

Original Article

Analysis of the effects of postoperative extended nursing care on psychological states and life quality levels of patients after endometrium cancer surgery

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Abstract: Objective: The aim of the current study was to explore the postoperative application of extended nursing care, examining improvements in psychological states and life quality levels of patients with carcinoma of the endometrium (CE). Method: A total of 110 patients undergoing CE surgery were randomized into the extended group using extended nursing care (n=55), providing a variety of services which helped to meet the medical and non-medical needs of patients, and the conventional group receiving routine care (n=55), using the random number table method. Post-care life quality levels of the two groups of patients were evaluated using quality of life measurement scale (EORTC-QLQ-C30) scores. Anxiety states, before and after nursing care, were assessed using Self-rating Anxiety Scale (SAS) and Self-rating Depression Scale (SDS) scores. Hospitalization times and nursing satisfaction of the two groups were also recorded. The patients were followed-up for 5 years. Prognosis across the two groups was compared. Results: EORTC-QLQ-C30 scores in the extended group (9.39 ± 3.67) were significantly lower than those in the conventional group (21.86 ± 8.68 , $P=0.002$). The EORTC-QLQ-C30 average score of functional fields (71.95 ± 6.35) was significantly higher than that of the control group (65.37 ± 8.34 , $P<0.001$). There were no significant differences in SAS and SDS scores between the two groups before nursing ($P>0.050$). SAS and SDS scores of the extended group, after intervention, were significantly lower than those of the conventional group ($P<0.001$). Length of hospital stays in the extended group was significantly shorter than that in the conventional group ($P<0.001$). Treatment satisfaction was significantly higher than that of the conventional group ($P=0.039$). No differences were observed in 5-year overall mortality rates between the extended group (7.55%) and conventional group (15.69%) ($P>0.05$). Conclusion: Compared with conventional nursing, extended nursing care can effectively improve postoperative life quality levels and psychological states of CE patients.

Keywords: Carcinoma of the endometrium, extended nursing care, psychological state, life quality

Introduction

Carcinoma of the endometrium (CE), also known as corpus carcinoma, is one of the most common malignancies in gynecology [1]. At present, incidence rates of CE are second only to cervical cancer in female tumors. Incidence rates are steadily rising. According to statistics, 5-year survival rates of patients with advanced CE are only 30.0%~50.0% [2].

Many researchers, at home and abroad, have explored methods to improve the efficacy and prognosis of patients with CE. In recent years, studies have shown that intervention through

nursing has very significant effects on the prognosis of patients with CE [3-5]. Of these, extended nursing care is a kind of nursing mode that has been born in recent years because of the need for rehabilitation of tumor diseases. It is not only limited to the treatment of diseases, but also has higher requirements for life quality after surgery. It is a long-term coherent nursing model that gradually formed in response to the development of modern medical technology [6, 7]. At present, extended nursing care has been widely used in some countries with more developed medical technologies. More and more studies have shown that the application of extended nursing care not only significantly

improves the efficacy of patients with lupus erythematosus, myocardial infarction, and heart failure, but also improves the prognosis of patients [8-10]. However, the application value of extended nursing care in CE has not been confirmed yet. The current study was conducted to provide reference for future clinical nursing of CE.

Materials and methods

General information

A total of 110 patients with CE, admitted from October 2011 to December 2013, were selected as subjects. They were aged 39-68 years, with an average age of 54.86 ± 9.62 years. These 110 patients were randomized into the extended group, using extended nursing care (n=55), and the conventional group using routine care (n=55), using the random number table method. This experiment was approved by the Ethics Committee of Union Hospital, Tongji Medical College, Huazhong University of Science and Technology. All subjects provided informed consent.

Inclusion and exclusion criteria

Inclusion criteria: Patients that met CE clinical symptoms [11]; Patients confirmed by CE biopsies as CE; Radical resections were performed after diagnosis; Patients willing to cooperate with the medical staff; Patients with complete case data; Patients aged 20~70 years old. Exclusion criteria: Patients with other tumors; Patients with severe organ failure; Patients with mental illness; Patients with cardiovascular and cerebrovascular diseases; Patients that were unable to take care of themselves; Patients with liver and kidney dysfunction; Patients undergoing long-term bed rest; Patients with physical disabilities; Patients transferred; Patients that were pregnant.

Methods

Routine group care plan: Vital signs were checked regularly every day. The patients were instructed to take medicines on time. Patient needs were met as much as possible. Staff members explained the disease to the patients and assisted with treatment.

