

Construction and Application of Remote Continuing Care Model for Colorectal Cancer Patients in the Internet Era

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Liu *et al.*: Remote Continuing Care Model for Colorectal Cancer Patients

To explore the effect analysis of postoperative care for patients with colorectal cancer based on the remote continuation nursing model of the Internet era. 126 patients with colorectal cancer stoma admitted to our hospital from June 2018 to June 2020 were selected and randomly divided into a control group and a study group. The control group patients were given routine nursing intervention, and the observation group was implemented on the basis of the control group. Continuous nursing intervention on the network interactive platform, comparative analysis of the quality of life, psychological status, defecation function and complications of the two groups of patients after nursing intervention. After nursing intervention, compared with the control group, the quality of life score of the study group was significantly improved and the difference was statistically significant ($p < 0.05$); before the intervention, there was no significant difference in the Hamilton depression rating scale scores of the two groups of patients ($p > 0.05$). After the intervention, the Hamilton depression rating scale scores of the patients in the study group were significantly lower than those in the control group ($p < 0.05$); after the nursing intervention, there was no statistically significant difference in defecation texture and tenesmus between the two groups ($p > 0.05$). The defecation regularity of the study group; the proportion was higher than that of the control group; the complication rate of the study group (7.84 %) was lower than that of the control group (23.72 %), the difference was statistically significant ($p < 0.05$). To sum up, the continuous nursing intervention of the network interactive platform can significantly relieve anxiety and depression in patients with colorectal cancer postoperative stoma, improve the patient's out of hospital self-care ability and quality of life and reduce the occurrence of complications rate, it is worthy of clinical application.

Key words: Remote continuing care, internet, colorectal cancer, quality of life

Colorectal cancer (CRC) is a common digestive tract tumor and surgical treatment is the main treatment. Because most patients need permanent stoma after operation, it not only has an impact on the quality of life of patients after operation, but also requires patients to receive long term care after operation^[1]. The self-care ability of patients is directly related to the later rehabilitation. Therefore, taking effective nursing intervention to improve patients' self-care ability can significantly improve patients' anal function and defecation function^[2]. However, due to the lack of targeted and professional guidance, most of the patients are not well aware of the disease, resulting in the failure to effectively prevent and deal with all kinds of situations, greatly reducing the quality of life. With the development of Internet technology, the integration of modern network technology and medical services can ensure the effective implementation of patients'

continuing care, increase the communication between medical institutions, improve the quality of nursing service and improve the quality of life of patients^[3,4]. In this study, the application of modern information technology in continuing care of colorectal cancer has achieved good therapeutic effect. Now the research results are reported as follows. A total of 126 patients with colorectal cancer underwent colostomy in our hospital from June 2018 to June 2020 were selected and randomly divided into control group and study group, 63 cases in each group. The control group included 35 males and 28 females, with an average age of (44.58 ± 4.26) y (range, 19-64 y), 13 with bachelor degree or above, 34 with senior high school or junior college and 16 with primary school, junior middle school and technical secondary school. The study group included 33 males and 30 females, with an average age of (43.73 ± 4.11) y old ranging from 20 to 62 y old. There

