

Original Article

The effect of the self-management oriented 5A nursing model on the QOL and early movement compliance of patients with cervical carcinoma after surgery

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Abstract: Objective: This study was designed to explore the effect of the self-management oriented 5a nursing model on the QOL and early movement compliance of patients with cervical carcinoma after surgery. Methods: 84 patients who underwent surgery for cervical carcinoma in our hospital were included and divided into a control group (n=42) and an observation group (n=42) and retrospectively analyzed. Both groups were routinely nursed, and for the observation group, a self-management oriented 5A nursing model was additionally adopted. The two groups were compared in terms of QOL, early movement compliance, self-efficacy, VAS, SAS, and SDS scores, and the incidence of complications. Results: After nursing, both groups were improved in terms of QOL, their overall health condition scores, and VAS at 4 h, 12 h, 24 h, and 48 h, which were more significant in the observation group ($P<0.05$). In addition, the observation group excelled over the control group in early movement compliance ($P<0.05$) and self-efficacy scores after an elevation, but no significant change was observed in the control group ($P<0.05$), the SAS and SDS scores ($P<0.05$), or the incidence of complications after surgery ($P<0.05$). Conclusion: The self-management oriented 5A nursing model can improve QOL, early movement compliance, and the self-management ability of patients with cervical carcinoma after surgery, and can reduce the pain, anxiety, depression, and complications they suffer.

Keywords: Cervical carcinoma, postoperative, 5A nursing model, self-management, QOL, movement compliance

Introduction

Cervical carcinoma is a common malignant tumor often found in the reproductive system of females aged between 35-39 and 60-64 [1]. According to reports, new cases of cervical carcinoma in China account for about 28.8% of the total cases around the world each year, with most cases occurring in the younger population [2]. Surgery is a major means of treating cervical carcinoma, but it may result in various complications such as uroschesis and infection [3]. Proper postoperative movements help reduce the incidence of complications. However, the increased physical discomfort due to postoperative pain, anxiety, and negative attitudes toward the disease cause a reduction in patients' early movement compliance and QOL, extending the recovery period. Improving the early movement compliance and QOL of patients with cervical carcinoma in postoperative

nursing is of great significance. At present, the postoperative nursing of cervical cancer is mainly based on routine medical care. The research in this area focuses on the treatment of the nursing complications, postoperative psychological status investigation, health education, etc., all of which are relatively narrow, focusing only on one aspect of postoperative nursing. However, the radical resection of cervical cancer is a relatively complicated operation, which damages the patients' bodies and minds. In addition, various factors during the perioperative period can affect the patients' rehabilitation. Therefore, it is particularly important to find a holistic nursing model that can promote patients' rehabilitation both physically and mentally.

The newly-developed 5A nursing model includes inquiry, assessment, suggestions, help, and follow-up and has been proven competent in

improving patients' behaviors, self-efficacy and nursing effects in the nursing management of various diseases, according to studies [4, 5]. Zhang and Zhang [6] selected 112 patients who underwent chemotherapy after lung cancer and administered the 5A nursing model on the basis of routine treatment and nursing, which significantly improved the patients' self-efficacy scores and promoted their rehabilitation. Chen et al. [7] found that the self-management-oriented 5A nursing model can improve the self-efficacy and satisfaction of patients with advanced prostate cancer. On the basis of that, in the present study, a self-management oriented 5A nursing model was applied on patients with cervical carcinoma with the goal of improving their self-management ability, and accordingly, a postoperative management model of cervical carcinoma was established, and significant effects were achieved.

