

Original Article

Assessing the applications of transitional care and its impact on the quality of life in patients after total laryngectomy

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Received January 4, 2021; Accepted February 8, 2021; Epub June 15, 2021; Published June 30, 2021

Abstract: Objective: To explore the effect of transitional care and its impact on quality of life (QoL) in patients who underwent total laryngectomy. Methods: The study enrolled 68 patients who were admitted to our hospital and underwent total laryngectomy from January 2017 to January 2019. The subjects were randomly divided into an observation group and a control group. Conventional care was given to the control group (34 cases), while conventional and transitional care was given to the observation group (34 cases). The study sought to compare the self-care ability, health knowledge, satisfaction with nursing, and QoL between the two groups at discharge and 6 months after discharge. Result: Compared with the control group, the observation group showed higher scores in self-care ability, more extensive health knowledge, greater satisfaction, and better QoL at 6 months after discharge from the hospital. The differences were statistically significant ($P < 0.05$). Conclusion: Transitional care can effectively improve the following performance in patients, including self-care activity after hospital discharge, health knowledge, and satisfaction with care, medication adherence, and QoL. Transitional care can be considered in a broader application.

Keywords: Transitional care, total laryngectomy, care outcomes, quality of life (QoL)

Introduction

Laryngeal cancer is a common type of malignant tumor, and also a leading cause of global morbidity and mortality [1-3]. Surgery is recognized as the primary treatment for all stages of laryngeal cancer, with total laryngectomy as the most frequently [4]. In spite of the relative higher survival rate and survival time, total laryngectomy still has a negative impact on patient's respiration, pronunciation and other body functions [5, 6]. To the best of our knowledge, due to the lack of adequate self-care knowledge and the inability for proper operations, complications after the discharge often occur. Beyond that, poor social adaptability and lack of security further jeopardizes the postoperative quality of life (QoL). Transitional care measures (TCM) is defined as a set of plans designed by the hospital, to ensure continuity of care from hospital to home [7], which plays a positive role

in patient's QoL. In this study, TCM refers to the nursing management care given to patients before returning home. Compared with conventional continuous care, TCM pays attention to the continuity and coordination of transitional nursing work, and at the same time fully mobilizes the enthusiasm of physicians, nurses, patients and their families to participate in the patient's care. So far, however, only a few studies on the application of TCM in post-operative total laryngectomy have been conducted. This trial was undertaken to examine the application of TCM and its impact on QoL in patients with total laryngectomy.

Materials and methods

Materials

The study enrolled 68 patients who were admitted to our hospital and received total laryngectomy from January 2017 to January 2019. The

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Table 1. Comparison of general information of the two groups of patients

Group	Gender [n (%), case]		Age ($\bar{x} \pm s$, old)	Education level [n (%), case]		Marital status [n (%), case]	
	Male	Female		Less than High school	High school or higher	Married	Single/divorced/ widowed
Control group (n=34)	18 (52.94)	16 (47.06)	68.79±5.24	16 (47.06)	18 (52.94)	19 (55.88)	15 (44.12)
Observer group (n=34)	19 (55.88)	15 (44.12)	68.63±5.16	19 (55.88)	15 (44.12)	21 (61.76)	13 (38.24)
t/x ²	0.059		0.127	0.530		0.243	
P	0.808		0.899	0.467		0.622	

subjects were randomly divided into an observation group and a control group. Only conventional care was given to the control group (34 cases). Both conventional and transitional care was given to the observation group (34 cases). Inclusion criteria: (1) patient diagnosed with laryngeal cancer and required total laryngectomy [6-8]; (2) conscious and normal in communication; (3) full medical records; (4) able to use smartphone. Exclusion criteria: (1) patients with advanced metastasis of laryngeal cancer; (2) serious postoperative complications; (3) other malignant tumors or serious diseases; (4) lost to follow-up and withdrawal from the study for various reasons; (5) lack of compliance. This study was reviewed and approved by the Medical Ethics Committee of our hospital and informed consent was signed by all patients. The baseline information was comparable between the two groups ($P > 0.05$, **Table 1**).

