The Evaluation of Compliance of The Records of Nursing Care after Surgery in the Intensive Care Unit of Cardiac Surgery with Clinical Care Classification system

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Abstract

The quality of recording nursing care, highlights the quality of care provided to the patient. The use of electronic systems is considered a suitable approach for providing safe care and reducing healthcare errors.

Objective: The aim of this study was to determine the compliance of the recorded nursing care with clinical care's classification system in the intensive care units of cardiac surgery.

Materials and Methods: This descriptive study is a type of directed content analysis based on the Clinical Care Classification (CCC) system. The research community and sample was 291 cases available in the first six months of 1393 related to the Coronary artery bypass surgery patients in selected hospitals of Tehran University of Medical Sciences and 30 observed items of nursing care for these patients. The recorded nursing reports through directed content analysis based on the CCC were analyzed and the obtained statements were adapted with the diagnosis and coding system's intervention and CCC, and the validity of this adaptation was confirmed with the Delphi method.

Result: The content analysis of the recorded nursing care in the nursing reports showed that the most frequent nursing diagnosis (26.38%) was the diagnosis related to fluid volume and most of the interventions (25.95%) were the care related to the fluid volume and (13.96%) were related to physical health. Also the overall rate of compliance of this care with the clinical care classification system was 30.11 percent.

Conclusion: The results show that because of the lack of a system of documentation based on the nursing process and also not using the standard language and clinical care classification systems, recording of the care items are facing some problems. Due to the lack of nurses' familiarity with the nursing process and not using that in the documentation of the cares the use of the CCC system for recording the nursing reports is suggested.

Key words: Documentation, ICU, Classification systems

Introduction

Today the goal of hospitals and care centers, is to improve the quality of care and treatment and one of the basic requirements in order to improve the quality of care is the permanent connection between care providers in order to share and exchange the necessary information related to the patient(1). Recording the care and the patient's response to care provided, is one of the most effective ways of communication between caregivers(2). Quality nursing documentation promotes structured, consistent and effective communication between caregivers and facilitates continuity and individuality of care and safety of patients(3, 4). Since nurses are one of the largest service providers in the health system(5), recording and reporting the care by them is of high importance. Nothing but the full and standard record shows all the work done for the patients(6). The slightest negligence in data transfer causes professional problems for nurses and medical centers(2). Despite the wide recognition of the importance of nursing documentation and efforts made to enhance it, there are inconsistencies in the definition of good nursing documentation because of variations in nursing documentation practice based on different local requirements, and documentation systems and terminologies across countries and settings. Electronic documentation systems can improve health professionals' access to more complete, accurate, legible and up-to-date patient data(7, 8). With the widespread use of information technologies in nursing practice, standardized nursing language becomes essential because a uniform and controlled vocabulary enables electronic documentation systems to aggregate data(9, 10). It is necessary to convert nursing language used in documentation into computer structures in order to reflect the work of nurses and to evaluate evidence regarding the quality and quantity of nursing care(11).

The use of electronic systems is considered a suitable approach for providing safe care and reduce healthcare error(12). One of the requirements for electronic nursing records, is the use of standard classification systems, language and terminology. Standardized nursing terminology, not only facilitates communication between health subsets but will also be helpful in the documentation and recording of hospital information systems and electronic health records. Standardized nursing classification systems include NANDA, NIC, NOC ICNP and CCC(13). One of them is CCC. The system works by linking the diagnosis, intervention and evaluation of outcomes and is based on the nursing process(14). In Iran the adaptation and usability of the system is studied by Varzeshnejad et.al (2014) in NICU and the overall rate of compliance has shown that 42.7 percent of diagnoses and nursing interventions in the CCC are complied with whe provideing nursing care (15).

Coronary Artery Bypass Graft Surgery(CABG) is one of the most common surgeries, which in Iran, is the cause of more than 38 percent of deaths related to coronary artery disease particularly coronary artery diseases that

requires CABG(16). Following CABG, patients need close monitoring in special care units; therefore, standard and principled caring based on the nursing process and recording the care in these patients is necessary (17, 18). Hanifi et.al (2004), reported the documenting of the quality of nursing care in ICU as poor and one of the most important causes of these problems is the lack of a standardized recording system (19). The importance and the necessity of using a computer classification system of nursing care and the necessity of using such systems in various parts of the hospitals, including ICU, should be considered and it is necessary to use computerized record to measure and evaluate the care feedback from the patients, such as heart patients (18). To use the system to record correctly, the first step is to investigate the possibility of its implementation. So this study has been done to evaluate the compliance of nursing care records after the surgery in ICU, with the CCC.