Materials and methods

General information

84 patients with cervical carcinoma admitted to the Sun Yat-sen University Cancer Center and the TCM-Integrated Hospital of Southern Medical University from January 2016 to December 2018 were included as the cohort for this retrospective analysis. Inclusion criteria: (1) Patients who were diagnosed with cervical carcinoma using CT and MRT; (2) Patients aged 30 to 69 years old who have given birth; (3) Patients in clinical stages IIb-IIIb, patients who successfully received and completed cervical cancer related surgery; (4) Patients who had performance status scores ≥ 60 in the terminal stage; (5) Patients who had primary school education or above, with normal Chinese reading, writing, and speaking abilities and who could complete the questionnaire independently; (6) Patients without other malignant tumors; (7) Patients who signed the informed consent. Exclusion criteria: (1) Patients with insufficiency of the liver, kidneys, lungs, or other important organs; (2) Patients with distal metastasis or benign uterine tumors; (3) Patients who also had a mental disease or a cognitive disorder or who could not complete the questionnaire independently; (4) Patients with communication disorders; (5) Patients with limb dysfunction. Those included patients were divided into the control group (n=42, aged between 37 and 68,

with a mean of 61.34 ± 5.72) and the observation group (n=42, aged between 40 and 69, with a mean of 61.86 ± 5.98). The control group reported 15 patients in IIb, 17 in IIIa, and 10 in IIIb, and in the observation group, the corresponding data were 13, 20, and 9. The two groups' clinicopathological data showed no statistically significant differences ($P > 0.05$), so they were comparable.

Methods

The patients from the control group were routinely nursed, closely observed for postoperative temperature, pulse, BP and other VSs, regularly redressed, guided towards a rational diet, and encouraged to participate in out-of-bed activities. On the basis of the close observation in case of any change in their conditions, the patients in the observation group also received health education after their cervical carcinoma surgeries.

On the basis of routine nursing, the observation group adopted a self-management oriented 5A nursing model consisting of inquiry, assessment, suggestions, help, and follow-up: (1) Inquiry covers the patients' basic materials, histories of treatment, smoking and drinking alcohol, examination and diagnosis results, etc.; (2) The assessment extends to the QOL, psychology and self-efficacy of patients and requires a comprehensive analysis of their demands from nursing to formulate personalized nursing schemes. Problems in QOL, psychology and self-management, as well as nursing measures to solve those problems were made known to the patients; (3) Suggestion: the responsible nurse shall impart knowledge about the disease and its treatment to patients, make suggestions for further consultation, and inform the patients about the processes and items involved. (4) Help: an amicable relation shall be built with the patients to implement psychological intervention by determining the sources of their psychological problems via communication. Nurses shall be a guide, a comforter, and a listener to alleviate patients' psychological burdens and improve their self-emotion management by suggestions such as communication with family members or friends, and the development of habits. The necessity and importance of daily exercises shall be known to patients to reinforce their faith as

postoperative early movements accelerate recovery and prevent complications [8]. The 30 min daily exercises cover pelvic and bladder functions [9] and begin on the fourth day after surgery at a frequency of 15 min/d respectively [10]. To exercise the pelvic functions, the pelvic floor muscles are upwardly lifted 3 s before relaxation for anal contraction. Exercises on the bladder functions extend to the urethra and vagina which shall be contracted and relaxed; patients are encouraged to micturate voluntarily on the seventh day [11]. Postoperative pain nursing is required and includes measures such as the administration of analgesic drugs according to the doctor's suggestions, distraction by reading, chatting, and watching videos, progressive muscle relaxation training to relax the body and mind. Patients shall be guided to build good living habits, such as quitting smoking and alcohol, regular work and rest. (5) Follow-up: responsible nurses shall arrange the follow-up of patients discharged with 2 calls each month to give information and instructions on diet, etc.

The two groups were assessed after 3 months of nursing.

Observational indexes

Postoperative QOL assessment [12]: patients were assessed before and after nursing with the Chinese QLQ-C30. The scale consists of 5 functions subscales of PF, RE, CF, EF and SF, and a GH, and each is scored from 0-100. A higher score represents a higher QOL.