Methods

Control group: Instruction regarding basic nursing care at home was given to patients at discharge, including feeding and fluid preparation, nasal feeding operations, tracheal humidification, and cannula changing.

Observation group: TCM was applied to the observation group and the specific TCM guidelines are as follows. (1) Transitional care team. A team for transitional care was established, consisting of 1 attending physician, 2 supervising nurses and 4 nurse practitioners. Transitional care was initiated one day before discharge, including providing patients and families with education on daily care skills and precautions; questionnaires were distributed to patients on the day of discharge to collect data on self-care ability, post-operative QoL, sputum volume, stoma, laryngeal cannula, and nasal feeding tubes at discharge. (2) WeChat and QQ

group chat. Patients and family members were invited to join a group chat in WeChat and QQ, two online social applications in China. Guidance for how to upload photos and browse relevant health knowledge was provided in the group chat. One team member was arranged to provide the following service for patients: answering questions on daily basis, uploading knowledge on post-operative recovery and laryngeal cancer on a weekly basis, being involved in the chat in a humorous manner to lift patients' spirit, and releasing group chat notices. Patients were required to upload the full view of a laryngeal cannula and stoma to the group in the form of photo or video at the first week, second week, first month, third month, and the last day of the fifth month after discharge. On receiving photos or videos, the team member put forward any potential problems in the self-care activities and provided instruction and correction in a timely manner. (3) Telephone follow-up. (4) Follow-up home visit. Follow-up home visit was conducted one month after the patient's discharge. The purpose of the home visit is to examine the disinfection of the apparatus, disinfection process and self-care activities in home, and to provide face-to-face communication and psychological guidance. In addition to home visits, long-term cooperation with community hospitals where patients lived were built to instruct community caregivers to perform basic procedures and emergency management.

Evaluation index

Self-care ability: Exercise of Self-Care Agency (ESCA) scale [8] was used to assess self-care ability when patients were discharged and revisited the outpatient clinic at 6 months after discharge. For patients who failed to visit the hospital, the ESCA scale was conducted via email or telephone. The ESCA scale consists of

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Table 2. Comparison of ESCA scores at discharge between the two groups ($x \pm sd$, $n=34$)

Group	Self-care skills	Self-care responsibility	Self-concept	Knowledge of self-care	Total score
Control group	26.09±3.61	18.52±2.86	19.67±3.01	27.42±3.41	98.14±3.37
Observation group	26.01±3.42	18.50±2.67	19.63±3.12	28.04±3.39	98.21±2.93
t	0.094	0.030	0.054	0.752	0.091
P	0.926	0.976	0.957	0.455	0.928

Table 3. Comparison of ESCA scores between the two groups at 6 months after discharge ($x \pm sd$, $n=34$)

Group	Self-care skills	self-care responsibility	Self-concept	Knowledge of self-care	Total score
Control group	30.96±3.03	21.23±2.71	24.18±2.79	32.17±3.33	115.48±7.52
Observation group	36.78±3.56	24.32±2.83	26.54±3.75	41.47±2.98	129.86±6.75
t	7.259	4.598	2.944	12.140	8.298
P	< 0.001	< 0.001	0.005	< 0.001	< 0.001

4 sub-scales: (1) self-care skills, (2) self-care responsibility, (3) self-concept (4) knowledge of self-care, totaling 43 items, with a 0-4 score for each item and 172 points in total. The higher the score, the stronger the self-care skills.

Health knowledge: A questionnaire on health knowledge was designed by our department for surveying patients with laryngeal cancer, and was conducted at 6 months after discharge. The questionnaire used a Likert scale [9] to identify five domains: disease-related causes, risk factors, appropriate medication, precautions and complications (classification, symptoms, preventive measures). The results were rated on a 5-point Likert scale, including absolute clear (5 points), clear (4 points), not sure (3 points), not clear (2 points), and absolutely not clear (1 point). It was defined as satisfactory when the score is >4 points.

Satisfaction with nursing: A *Nursing Satisfaction Survey* designed by our hospital was used to investigate patients at the last follow-up visit. Patient satisfaction with nursing was graded from five dimensions, including responsibility, psychological guidance, service attitude, performance, health education, with 20 points for each dimension and 100 points in total. The result was classified into 3 ranks, including not satisfied (less than 60), satisfied (61-85 points), and strongly satisfied (over 85).