Materials and methods

This descriptive study is a type of directed content analysis based on the CCC system. CCC is one of 12 standard classification systems, which has been recognized as official (20). This system defines nursing diagnoses based on the evaluation of symptoms and following the selection of nursing diagnosis by the nurse, introduces the nursing interventions related to the selected diagnoses, and finally assesses the outcome of the intervention (14). The Persian translation of the system is done by Rassouli et al (2014) and is available for Persian users on http://www.sabacare.com/Translations.

Research community and samples were the cases of CABG of patients at Imam Khomeini and Shariati hospitals affiliated to Tehran University, and also the observed nursing care for these patients. Due to the nature of the research, sampling has been done through the full range of nursing records of patients with coronary artery bypass grafting in the first six months of 1393 and the recorded nursing care was obtained. A total of 291 cases were studied, and a list of nursing care in the first 24 hours after surgery was prepared. Because of the possibility that some of the recorded nursing care in patient records, was not done or the care itself was done but not recorded for some reason; a check list of the recorded care in the cases was prepared and the caring done by the nurses was re-analyzed through 30 cases of observation and was added to the prepared list (Table 1).

All documents that were recorded by nurses as clinical care, were obtained from patient records and were analyzed by the directed content analysis method. The statements that resulted from the content analysis method was compiled with the diagnosis and intervention of coding system and classification for clinical care. The content analysis steps in this study included coding, classification, finding the main cores and integrating the data. In the coding stage all of the documents that nurses had recorded in the 24 hours after CABG, was reviewed and sentences and phrases that contained the important points were marked.

Then in the observation stage, words and phrases that nurses employed at the time of delivery of the patient to colleagues were noted, and then they were coded; here is an example: The patient is a 65 year old man who entered the ICU alongside the anesthesia technician at 15:20 on a stretcher after the CABG. Then he was immediately connected to the ventilator on SIMV mode with the coordinates of TV: 800, Fio2: 70%, PS: 15, RR:12. Monitoring, cardiac rhythm is NSR. CV line of right jugular is fixed and heparin is locked. According to the CVP and diuresis patient received serum volume. The dressing of the midline of the chest was replaced. Two drains in the area of operation were fixed and the drainage was charted. The left buttock is red. The left radial arterial line set is fixed and connected to the arterial set. ABG, Na, K were sent. Secretions were suctioned. Due to high BS and diabetes background, the patient's sugars were modified each time. Foley is fixed, diuresis is established. EKG and CXR were taken and the doctor has seen them. He has high blood pressure, TNG is running. At 6 pm it is set on spont. and extubated at 8 pm. He is receiving 6-8 liters of O2 with a mask. Coughing and deep breathing training was given to the patient. PO with the fluids and tolerated it. Potassium reduction was modified. He had no fever. The medical care was administered.

According to recorded reports, the nursing diagnoses were extracted as follows: disorders in clearing the airway, electrolyte imbalance, impaired endocrine function, impaired skin integrity, changes in blood pressure. Nursing interventions extracted from the report: transmission care, ventilator care, cardiac care, intravenous catheters care, arterial catheter care, nutritional care, contact with doctors, urinary catheter care, renal care, dressing change, oxygen therapy, drainage, pharmacotherapy, health care background, blood sampling care, monitoring vital signs, diabetes care, monitoring adsorption and desorption.

In the next step, the classification code, since the framework of the study was the CCC, classes were set based on its four main classifications: 1.health behavior, 2.functional behavior, 3.Physiological behavior, 4.Psychological behavior; and the CCC was used as the component of care. In the third stage, the researchers reviewed this coding and classification of clinical care and nursing process, and extracted two main cores including nursing diagnoses and nursing interventions. To verify the compliance between nursing care and clinical care classification system, the Delphi technique was used in one round.