In addition to routine care, the extended group was supplemented with extended nursing care

[12]. The plan included: 1) Successful cases of treatment were introduced to patients and communicated with them regularly. Changes in psychological states of patients were paid attention. Corresponding psychological counseling was given to patients when necessary. Patients were encouraged to maintain an optimistic attitude and build up confidence to overcome the disease; 2) The medical ward was kept clean and tidy. It was sterilized and cleaned 3 times a day, ensuring that there was no water or obstacles on the ground. They played relaxing music or movies; 3) Knowledge about the disease was explained to the patients. They were instructed how to more effectively cooperate with the treatment and how to avoid secondary damage caused by the disease. The disease knowledge manual was available for the patients to read; 4) Diets and nutrition mixes were supervised. Patients were recommended to supplement vitamins and protein, avoiding irritating food damage, such as spicy and cold foods, which can damage the dietary balance; 5) Simple pharmacological knowledge was taught to the patients. Details of the medication and the normal conditions that may occur after taking the medicine were mastered, ensuring that the patients did not use the wrong medicine, multi-drugs, or less medication. In cases of normal reactions, the attending doctor was notified as soon as possible; 6) The patient communication group was established for the patients to communicate with each other after discharge. The medical staff arranged to answer questions encountered by the patients after discharge; 7) Patients were re-examined every 3 months after being discharged from the hospital. For patients that could not return to the hospital for reviews, they were required to go to the local hospital for examinations and report the results to the doctor. Patients were regularly followed-up by telephone every month after discharge from the hospital, ensuring the absence of any abnormalities. If found, the patient was immediately notified to return to the hospital for an examination.

Outcome measures

Life quality scores

Quality of life measurement scale scores for cancer patients (EORTC-QLQ-C30) were used for evaluation [13]. Scores include a symptom field (fatigue, pain, nausea, vomiting, loss of

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Table 1. Comparison of clinical data [n (%)]

	Extended group (n=55)	Regular group (n=55)	t or χ^2	P
Age			0.203	0.840
	55.07±10.82	54.67±9.86		
Course of disease (day)			0.924	0.358
	7.52±2.86	8.04±3.04		
Operation time (hour)			0.385	0.701
	1.86±0.57	1.82±0.52		
Body weight (KG)			0.434	0.665
	62.84±10.87	63.75±11.12		
Red blood cell ($\times 10^{12}/L$)			1.032	0.304
	4.24±1.36	4.50±1.28		
White blood cell ($\times 10^9/L$)			0.301	0.764
	12.84±5.44	13.16±5.70		
Platelet ($\times 10^9/L$)			1.171	0.2444
	274.61±60.41	288.71±65.81		
Tumor type*			0.185	0.980
UA	20 (36.36)	19 (34.5)		
USCC	17 (30.91)	18 (32.73)		
UK	12 (21.82)	13 (23.64)		
CCC	6 (10.91)	5 (9.09)		
Pathological type			0.213	0.899
Diffuse	24 (43.64)	26 (47.27)		
Limited type	16 (29.09)	14 (25.45)		
Polyp type	15 (27.27)	15 (27.27)		
Pathological staging			0.170	0.680
I~II	16 (29.09)	18 (32.73)		
III~IV	39 (70.91)	37 (67.27)		
Living Environment			0.495	0.482
Town	42 (76.36)	45 (81.82)		
Rural	13 (23.64)	10 (18.18)		
Education			0.147	0.702
<High school	26 (47.27)	24 (43.64)		
>High school	29 (52.73)	31 (56.36)		
Marital status			0.101	0.751
Married	49 (89.09)	50 (90.91)		
Unmarried	6 (10.91)	5 (9.09)		

Note: Tumor type UK: Uterine adenocarcinoma, UA). Uterine squamous cell carcinoma, USCC. Uterine keratosis, UK. CCC: Clear cell carcinoma, CCC.

appetite, insomnia, and dreaminess) and functional field (cognitive function, emotional function, physical function, social function, and role function). Field scores are converted to a standard score of 0 to 100, using a highly linear formula. In the symptom field, lower scores indicate less obvious symptoms. In the functional field, higher scores indicate better function. The investigation was completed independently by the patients after understanding the

meaning of each investigation. The investigation was conducted 3 months after discharge from the hospital.

Psychological states: Self-rating Anxiety Scale (SAS) and the Self-rating Depression Scale (SDS) scores were used for evaluation. Higher scores indicate worse psychological states. The investigation was conducted before and after nursing intervention (at the time of discharge).