Assessment of early movement compliance: complete compliance that the patients have insisted on exercises of pelvic floor muscles and bladder from the first day on after surgery; partial compliance: the patients have exercised but failed to fulfill the quality, quantity and timing requirements; noncompliance: patients failed to engage in the exercises according to the nurses' instructions. Compliance = (complete compliance + partial compliance)/42 × 100%.

Assessment of self-efficacy: the patients' self-efficacy was assessed with a self-efficacy scale of 10 items. According to the Likert 4-point scale, each item was worth 1 to 4 points, so the total points ranges from 10 to 40. A higher score indicates the higher self-efficacy of the patients.

Assessment of the degree of pain: VAS was adapted to assess the degree of pain the patients were suffering. A blank scale was made and equally divided into 10 sections which were marked from 0 to 10 accordingly. According to the rule of 0 for no pain and 10 for unbearable pain, the patients gave a mark to indicate the degree of pain they were suffering. A higher score corresponds to more obvious pain.

Assessment of psychology: SAS and SDS designed by Zung from the United States were relied on to assess the patients' anxiety and depression. Each scale contains 20 items. Patients with a SAS score at or above 50 are anxious, and with a SDS score at or above 53 are depressed. The scores have a positive correlation with the degrees of anxiety and depression.

Complications: the two groups were observed for the incidence of uroschesis, abdominal incision infections, urinary infections, deep vein thrombosis in the lower extremities, vaginal cuff bleeding, and hydroncus after surgery.

Statistical analysis

The data were statistically analyzed by SPSS 19.0. In the case of numerical data expressed as $\bar{x} \pm s$, comparison studies were carried out using *T* tests for the data; in the case of nominal data expressed as %, comparison studies were carried out using χ^2 tests. For all the statistical comparisons, significance was defined as $P < 0.05$.

Results

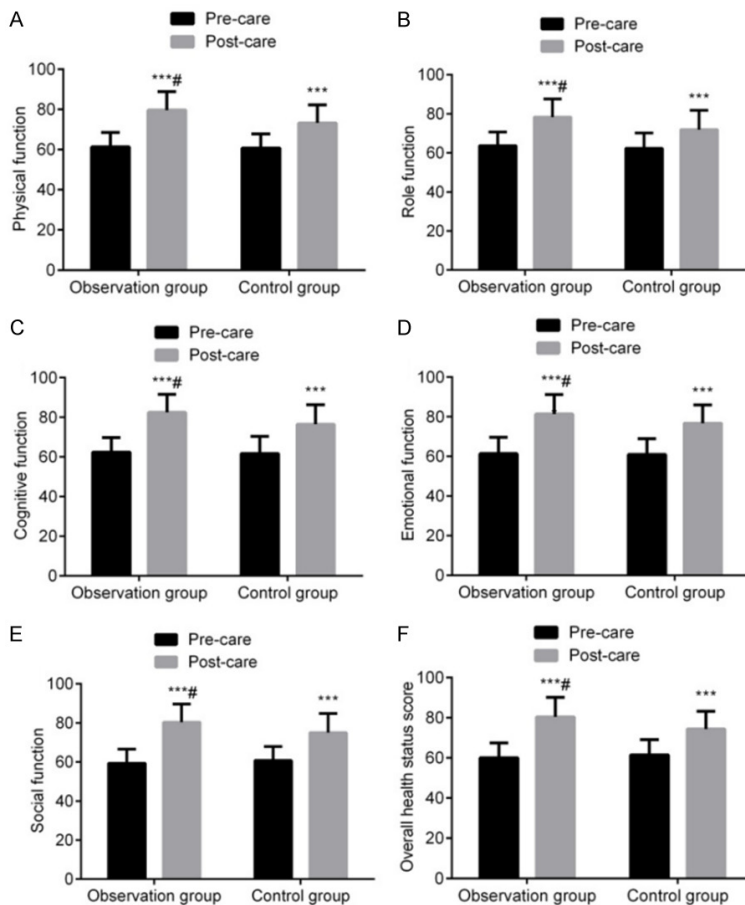
There were no statistically significant differences in terms of the clinical information, the patients' ages, tumor diameters, clinical stages, body mass indexes, or pathological types between the two groups ($P > 0.05$), which were comparable (**Table 1**).