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were 14 cases with bachelor degree or above, 32 cases with high school or junior college and 17 cases with primary school, junior middle school and technical secondary school. There was no significant difference in the general data between the two groups ($p>0.05$). This study was approved by the medical ethics committee of the hospital. Inclusive criteria: colostomy was performed in patients with clinically confirmed colorectal cancer; no language expression disorder; no other organ metastasis was found by abdominal ultrasound or CT; estimated survival time >3 mo; informed consent was signed. Exclusion criteria: patients with severe heart, liver, lung, kidney and other important organ disorders; patients with severe diseases of important organs; patients with other serious somatic diseases; patients with family history of mental disease or mental disease, cognitive impairment and consciousness disorders; patients with stoma complications when discharged. Patients in the control group were given routine nursing intervention, including issuing health manual, giving routine health education, informing patients and their families of daily precautions, training patients and their families in colostomy nursing, improving their colostomy nursing ability and giving appropriate psychological counseling. In addition, the family members of the patients were instructed to accompany the patients, assist the patients to complete their daily life in the early stage, and instruct the patients to take medicine on time, eat reasonably and maintain good work and rest habits. After discharge, the patients were followed up by telephone once every 3 w to inquire about the improvement of the patient's condition, give relevant guidance and instruct the patients to review on time. On the basis of the control group, the patients in the study group were given the continuous nursing intervention on the network interactive platform. The specific contents are as follows: we chat or QQ was used as the platform, the continuous nursing files were established for the patients 1-3 d before discharge and the patient's name, condition, educational level, family address and contact information (telephone number, we chat or QQ) were recorded in detail. The main caregivers of the family. On the day of discharge, the attending physician and the responsible nurse made a comprehensive evaluation on the patient's condition, psychology, prognosis, health knowledge level, self-management ability and formulated nursing measures according to the evaluation results. In addition, health knowledge and self-care skills related to colostomy after colorectal

cancer surgery are regularly pushed through we chat or QQ platform and combined with pictures, short videos, text and other forms to remind patients to learn independently in we chat or QQ group. Related content transmitted by we chat or QQ platform: Guidance on the use of stoma bag: telling patients how to use stoma bag cannot only avoid infection and odor, but also increase patients' self-confidence in life^[5] and reduce concerns about participating in social activities after surgery. Send the information and video about the use, replacement and observation methods of the stoma to let the patients know whether there is edema, ischemic necrosis and relevant treatment measures at the stoma. Demonstrate how to paste the pouch and how to use the pouch, such as how to use, clean and remove the pouch, how to use the anti-leakage paste and the stoma skin care powder and send the relevant precautions^[6,7]. Plantar massage guidance: send relevant information and videos of plantar massage, explain the distribution of reflex areas of plantar massage, including basic reflex areas (kidney area, adrenal area, bladder area, ureter area), symptom reflex areas (ascending, descending, transverse, sigmoid colon) and associated reflex areas (stomach area and small intestine area)^[8]. Inform the patient to massage according to the video method, first stimulate the left basic reflex area and then stimulate the right basic reflex area, about 3 min each time. After that, the symptomatic reflex area and the associated reflex area were stimulated in the same way for about 3 min each time. Dietary guidance: inform patients to have a balanced diet, and cook food by stewing, boiling and steaming. Encourage patients to eat more natural and wild food, and eat more fruits and vegetables, such as cucumber, tomato, banana, orange, etc. Instruct patients to eat anti-cancer food, such as black fungus, mushroom and mustard. Choose foods that can enhance immunity, such as red dates, white fungus, ginseng, etc., eat less fried or fried foods, ban smoking and drinking, do not eat pickled, smoked, pigmented and flavour foods and eat less easily produced foods such as broccoli, onion, beans and sweet potatoes. At the same time, according to the patient's economic situation and personal wishes, we can guide the patient to eat nutritious nourishing and juicy herbal food^[9] and make the ingredients, dosage and practice of the herbal food into recipes and send them to the patient. Promote mutual communication between patients: in we chat platform, patients with long treatment time and high self-care ability can share experience with them, help them build confidence to overcome diseases and inspire them to evaluate themselves positively^[7]. Arouse the

patient's courage to life; improve the level of hope and self-esteem. Strengthen the communication between patients, enlighten each other, share the experience of disease resistance and reduce the psychological pressure of patients. Exercise guidance: according to the patient's personal recovery, guide the patient to take different physical exercise, strengthen the physique. The selection of physical exercise items should focus on the items with small amount of exercise and controllable rhythm, advocate soft and soothing small sports and relaxed game activities and the content should be gradual, from walking, qigong, Taijiquan and other sports to jogging gradually^[10].