Hospital stays in both groups: The total amount of time from completion of the surgery to discharge.

Care satisfaction of the two groups of patients: All patients were anonymously scored upon discharge from the hospital, with a total score of 100 points. The survey included satisfaction with nursing staff, nursing ability, and self-revenue. A score of >90 points indicates very satisfied, scores of 80~90 indicate satisfied, scores of 60 to 79 suggest a need for improvement, and scores of <60 indicate unsatisfactory. Care satisfaction = (very satisfied + satisfied)/total $\times 100\%$.

Prognosis: All patients underwent 5-year prognosis follow-ups. The follow-ups were conducted by telephone, letter, home visits, and hospital reviews at the 1st, 3rd, 6th, 12th, 19th, 27th, 38th, 49th, and 60th month. Cut-off time was the patient death date. Prognosis of the two groups was recorded for 5 years.

Statistical analysis

Data was processed using SPSS 24.0 statistical software. All graphics were drawn using Graphpad8 software and the results were

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Table 2. Comparison of EORTC-QLQ-C30 scores

		Extended group (n=55)	Regular group (n=55)	t	p
Symptom area	Exhausted	11.84±5.12	12.07±5.06	0.813	0.237
	Pain	10.54±4.23	16.69±6.97	5.594	<0.001
	Nausea	8.66±1.54	8.59±2.04	0.203	0.839
	Vomiting	6.85±3.94	6.75±4.04	0.131	0.896
	Appetite	6.04±2.15	6.16±2.08	0.280	0.767
	Insomnia	12.39±5.04	21.86±8.68	12.884	<0.001
The average score		9.39±3.67	12.02±4.81	3.224	0.002
Functional area	Cognition	74.63±6.94	75.13±7.05	0.375	0.709
	Mood	68.14±5.95	52.86±10.94	9.100	<0.001
	Body	72.86±5.60	62.84±8.16	7.509	<0.001
	Society	76.59±7.05	75.93±7.46	0.477	0.634
	Character	67.55±6.23	60.12±8.07	5.405	<0.001
The average score		71.95±6.35	65.37±8.34	4.655	<0.001

same group; B indicates $P < 0.001$, compared with the post-care SAS score of the extended group.

checked twice. Results, such as patient pathological types and tumor stages, are expressed as rates. Chi-square tests were used for comparisons between groups. Measurement data, such as SDS and SAS scores, are expressed as mean \pm standard deviation. For intragroup before-after comparisons, independent t-tests were used. For between-group comparisons, pairwise t-tests were used. Survival rates were calculated using the Kaplan-Meier method and compared using the log-rank test. $P < 0.050$ indicates statistical significance.

Results

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Comparison of clinical data

There were no significant differences in age, duration of disease, operation times, body weight, blood test results, tumor type, pathological type, pathological stage, living environment, education, and marital status between the two groups ($P > 0.050$), indicating that the two groups of patients were comparable (Table 1).

Comparison of EORTC-QLQ-C30 scores

There were no significant differences in EORTC-QLQ-C30 scores between the extended group patients concerning fatigue, nausea, vomiting, and loss of appetite in the symptom area ($P > 0.050$). EORTC-QLQ-C30 scores for pain, insomnia, and dreams were significantly lower than those of the conventional group ($P < 0.001$). EORTC-QLQ-C30 scores in the extended group were (9.39±3.67), significantly lower than those in the conventional group (21.86±8.68, $P = 0.002$). There were no significant differences in social function between the cognitive group and functional group ($P > 0.050$). Emotional function, physical function, and role func-