To this end, a questionnaire, which consisted of 76 diagnoses and 97 nursing interventions was prepared and compiled with the CCC. This compliance was done in order to examine the capability of the CCC with the current nursing reports and the possibility of using it in giving the current nursing reports. In other words, higher compliance means higher compatibility with the reporting system and the higher possibility of using the system. Experts participating in the Delphi were 15 members of the Faculty of Nursing and Midwifery of Tehran University of Medical Sciences Shahid Beheshti University of Medical Sciences and also nurses working in ICU of heart surgery.

Results

The research findings on the demographic characteristics of patients undergoing CABG showed that 75 percent of patients were male, 32 percent of patients were 50-60 year old and the length of hospital stay for most of these patients (75%) was 4-10 days. The content analysis of the recorded nursing care in the reports showed that most of the nursing diagnoses (26.38%) are the diagnoses related to the fluid volume (Table 2 - next page). Regarding the frequency of nursing interventions in the intensive care units in the patients with coronary artery bypass, the findings of the study showed that most interventions are fluid volume interventions (25.95) and physical health (13.96) (Table 3). Between the 160 diagnosis phrases related to the coronary artery bypass patients in the CCC, 76 diagnoses were identified in the intensive care units of cardiac surgery of which the compliance of nursing diagnoses were estimated as 47.5%. Between the 762 CCC interventions related to the coronary artery bypass patients, 97 interventions were identified in the intensive care units of cardiac surgery; the compliance of nursing interventions was estimated as 12.72% and the overall compliance of diagnoses and interventions were estimated as 30.11% (Table 4).

In the case of care components in ICU in CABG patients based on CCC, the findings showed that the most components are physical health components (29.15%) and fluid volume (13.50%) (Table 5).

Conclusion

In this study which was done to examine the compliance of nursing care records after the surgery in the ICU of cardiac surgery with the CCC; the findings related to the nursing diagnosis 24 hours after the coronary artery bypass patients' surgery in the ICU of cardiac surgery in the selected hospitals of Tehran University of Medical Sciences in the first half of 1393, and showed that among 76 recorded nursing diagnoses in the nursing report of these patients; the most common nursing diagnoses are those related to the fluid volume disorders and the endocrine condition disorders and also heart condition disorders. Varzeshnejad et al (2012) in their study reported that the most common nursing diagnoses in NICU is related to the infant respiratory condition which due to the differences in the parts of study, different nursing diagnoses are justified (15).

In the study of Moss and et al (2005), the most common nursing diagnosis was reported as physical evaluation of the patient and fluid volume disorders which in parts is consistent with this study (18). In the study of Toolabi et al (1390), the most common nursing diagnoses in the adults in ICUs for cardiac patients were reported as the changes in vital signs and dysrhythmia; that, in terms of the diagnoses related to the heart condition disorders, is consistent with the present study (21). During heart surgery because of administering large volumes of fluids and blood products and also bleeding, significant movement of fluid in the body takes place. Also the blood circulation outside

Table 1: Observation checklist: a checklist of recorded care in the cases was provided and the care done by nurses was observed and reviewed through 30 cases; these cases were added to the list.

Monitoring vital signs	Oxygen therapy	Drainage tube care	Intravenous catheter care	Arterial catheter care	Pace wire care	NG tube care
Respiratory Care	Dressing change	Blood collection	Finding vein	Ventilation with Ambu Bag	Ventilation with nasal tube	Incision care
Oral care and mouthwash care	Sounding	Skin Care	Disconnecting from mechanical ventilator	Paraclinical follow-up actions	Care of pressure ulcers	Nausea care
Respiratory Physiotherapy	Chest tube removal	Intramuscular injection	Suction	Nutrition	Heart Care	Check the status of consciousness
Following up the tests	Chest bottle Care	Blood and blood products transfusion	Following up observations	Ventilator Care	Care of the drainage tube	Diabetes Care
Pain Control	Medical actions	Sugar and electrolytes control	Coordination of nursing cares	Contact with the doctor	Movement Therapy	Sampling Care
Dialysis Care	Care in the Blood pressure control	Care in temperature control	Taking urine samples	Control of disposal and diuresis	Intravenous infusion Care	Blood sampling
Urinary catheter care	Acidosis and alkalosis therapeutic actions	Fluid Therapy	Therapeutic actions of agitation	Taking culture of secretions	Wound care	Renal Care

Table 2: Frequency distribution of nursing diagnoses in the intensive care units of cardiac surgery in patients with coronary artery bypass at selected hospitals in 1393

