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CLINICAL RESEAPCH

Seamless Care Application in the Transfer and Handover Management of Intensive Care Units Patients of Neurosurgical Department

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Keywords

seamless care, neurosurgery, Intensive Care Unit (ICU) patients, transfer and handover management

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Abstract

Objective To discuss the efficacy of the seamless care in the transfer and handover management of Intensive Care Unit (ICU) patients from neurosurgical department. **Methods** There were total of 406 ICU patients diagnosed by neurosurgical department from Jun. 2015 to May. 2017 in our hospital. Then 196 patients from Jun. 2015 to May. 2016 were treated with the conventional care as control group and 210 patients from Jun. 2016 to May. 2017 were treated with the seamless care as the observation group. And the differences in incidence of patients' condition changes and item missing, handover time and the satisfactory degree of family members between two groups were compared. Results: Compared to control group, the incidence of patients' condition changes and item missing were lower and the handover time was shorter in observation group ($P < 0.05$); And there was higher satisfactory degree of family members in observation group in comparison with control group ($P < 0.05$). Conclusion: Seamless care presented satisfactory effects in the transfer and handover management of ICU patients from neurosurgical department, which improve the efficiency of management and satisfactory degree of family members and ensure the security of patents.

Introduction

The ICU patients generally present serious and intricate conditions. After their conditions are steadied, the ICU patients would be transferred into the normal wards. According to previous study, some patients suffer from the adverse events during the transition mainly because of the inappropriate care planning [1]. Seamless care is also called transitional care, which refers to the continuous care provided by ICU and normal ward nurses during the process of transition. The potent effects of transition care on the patients suffering from the mental disorder and craniocerebral injury have been reported, but there are few documents about the transition care on neurosurgical ICU patients [2, 3]. And in present study, seamless presented satisfactory effects on transfer and handover management of ICU patients of neurosurgical department. The details were as follows.

Information and methods

General information

According the time order, 196 ICU patients from Jun. 2015 to May. 2016 were received the conventional care as the control group and 210 ICU patients from Jun. 2016 to May. 2017 were received the seamless care as the observation group. And with the endorsement of ICU doctors, all of the patients could be transferred into the normal wards. The information of control group: 113 male patients and 83 female patients ranging from 25 years old to 65 years old and the average age was (49.59 ± 7.89) years old; and among these patients, there were 61 cases of intracranial space-occupying lesion, 58 cases of cerebrovascular disease, 28 cases of craniocerebral injury, 19 cases of intramedullary spinal space-occupying lesion and 30 cases of other diseases. The information of observation group: 121 male patients and 89 female patients ranging from 27 years old to 69 years old and the average age was (50.39 ± 8.22) years old; and among these patients, there were 64 cases of intracranial space-occupying lesion, 60 cases of cerebrovascular disease, 31 cases of craniocerebral injury, 21 cases of intramedullary spinal space-occupying lesion and 34 cases of other diseases. And there were no statistical significance in the differences in general information of patients like gender, ages, diseases ($P > 0.05$), suggesting that these two groups were comparable.

Methods

Control group

The patients in control group received the conventional care. After transition supervision was given by the doctor, patients were transferred into the normal wards under the help of ICU nurses. And the ward nurses did the handover work including the preparation of bed, sorting out the items and medical record of patients and solving the problems from the patients and family members after patient arrived at the normal ward of neurosurgical department.

Observation group

The patients in observation group received the seamless care and the details were as follows:

(1) Establishment of seamless care team

A seamless care team was established by 16 members including Chief doctors of ICU and normal ward, head nurses of ICU and normal ward and nurses of ICU and normal ward. Team leader ICU chief doctor and vice leader ward chief leader guided and supervised the handover work. ICU and ward chief nurses set the plan and system of transition, handover and assessment of the care staff. And ICU and ward nurses did the specific work of seamless care.

(2) Time setting of the seamless care

According to the previous studies and clinical experience, the condition alteration of neurosurgical patients often happened after 24 to 48 h after the transition from ICU [4]. Thus the time of the seamless care in present study began with the transition and ended at the 48 h after completion of transition.

(3) Seamless care training

The seamless care training was performed by two head nursed using methods like multimedia presentation, practical demonstrations and simulation. The trainings consist of the effective observation of the vital signs and postoperative conditions, treatment for intracranial hypertension, prevention and therapies for complications after operation, selection and use of transport devices and solution for emergency. After the trainings, all of the nurses were required to attend the examination and nurses passing examination had the qualification to carry the seamless care.

(4) Handover process of ICU patients

Evaluation of condition: The time of transition from ICU was set by the chief doctors according to condition of patients; preparation before transition: nurses were responsible for the preparation before transition. They recorded the name, age, gender, conscious state, department which patients would be transferred into, usage of artificial airway and the doctor information to ensure the integrity of patient information and the further packaged and checked the medical supplies, medicine and medical records. Besides, the ward nurses were responsible for the room and bed as the preparation for transition; transition: In the process of transition, patients were

escorted by the ICU doctors and nurses. The conditions of patients were carefully observed and doctors and members were ready to timely rescue. Besides, the ward doctors and nurses were waiting in the ward for the assisting the transition; handover: After patients were transferred into the room in ward, nurses of ICU handed over the work to nurses of ward and the ; individual care: after transition, the conditions of patents were evaluated by ward doctors and nurses and the individual care would be established to provide the continuous and safe care for patients within 48 h after transition; Return visit: At the first day and second after transition, ICU nurses would perform the return visit once a day and the content consisted of observation of major symptoms, vital signs, conscious state, pain assessment, drainage tube and body movement. After the evaluation, ICU nurses and ward nurses cooperated to adjust the care plan to provide the optimal care for patients.