Medication adherence: The *Morisky Medication Adherence Scale* (MMAS-8) [10], an 8-item structured measure, was used to assess patients' medication adherence at 6 months

after discharge. From question 1 to question 7, "Yes" and "No" was counted as 0 point and 1 point respectively, except that question 5 was calculated in a reverse way. Question 8 was answered using Likert scale, including "Never (1.00 point)", "Seldom (0.75 point)", "Sometimes (0.50 point)", "Usually (0.25 point)" and "Always (0 point)". The result was categorized into three levels of adherence: high adherence (score =8), medium adherence (score of 6-8), and low adherence (score < 6).

QoL: Short Form (36) Health Survey [11] was applied to assess health-related quality of life at discharge and at 6 months after discharge. The survey had a total score of 144 points and the higher the score, the better the QoL.

Statistical methods

The statistical software SPSS 24.0 was used to analyze data. Chi-square test was performed for count data represented by n (%). Wilcoxon Rank Sum Test (test U) and t-test were performed for ranked data represented by $\bar{x} \pm sd$. A P-value < 0.05 is statistically significant.

Results

Self-care performance

No statistically significant difference in ESCA scores between the two groups at discharge was observed ($P>0.05$). Six months after discharge, a higher ESCA score was indicated in the observation group in comparison with the control group. The difference reached statistical significance (**Tables 2, 3**).

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Table 4. Level of patients' health knowledge

Group	Case number	Cause	Risk factors	Appropriate medication	Precautions	Complications
Control group	34	19 (55.88)	20 (58.82)	17 (50.00)	19 (55.88)	16 (47.06)
Observation group	34	28 (82.35)	29 (85.29)	30 (88.24)	29 (85.29)	27 (79.41)
χ^2		5.581	5.916	11.643	7.083	7.654
P		0.018	0.015	0.001	0.008	0.006

Table 5. Comparison of nursing satisfaction between the two groups

Group	very satisfied	satisfied	not satisfied
observation group	21	11	2
control group	10	15	9
Z		2.955	
P		0.003	

Table 6. Medication compliance of the two groups of patients 6 months after discharge

Group	Medication adherence		
	good	medium	poor
observation group	22	10	2
control group	8	12	14
Z		3.119	
P		0.002	

Table 7. Comparison of QoL between the two groups (XS, score)

Group	Case number	At discharge	At 6 months after discharge
Control group	34	111.93±9.76	106.32±9.10
Observation group	34	112.36±9.87	129.64±9.27
T		0.181	10.470
P		0.857	< 0.001

Health knowledge

Compared with the control group, the observation group exhibited a higher range of knowledge in disease-related causes, appropriate medication, precautions and complications at 6 months after discharge when compared with the control group ($P < 0.05$, **Table 4**).

Satisfaction with nursing

A significantly higher degree of nursing satisfaction occurred in the observation group (94.12%) compared to the control group (73.53%) ($Z=2.955$, $P=0.003$) (**Table 5**).

Medication adherence

The results showed a better medication adherence in the observation group than the control group at 6 months after discharge, with statistically significant difference ($Z=3.119$, $P=0.002$) (**Table 6**).

QoL

Table 7 reveals that there was no statistically significant difference in QoL between the two groups at discharge ($P>0.05$). A better QoL was shown in the observation group at 6 months after discharge ($P < 0.05$).

Discussion

In recent years, an increasingly deteriorated environment has induced a growing incidence of laryngeal disease. The incidence of laryngeal cancer is reported to account for around 7.0% of all malignant tumors. Total laryngectomy, a commonly used clinical surgery for laryngeal cancer has a relatively good survival time for patients [12-15]; however, a permanent stoma always remains, and therefore a better postoperative care and nursing method is needed. In the conventional nursing care model, the patient only passively receives health education on postoperative nursing for tracheostomy. Generally, the lack of effective knowledge input leads to infections and complications [16-20] when patients are discharged and practice self-care activities at home. Consequently, a new nursing approach should be applied to improve patients' self-care ability and quality of life after discharge.