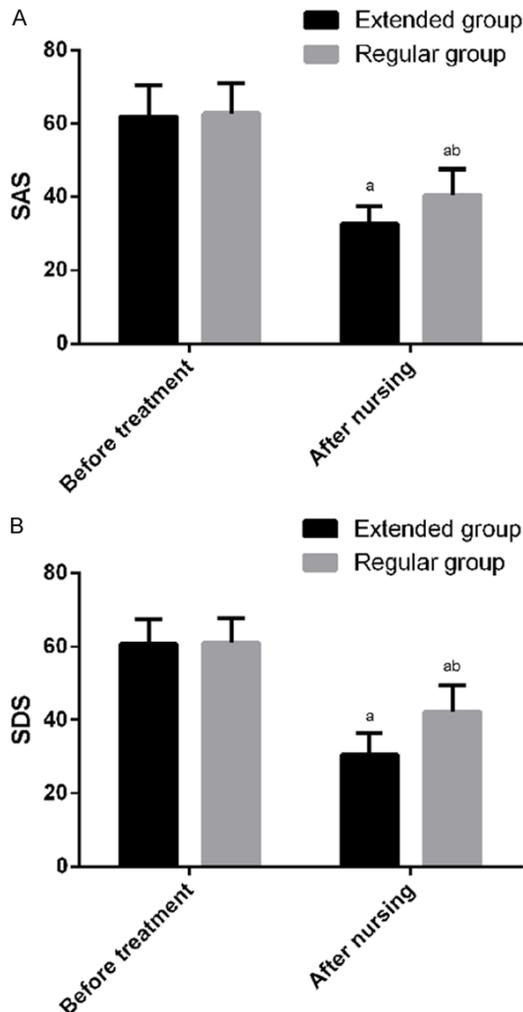


Figure 1. Comparison of SDS and SAS scores between the two groups. A: indicates $P < 0.001$, compared with the pre-care SAS scores of the

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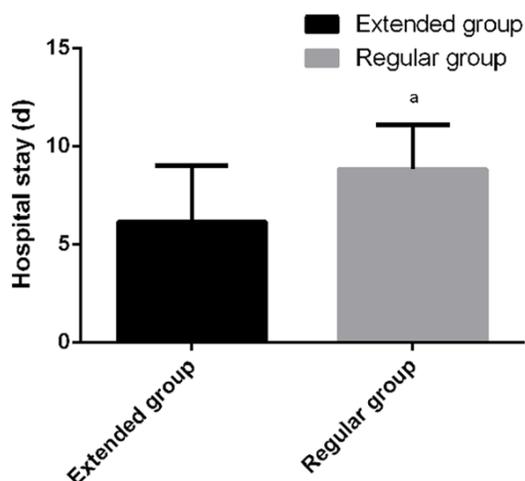


Figure 2. Comparison of hospital stays between the two groups. Indicates $P < 0.001$, compared with the length of hospital stays in the extended group.

tion levels were significantly higher than those in the conventional group ($P < 0.001$). The average score of the extended group in the functional field EORTC-QLQ-C30 was (71.95 ± 6.35), significantly higher than that of the control group (65.37 ± 8.34 , $P < 0.001$) (**Table 2**).

Comparison of SAS and SDS scores

No significant differences in SAS and SDS scores were found between the two groups before intervention ($P > 0.050$). The SAS score of the post-nursing extension group was (32.73 ± 4.86), significantly lower than that of the conventional group (40.57 ± 6.97) ($P < 0.001$). The SDS score of the extended group after treatment was (30.58 ± 5.85), also significantly lower than that of the conventional group (42.33 ± 7.04) ($P < 0.001$). SAS and SDS scores of the two groups were significantly lower than those before nursing ($P < 0.001$) (**Figure 1**).

Comparison of hospital stays

Length of hospital stays in the extended group was (6.16 ± 2.86) days, significantly shorter than that in the regular group (8.84 ± 2.26) days ($P < 0.001$) (**Figure 2**).

Comparison of nursing satisfaction

There were no significant differences between the extended group and conventional group in terms of the number of patients that were satis-

fied, needed improvement, and dissatisfied ($P > 0.050$). Patients considered to be very satisfied in the extension group were 74.55% (41 patients), significantly more than those in the conventional group (50.91%, 28 patients) ($P = 0.010$). The satisfaction rate of the extended group was 90.91%, significantly higher than that of the conventional group (76.36%) ($P = 0.039$) (**Table 3**).

Comparison of prognosis

Of the 110 patients, 104 patients were successfully followed-up, with a success rate of 94.55%. A total of 53 patients were successfully followed-up in the extended group, while 51 patients were successfully followed-up in the routine group. The 1-year, 3-year, and 5-year survival rates of the extended group were 98.11%, 96.23%, and 92.45%, respectively, while those of the conventional group were 98.04%, 92.16%, and 84.31%, respectively. Five-year total mortality rates of the extended group and conventional group were 7.55% and 15.69%, respectively ($P > 0.05$) (**Figure 3**).