World Health Organization Quality of Life Instruments (WHOQOL-BREF)^[11] was used to evaluate the quality of life of patients. The scale consists of 26 items, reflecting the quality of life in four areas of physiology, psychology, social relations and environment. The higher the score, the higher the quality of life. Hamilton Depression Rating Scale (HAMD)^[12] was used to score the patients. There are 24 items in the scale. According to the total score, the degree of depression is classified as follows: >35 is severe depression, 20-34 is moderate depression, 8-19 is mild depression and <8

is no depression. The higher the score, the more severe the depression. The defecation texture^[13] (watery, thin, shaped), feeling of urgency and heaviness (mild: no influence on life, obvious: influence on normal work, life and sleep^[8]) and defecation regularity (defecation frequency ≥ 4 times a d^[9]) were recorded. The complications such as parastomal hernia, fecal water dermatitis, stoma prolapse, stoma stenosis, intestinal obstruction and stoma retraction were recorded. All data were analyzed by Statistical Package for the Social Sciences (SPSS) 22.0 software. The measurement data were expressed as $\bar{x} \pm s$ and t-test was performed. The count data (complication rate) was expressed as percentage (%) and was shown by χ^2 test. $p < 0.05$ was considered statistically significant. Before the intervention, there was no significant difference in the quality of life score between the study group and the control group ($p > 0.05$). After the intervention nursing, there was no significant difference in the quality of life score between the control group and before the intervention ($p > 0.05$), but the quality of life score of the study group was significantly improved ($p < 0.05$) and compared with the control group, the difference was statistically significant ($p < 0.05$), as shown in Table 1.

TABLE 1: COMPARISON OF QUALITY OF LIFE BETWEEN THE TWO GROUPS BEFORE AND AFTER INTERVENTION

Group	Time	Physiology	Psychology	Social relations	Environmental Science
Study group	Before intervention	61.11 \pm 5.66	58.05 \pm 5.81	64.92 \pm 4.08	66.11 \pm 4.86
	After intervention	88.39 \pm 5.09* [#]	82.18 \pm 3.69* [#]	83.26 \pm 4.04* [#]	81.11 \pm 3.69* [#]
Control group	Before intervention	59.78 \pm 5.14	56.59 \pm 4.63	62.09 \pm 4.33	66.31 \pm 4.86
	After intervention	69.31 \pm 5.25*	67.40 \pm 5.09*	69.99 \pm 4.43*	74.11 \pm 4.38*

Note: Compared with before intervention, * $p < 0.05$; Compared with control group, # $p < 0.05$.

Before the intervention, there was no significant difference in HAMD score between the two groups ($p > 0.05$); after the intervention, the HAMD score of the study group was significantly lower than that of the control group ($p < 0.05$), as shown in Table 2. After nursing intervention, there was no significant difference in defecation texture and feeling of urgency and heaviness between the two groups ($p > 0.05$). However, the proportion of regular defecation in the study group was higher than that in the control group ($p < 0.05$), as shown in Table 3. The incidence of complications in the study group (7.84 %) was significantly lower than that in the control group (23.72 %) ($p < 0.05$) (Table 4). Colorectal cancer is one of the most common clinical malignant tumors. Affected by tumor growth, most

patients can have abdominal pain, intestinal obstruction and other systemic symptoms, and their nutritional status is often poor^[14]. At present, surgery is the main method for the treatment of colorectal cancer. However, surgery is a strong stressor for patients, both physiologically and psychologically. The rise of basal metabolic rate under tumor bearing state and the trauma caused by surgery itself increase the energy consumption of patients^[15]. In the past, patients with colostomy were usually given routine discharge guidance through telephone follow-up and health manual distribution, but there were limitations and the effect was not ideal, resulting in low self-care ability of patients^[16]. With the continuous improvement of medical technology and level and the increasing number of colorectal cancer

TABLE 2: COMPARISON OF HAMD SCORE BETWEEN TWO GROUPS BEFORE AND AFTER INTERVENTION

Group	N	HAMA score		HAMD score	
		Before intervention	After intervention	Before intervention	After intervention
Study group	63	23.36±4.31	12.89±3.72*,#	25.73±5.94	15.16±4.16*
Control group	63	22.85±4.06	17.61±4.28*	25.16±6.20	18.22±5.03*

Note: Compared with before intervention, *p<0.05; Compared with control group, #p<0.05.