Improvement of the postoperative QOL using the self-management oriented 5A nursing model

After the nursing, both groups were improved in their QOL and overall health, which were more significant in the observation group ($P < 0.05$), but no statistical difference was observed before the nursing ($P > 0.05$), indicating that the self-management oriented 5A nursing model

Table 1. Comparison of the general information in the two groups ($\bar{X} \pm s, n$)

Group	n	Average age (Year)	Tumor diameter (cm)	Clinical stage			Body mass index (kg/m ²)	Pathological type		
				IIb	IIIa	IIIb		Squamous carcinoma	Adenocarcinoma	Squamo-adenocarcinoma
Observation group	34	61.34±5.72	4.57±0.41	15	17	10	23.9±6.7	20	11	3
Control group	31	61.86±5.98	4.73±0.51	13	20	9	24.6±6.3	20	9	2
χ^2/t		0.358	1.400		0.393		0.433		0.302	
P		0.721	0.167		0.822		0.667		0.583	


Figure 1. Comparison of the postoperative QOL scores. Note: ***P<0.001 as compared with the conditions before the nursing; #P<0.05 as compared with the control group.

can improve the QOL of patients with cervical carcinoma significantly (**Figure 1**).

The improvement of postoperative early movement compliance using the self-management oriented 5A nursing model

The observation group reported a postoperative early movement compliance of 95.24%, higher than the control group which was 80.95% ($P<0.05$), indicating that the self-management oriented 5A nursing model can improve the postoperative early movement

compliance of patients with cervical carcinoma significantly (**Table 2**).

The improvement of the postoperative self-efficacy score using the self-management oriented 5A nursing model

After the nursing, the observation group exceeded the control group in its self-efficacy score after an elevation, but the control group demonstrated no significant change ($P<0.05$), though no statistical difference was observed before nursing ($P>0.05$), indicating that the self-management oriented 5A nursing model can improve the self-efficacy scores of patients with cervical carcinoma significantly (**Figure 2**).

Significant reductions of the VAS scores using the self-management oriented 5A nursing model

Both groups had reduced VAS scores after the nursing, which was more significant in the

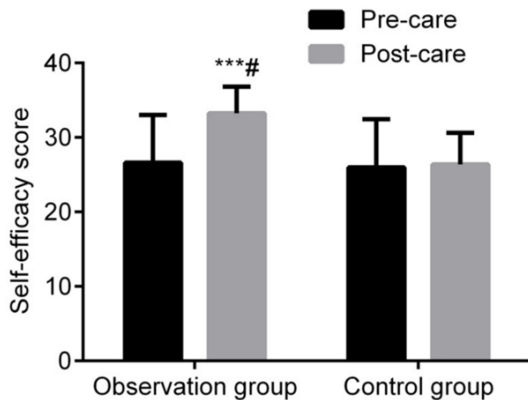
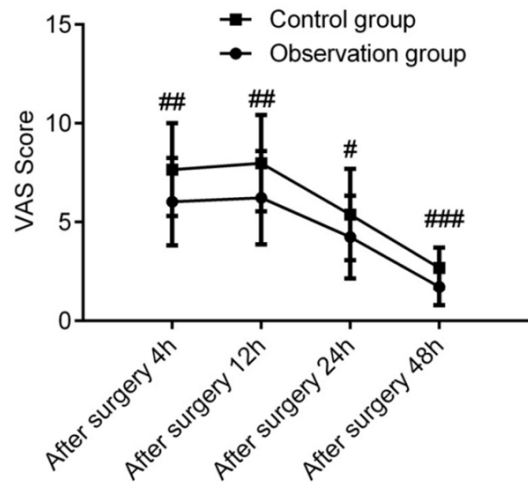
observation group at 4 h, 12 h, 24 h, and 48 h ($P<0.05$), indicating that the self-management oriented 5A nursing model can significantly relieve the pain the patients with cervical carcinoma suffered after their surgeries (**Figure 3**).

