difference in the SG and the CG when comparing the survival conditions of the two groups in terms of their prognoses for 3 years, which may be because of the small number of subjects included in this study, or the short investigation period that cannot reflect the impact of comprehensive nursing on the long-term prognosis of BC.

The purpose of this experiment was to find the utilization value of comprehensive nursing intervention in the breast cancer perioperative period. Due to the limited experimental conditions, there are still deficiencies. For example, there are many nursing methods in clinical practice, but there is still great controversy over the choice of the best nursing mode for breast cancer. In this study, only routine nursing was used as a control, and we did not rule out that the application of comprehensive nursing intervention may differ from the experimental results when compared with other nursing modes. In addition, this study did not treat breast cancer patients with different degrees of illness, which is worthy of further experimental analysis. We will expand the sample size and the experimental period of the study as soon as possible, and conduct more detailed and comprehensive experimental analysis to obtain better experimental results.

To sum up, comprehensive nursing can significantly ameliorate the adverse reactions and pain in breast cancer patients during the perioperative period, improve the psychological state and quality of life of patients, and has a great clinical application value.

Disclosure of conflict of interest

None.

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