TABLE 3: COMPARISON OF DEFECCATION FUNCTION BETWEEN TWO GROUPS

Group	N	Defecation texture				Tenesmus		Defecation rule
		watery stool	Loose stool	Normal	Obvious	Mild	None	
Study group	63	8 (12.70)	28 (44.44)	27 (42.86)	13 (20.63)	31 (49.21)	20 (31.76)	37 (58.73)
Control group	63	9 (14.29)	30 (47.62)	24 (38.09)	14 (22.22)	34 (53.97)	16 (25.41)	17 (26.98)
x ²			0.731			0.947		6.733
p			0.469			0.353		0.001

TABLE 4: COMPARISON OF THE TOTAL INCIDENCE OF COMPLICATIONS BETWEEN THE TWO GROUPS

Group	N	Parastomal hernia	Fecal dermatitis	Stricture of stoma	Intestinal obstruction	Stoma retraction	Total incidence
Study group	63	0 (0)	3 (4.76)	1 (1.59)	0	1 (1.59)	5(7.84)
Control group	63	4 (6.35)	5 (7.84)	2 (3.18)	1(1.59)	3(4.76)	15(23.72)
x ²	8.357						
p	0.001						

survivors, the demand for medical services is also increasing. The integration of Internet technology into continuing care for patients with colorectal cancer can significantly enhance service efficiency, increase the number of beneficiaries of continuing care and ensure the continuity and timeliness of care. The establishment of electronic health records and the implementation of regional medical services promote the sharing of information, ensure the communication between medical institutions, enable colorectal cancer patients to receive multi agency and comprehensive nursing services and improve the quality of nursing service and patient satisfaction. In this study, we give the research group nursing intervention based on the network interactive platform. The results show that the score of quality of life in the research group is higher than that in the control group, and the difference is statistically significant (p<0.05). The reason is that the team members provide high quality and effective nursing services for patients. In addition, group members guide patients to use we chat software, so that patients can master we chat software, which is conducive to we chat communication and acquiring relevant knowledge^[17]. Through We Chat official account and QQ group, we should periodically push relevant knowledge, strengthen

group communication and peer education^[18], improve the patients' cognition and importance of stoma nursing knowledge and then improve their quality of life. Continuous nursing intervention is a common clinical nursing mode. By providing continuous and in-depth nursing service to discharged patients, it can guide patients to carry out nursing care in terms of illness, psychology and life, which is of great significance to promote the outcome of illness and improve the quality of life of patients. The application of the network interactive platform can make the continuous nursing intervention more convenient and timely and make the nursing content more rich and vivid, so as to improve the nursing effect^[19]. The results showed that after the intervention, Hamilton anxiety rating scale (HAMA) and HAMD scores of the two groups were decreased, and the study group was lower than the control group (p<0.05). After the intervention, the artificial anal function and defecation function of the study group were better than those of the control group and the total incidence of complications of the study group was lower than that of the control group. The above results show that the continuous nursing intervention of network interactive platform can further alleviate the anxiety and depression of patients, improve their self-

care ability and stoma knowledge, effectively reduce the incidence of stoma related complications and improve the quality of life of patients. The reason may be that the network interactive nursing platform is convenient for patients to understand the stoma nursing knowledge, timely solve the problems encountered by patients, improve the stoma nursing skills of patients and avoid the complications caused by the lack of stoma nursing skills. In conclusion, the application of continuous nursing intervention of network interactive platform in patients with colostomy after colorectal cancer surgery can significantly relieve their anxiety and depression, improve their self-care ability and quality of life and reduce the incidence of complications, which is worthy of clinical application.

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Conflicts of interest:

The authors report no conflicts of interest.

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