TCM, as a new clinical nursing approach, encompasses a broad range of services when patients are transferred from hospital to home, e.g., telephone follow-up, home visits etc., which improves patients' self-care performance

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and quality of life after discharge [21, 22]. To date, however, the application of transitional care in postoperative total laryngectomy remains unreported and understudied statistically. In our study, we observed self-care ability as having a very limited difference between the two groups at discharge, but a significantly better performance was seen in the observation group compared to that in the control group at 6 months after discharge, which demonstrates the sound efficacy of TCM in post-operative nursing in improving patient's self-care ability. Moreover, with regard to health knowledge, a wider range of information was shown in the observation group, namely, patients who received TCM had better knowledge, which indicated the positive effects of TCM in advancing patient's learning and practicing of rehabilitation knowledge. To analyze the reasons for this, with conventional care, only oral education is provided to patients, which tends to be forgotten or misinterpreted with time passing, thus operational mistakes or inappropriate care, can cause serious consequences to emerge during the self-care activity; however, for the observation group in the study, TCM was applied to provide further services and care after the patient's discharge. Detailed TCM included WeChat contact and telephone follow-up to teach nursing skills for laryngectomy; monthly home visits to ensure sound disinfection, standardized operations and adequate nursing for stoma, and to examine and correct any wrong operations, which were intended to improve patient's self-care activity and standardized operations by learning, practicing and correcting.

In comparing the satisfaction, a significantly higher degree of care satisfaction was found in the observation group (94.12%) compared to the control group (73.53%), suggesting that TCM is associated with favorable nursing outcomes. Comprehensive out-of-hospital transitional care measures were conducted in the study including a transitional care team, WeChat and QQ group chat, telephone follow-up and home visits. The hospital staff, who bore a strong sense of responsibility and mastered high skills in nursing, not only made face-to-face communication and psychologically guidance during home visits, but also built a connection with local community hospitals where patients are, to instruct community care-

givers in basic nursing practices and emergency operations. It showed both patient-centered principles during care work and further contributed to higher satisfaction with nursing. The application of TCM has effectively enriched the knowledge of patients after cancer surgery in terms of complications, rehabilitation training, and medication [23]. The application of TCM can help patients have a good prognosis after cancer surgery. Therefore, hospitals should replace routine care with TCM, which can significantly improve the quality of life and compliance of patients.

With respect to medication adherence, lower medication adherence appeared in the control group, which indicates that transitional care is associated with higher medication adherence. During transitional care, health education for patients and communication between patients and nursing staff were conducted through different forms, namely, WeChat group, telephone follow-up and home visits, which enhanced the trust between patients and nursing care givers, improved the understanding of laryngeal cancer, helped adjust the patient's psychological state after total laryngectomy, built more positive attitudes towards the treatment, raised appropriate medication, and reduced adverse reactions.

Importantly, compared with the control group, the quality of life was higher in the observation group, which suggested an effective impact of transitional care in improving postoperative QoL. A new approach of communication was explored between patients via WeChat and QQ group chat, where patients uploaded photos or videos of the laryngeal cannula and stoma regularly, and the transitional team examined the patient's at home operations in a timely manner, so as to improve the patient's self-care skills and recovery. Patients were encouraged to share their personal experience in self-care activities, work, study and daily life, and to provide mutual encouragement among patients. By the measures above established, a positive attitude for treatment, a longer QoL and greater recovery in all aspects were realized. The limitation of this study is that the number of patients included in the study was small, and long-term follow-up testing was not performed to calculate the long-term survival rate and quality of

life of patients. Therefore, further research is needed.

In summary, the evidence presented herein suggested that, transitional care contributes toward improving patients' postoperative self-care ability, health knowledge, satisfaction with nursing, medication compliance, and QoL, which confirms that the transitional care is need in health care practice.

Acknowledgements

This study was supported by the Shanghai Municipal Health and Family Planning Commission Research Project (No.201640329); and the Nursing Talent Program from Shanghai ninth people's Hospital (No.JYHLRC18-L02).

Disclosure of conflict of interest

None.

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