A significant reduction of the postoperative SAS and SDS scores using the self-management oriented 5A nursing model

Both groups achieved a decrease in their SAS and SDS scores after nursing, which was more significant in the observation group ($P<0.05$),

Table 2. Comparison of the postoperative early movement compliance [n (%)]

Group	n	Complete compliance	Partial compliance	Noncompliance	Compliance
Observation group	42	33 (78.57)	7 (16.67)	2 (4.76)	40 (95.24)
Control group	42	24 (57.14)	10 (23.81)	8 (19.05)	34 (80.95)
t					4.087
P					0.043


Figure 2. Comparison of the self-efficacy score. Note: *** $P < 0.001$ as compared with the conditions before nursing; # $P < 0.05$ as compared with the control group.

Figure 3. Comparison of the postoperative VAS Scores. Note: # $P < 0.05$, ## $P < 0.01$, and ### $P < 0.001$ as compared with the control group.

but no statistical difference was observed before the nursing ($P > 0.05$), indicating that the self-management oriented 5A nursing model can significantly improve the anxiety and depression of patients with cervical carcinoma after surgery (Figure 4).

Comparison of the post-operative complications

The observation group reported a postoperative total incidence of complications of 11.90%, lower than the control group which was 38.10% ($P < 0.05$), indicating that the self-management oriented 5A nursing model can reduce the post-operative complications in patients with cervical carcinoma significantly (Table 3).

Discussion

Cervical carcinoma is a common malignant tumor in the female reproductive system and causes 30,000 to 50,000 deaths each year [13]. Fortunately, the popularization of cervical carcinoma screening and the increased awareness of physical examinations have resulted in many cervical carcinoma cases being exposed and treated in the early stages [14, 15]. Surgery is currently the major fundamental solution for treating cervical carcinoma [16], but it is accompanied by various complications. According to reports, about 3.26% of the patients who received cervical carcinoma surgery had urinary complications such as ureteral obstruction and vesicovaginal fistula [17], and common complications including uroschesis, sexual dysfunction and deep vein thrombosis in the lower extremities impaired the patients' QOL [18, 19]. Associated studies revealed that [20, 21] patients with cervical carcinoma live with anxiety and depression. Some postoperative complications of cervical carcinoma, in fact, are controllable and may be eliminated by postoperative early movement. However, some patients failed to comply with this requirements due to an insufficient knowledge of the advantages of postoperative movement, so their postoperative recovery was affected [22, 23]. Therefore, enhancing the nursing of patients with cervical carcinoma and improving their QOL and postoperative early movement compliance have significance.

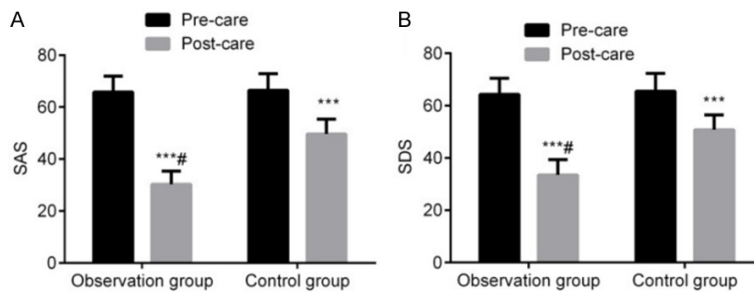


Figure 4. Comparison of the SAS and SDS scores. Note: *** $P < 0.001$ as compared with the conditions before nursing; # $P < 0.05$ as compared with the control group.