Observation indexes

Condition alteration, missing item, and handover time

Condition alteration: the condition alteration of patients was observed and just one of the events including the abnormal vital signs, self-report of discomfort, disturbance of consciousness and abnormal condition of drainage tube happened, which could be considered as the condition alteration; Missing item: after the patients were transferred into the normal ward, just one of the items including check report, imageological data, care record, medicine and standby medical supplies was missed in ICU, which could be regard as the incidence of item missing. And the incidences of item missing of two groups were analyzed; handover time: handover time referred to the time beginning with preparation of ICU patients and ending at the handover completion and leaving from the ward.

Satisfactory degree of family members

The questionnaire was used for investigation of family member satisfactory degree and the content includes the ICU environment, waiting area environment, handover, timeliness of communication, health education and care condition. And there were four ranks in questionnaire such as the very satisfied, satisfied, ordinary and not satisfied. Satisfactory degree=(very satisfied + satisfied)/total cases × 100%

Statistical analysis

Analysis on the statistic in present study was accomplished in SPSS 22.0. The paired comparison and enumeration data comparison were detected by the t test and $\chi 2$ test. Mean ± standard deviation (SD) was used to display the experimental data. And when value of $P < 0.05$ appeared, the value would be regarded as statistically significant.

Results

Comparison of the condition alteration, missing item and handover time

The incidences of condition alteration, item missing in observation were lower than control group and the handover time of observation group was short than control group as the Table 1 showed ($P < 0.05$):

Table 1. Comparison of the condition alteration, missing item and handover time

Groups	Number	Condition alteration[n(%)]	Item missing [n(%)]	Handover time [n(%)]
Observation	210	0(0.00)	6(2.86)	15.89±3.29
Control	196	6(3.06)	25(12.76)	25.72±6.31
t/χ^2		6.525	14.083	-19.868
P		< 0.05	< 0.05	<0.05

Comparison of the satisfactory degree of family members

The satisfactory degree of observation group was 92.38% and control group was 83.16%, the difference between two group had the statistical significance as the Table 2 showed ($P < 0.05$):

Table 2. Comparison of the satisfactory degree of family members

Groups	Number	Very satisfied	Satisfied	Ordinary	Not satisfied	Satisfactory degree
Observation	210	157(74.76)	37(17.62)	12(5.71)	4(1.90)	194(92.38)
Control	196	116(59.18)	47(23.98)	24(12.24)	9(4.59)	163(83.16)
χ^2						8.113
P						< 0.05

Discussion

In the clinical care, it is necessary for ICU patients to be transferred into the normal ward after their conditions were steadied. In the process of traditional transition, omission of the medical records, medicine and related information often happens and require the family members to shuttle back and forth for these missing items, which may not only waste time but induce the mess of handover and further cause the safety hazards and medical dispute. To improve the security of transition, seamless care was used in present study and the conclusions of results were as follows.

Seamless care enhanced the security of transition

According to previous research, there were different degrees of adverse events occurring in the transition of patients from ICU to normal ward [5]. And as the presentation of this research, there were no condition alteration of patients under the seamless care, suggesting that seamless care improve the security of transition. Before the seamless care, the nurses had received the trainings with various types, which was to make the nurses adequately clear about their own responsibility and master their workflow. These trainings ensured that nurses had abilities to deal with accidents in transition and the implementation of work. Besides, the assignment of every member in team was clearly distributed. After transition, the doctors and nurses of normal ward would jointly evaluate the condition of patients and design the individual care plan for patients to ensure the continuous and safe care for patient during the 48 h after transition. Moreover, ICU nurses paid return visit to patients once a day and evaluated the condition of patients to learn the condition alteration of patients. After evaluation, ICU nurses and ward nurses would adjust the care plan cooperatively to provide the optimal plan for patients and then improve the security of transition.

Seamless care promoted the efficiency of handover

The omission and loss of items often happen in transition of patient under conventional care, which could results the mess of handover [6]. For preventing the missing of items, the adequate preparation had been done in present study. Firstly, the handover checklist of ICU nurses recorded the name, age, gender, conscious state, department which patients would be transferred into and artificial airway to ensure the integrity of patient information. Meanwhile, ICU nurses also packaged and checked the medical supplies, medicine and medical records, which effectively prevented from the missing, repeatedly taking and mess. These measures not only decreased incidence of item missing but prevented the delay of handover time caused by fetching the items. Secondly, before the patients left from the ICU, the bed in normal ward was already prepared, which provides the potent guarantee for transition, Furthermore, at the

end of handover, ICU nurses would deliver the checklist of medical item and records and the packaged items to ward nurses. The clear handover and signature of document effectively shorten the handover time.

Seamless care improved the satisfactory degree of family members

Seamless care improved the satisfactory degree of family members by decreasing the incidences of item missing and condition alteration, shortening the handover time and ensuring the quality of care. In the process of conventional transition, ICU nurses wouldn't pay attention to the patients after transition [7]. Nevertheless, return visit was added in present research, which referred that ICU nurses paid return visit once a day after 45 h of transition to have command of conditions of patients. And then ICU nurses would cooperate with the ward nursed to adjust the care plan to provide the optimal care for patient, which was also beneficial for the improvement of satisfactory degrees.

In a word, seamless presented satisfactory effects in the transfer and handover management of ICU patients of neurosurgical department, which decreased the incidences of condition alteration and item missing, shortened the handover time and improved satisfactory degree of family members. Seamless care could be regarded as the effective method to improve the efficiency and security of care.

Declaration of conflict-of-interest

The authors declare no conflict-of –interest.

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