Discussion

For CE, early detection and early treatment are crucial. Good treatment results have been achieved by resections, radiotherapy, and chemotherapy. However, methods to further improve the postoperative conditions of patients is a long-term research direction that needs attention. With the deepening of research, more and more studies have shown that postoperative care intervention has a strong impact on the recovery of various tumor diseases [14, 15]. However, there are still few studies on CE's nursing guidance at home and abroad. Merritt et al. suggested that the application of nutritional support care models can improve the prognosis of patients with CE [16]. However, the research of Merritt et al. had several limitations. They investigated items concerning postoperative rehabilitation only and could not provide accurate reference for clinical practice. In this paper, the postoperative situation was investigated in multiple directions and a 5-year prognosis was followed.

Results of the current study showed that EORTC-QLQ-C30 scores and nursing satisfaction level of the extended group with extended nursing care were significantly higher than

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Table 3. Comparison of nursing satisfaction [n (%)]

	Extended group (n=55)	Regular group (n=55)	c ²	P
Very satisfied	41 (74.55)	28 (50.91)	7.536	0.057
Satisfaction	9 (16.36)	14 (25.45)		
Needs improvement	4 (7.27)	8 (14.55)	4.21	0.039
Not satisfied	1 (1.82)	5 (9.09)		
Nursing satisfaction (%)	90.91	76.36		

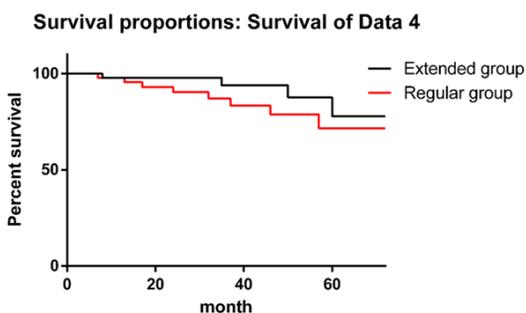


Figure 3. Prognostic 5-year survival curve for both groups. The 5-year overall mortality rates of the extended group and conventional group was 7.55% and 15.69%, respectively ($P>0.050$).

those of the conventional group using routine care. These results are consistent with the findings of Wan et al. [17]. This suggests that extended nursing care can effectively improve the postoperative life quality of CE patients, providing higher clinical application value. In comparison, it was found that SAS and SDS scores of the two groups were significantly lower than those before the nursing. Scores of the extended group were lower than those of the conventional group, suggesting that both groups of patients were effectively improved in psychological states after nursing. However, extended care showed better regulation of patient psychological states. Lengths of hospital stays in the extended group were significantly shorter than those in the conventional group, further proving that extended nursing care can effectively shorten the recovery process. Results of prognosis follow-ups showed that 5-year total mortality rates of the extended group were not significantly different from

those of the conventional group, demonstrating that these care methods show no significant effects on the prognosis of CE patients. Concerning various problems encountered by CE patients after surgery, the extended nursing care program requires the nursing staff to patiently explain the relevant knowledge and common problems of the disease. Thus, the patients have a certain initial understanding of their own disease. This can not only reduce the negative psychology of anxiety, fear, and anger caused by the unknown disease, but also the pain caused by the disease during postoperative rehabilitation [18]. It can also help to avoid the possibility of secondary injuries caused by lack of pathological knowledge. Through effective psychological counseling and communication, patients are full of confidence in rehabilitation. Patient trust in the medical staff has naturally increased. Treatment compliance has also been significantly improved. After the patient is discharged from the hospital, recurrence of tumors is the main cause of death [19]. Through regular follow-ups, reviews, and establishment of the communication group after discharge from the hospital, treatment can be carried out at the first sign of abnormalities. Occurrence of recurrence, metastasis, and invasion of CE can be prevented. Moreover, communication between the patients and the guidance of the nurses also helps patients avoid dangerous situations due to the lack of medical staff around them after discharge. This maximizes the prognosis of the patients. In addition, when patients encounter problems that cannot be solved after discharge, they can turn to the communication group or patients for help. This helps to avoid the negative impact of blind action on the recovery of the disease.

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The current study compared the value of extended care with routine care in CE. However, due to limited conditions, this study had several shortcomings. For example, due to the small base of study subjects, statistical analysis of big data was not conducted. Moreover, the population of this study was relatively singular. There may be differences in the performance of

extended nursing care or routine care applied to different races. This experiment did not start extended nursing care before CE surgery. Performing extended nursing care immediately after the patients were admitted to the hospital may have resulted in more significant results.

In summary, compared with conventional nursing, extended nursing care can effectively improve postoperative life quality levels and psychological states of CE patients. Thus, it is worthy of popularization in clinical practice.

Disclosure of conflict of interest

None.

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