The self-management oriented 5A nursing model is an integral and circular nursing model consisting of inquiry, assessment, suggestions, help, and follow-up [24]. The patients' related materials provide a source and a basis for responsible nurses to understand their present situations, conditions, and histories of the disease and its treatment, and assess their needs from nursing. The assessment should be scientific and rational. Accordingly, QLQ-C30, the self-efficacy scale, and Zung SAS and SDS were used in the present study to assess the patients' QOL, self-management ability and psychology respectively, and the results were used to comprehensively assess the patients' nursing needs. The suggestions included sharing knowledge, postoperative activities and further counseling, the intervention of behaviors and attitudes, while the help was reflected in the instructions and assistance to the psychology, postoperative exercises, pain, and living habits. Follow-up is arranged after discharge to obtain information from the patients, based on which, further instructions were given to consolidate their self-management abilities.

Most patients with cancer live poor and psychologically miserable lives. There are reports that in Southeast Asia, the surviving patients with cancer had a QLQ-C30 score of (66.2 ± 22.0) , which is consistent with the data obtained in the present study, i.e., (60.03 ± 7.45) for the observation group and (61.48 ± 7.54) for the control group before nursing; meanwhile, 37% of the patients in this study were anxious and 46% were depressed to various extents [25]. The study reported that the observation group demonstrated an elevated QOL and a self-efficacy score higher than the control group after nursing, and significant decreases in the anxiety and depression scores.

Similar results were also supported by other associated studies [26], in which, interventions based on self-efficacy improved the patients' self-efficacy score and QOL. The results indicated that the self-management oriented 5A nursing model can improve the QOL and the self-efficacy score, and can reduce the patients' anxiety and depression as a result of targeted

nursing after the acquisition of the patients' basic materials, QOL, self-efficacy, and psychology. Furthermore, self-management oriented nursing is able to arouse patients' awareness of self-management and potential initiative, resulting in behavioral changes toward health actions related to self-health management, so that improvement is achieved in QOL, self-management ability, and physiology.

Postoperative early movement is vital to the prevention of complications such as uroschesis, deep vein thrombosis in the lower extremities, and urinary infections [27]. The preoperative psychological assessment found that all patients studied had mean anxiety and depression scores above the critical value, which affected their faith and initiative in treatment and resulted in lower postoperative movement compliance. The results from the study showed that nursing led to a higher postoperative early movement compliance, a lower degree of pain and fewer postoperative complications in the observation group compared to the control group, indicating that the self-management oriented 5A nursing model can elevate the postoperative early movement compliance, reduce postoperative pain and the incidence of complications in patients with cervical carcinoma as the patients' negative emotions and resistance to postoperative movement were reduced, healthy behaviors were followed, the postoperative movement compliance was improved, and the postoperative pain and complications were mitigated and prevented after cognitive education, instructions and assistance to the patients in psychology.

Meanwhile, there are certain limitations to this paper. For example, the number of cases in-

Table 3. Comparison of the postoperative complications [n (%)]

Group	n	Uroschisis	Abdominal incision infection	Urinary infection	Thrombi in a deep vein in the lower extremity	Vaginal cuff bleeding	Hydroncus	Total incidence
Observation group	42	2 (4.76)	1 (2.38)	1 (2.38)	0 (0.00)	0 (0.00)	1 (2.38)	5 (11.90)
Control group	42	5 (11.90)	2 (4.76)	3 (7.14)	1 (2.38)	1 (2.38)	4 (9.52)	16 (38.10)
χ^2								7.683
P								0.006

cluded is small. The difference in the nursing effect after the implementation of self-management-oriented 5A nursing model is not statistically analyzed for cervical carcinoma patients with different educational backgrounds, occupations, or pathological types. The study time was short, and the long-term nursing effect on the patients was not observed. In the next study, the number of cases will be expanded and the observation time will be extended for further observation.

In conclusion, the self-management oriented 5A nursing model should be popularized as it can improve the QOL, early movement compliance, and self-management ability of patients with cervical carcinoma after surgery, and reduce the pain, anxiety, depression and complications they suffer from.

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Disclosure of conflict of interest

None.

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