Nursing Diagnosis	Number	Percent
Condition of fluid volume, such as risk of increase in fluid volume, low fluid volume, imbalance in the electrolytes	652	26.38
Condition of endocrine system such as changes in blood sugar levels and metabolic problems, etc.	515	20.85
Heart condition, such as changes in output, cardiovascular changes, change in blood pressure, the risk of bleeding, and cardiac arrhythmias, etc.	480	19.42
Respiratory conditions such as impaired airway clearance, impaired patient independence in mechanical ventilation, impaired gas exchange, etc.	372	15.05
Sensory conditions such as pain, changes in sensory perception, changes in vision, difficulty in moving, etc.	110	4.46
Self-concept, neurological, cognitive, and compliance such as anxiety, despair, weakness, dizziness, brain changes, and lack of awareness, etc.	80	3.23
Skin conditions such as changes in skin integrity, cutting skin, and impaired mucous membranes.	75	3.03
Physical compliance, such as increased body temperature, decreased body temperature, difficulty in regulating body temperature, risk of infection and infection.	70	2.84
Activities such as fatigue, impaired physical activity, the risk of activity intolerance, activity intolerance, sleep disorder, sleep deprivation, skeletal muscular changes.	65	2.63
Tissue and peripheral blood supply	30	1.23
Urinary system	12	0.48
Safety such as risk of injury, the risk of aspiration, risk of falls, risk of violence, the injury caused by body condition during surgery, etc.	10	0.40
Total	2471	100

Table 3: Frequency distribution of nursing interventions in the intensive care units in the coronary artery bypass patients in selected hospitals in 1393

Nursing interventions	Number	Percent
Fluid volume care such as fluid therapy, dehydration control, blood transfusions, modify electrolytes, fluids adsorption and desorption measurement, venous catheter care, arterial catheter care, etc.	2401	25.95
The care related to physical compliance, examination of health background, physical examination, clinical measurements, sampling care, blood sampling care, vital signs control.	1275	13.96
Pharmacotherapy interventions such as medical care, management of medication side effects, Pharmacotherapy in problems like the fluctuation of blood pressure and body temperature and Therapeutic actions in agitation.	1203	12.95
Respiratory care such as oxygen therapy care, suctioning secretions, breathing exercises, cough and deep breath training to drain the secretions, respiratory Physiotherapy, inhalation therapy, and ventilator care.	933	10.24
Skin care such as pressure ulcer care, oral and mucous membranes care, skin damage control, wound care, care of the drainage tubes, Dressing change, Surgical incision care, etc.	824	8.89
Heart care such as pacemaker and pacemaker wire care.	645	6.96
Endocrine care, Diabetes care, etc.	546	5.97
Components of health-related behavior such as health-related communication, coordination of nursing care, contact with doctors, Physiotherapy services, respiratory Physiotherapy, etc	479	5.25
Urinary tract care, urinary catheter care, dialysis care, renal care, etc.	425	4.57
Nutritional care	185	1.99
Care related to activities such as movement therapy, sleep patterns control, care of the transmission, and muscle strength control.	146	1.77
Senses such as control of acute and chronic pain, and eye care.	95	0.1
Care for gastrointestinal system, such as nausea and vomiting care.	65	0.70
Safety care	65	0.70
Total	9287	100

Table 4: Shows the compliance of nursing care in the intensive care units of coronary artery bypass patients in selected hospitals of Tehran University of Medical Sciences with the CCC system in 1393

	Number of nursing diagnoses	The compliance percentage of nursing diagnoses	Number of nursing interventions	The compliance percentage of nursing interventions	The overall compliance percentage (Nursing diagnoses and interventions)
Intensive care units for the patients with coronary artery bypass in selected Hospitals of Tehran University of Medical Sciences	76	47.5	97	12.72	30.11
Clinical care classification System in patients with coronary artery bypass	160		762		

Table 5: Frequency distribution of care components in intensive care units in coronary artery bypass patients based on CCC system in selected hospitals in 1393

Care components	Frequency	Percent
Action	476	4.08
Digestive	85	0.72
Cardiac	645	5.53
Cognitive	10	0.08
Adaptive	66	0.56
Fluid volume	1573	13.50
Healthcare-related behavior	375	3.21
Pharmacotherapy	1444	12.39
Metabolic	400	3.43
Nutritional	185	1.58
Physical adjustment/compliance	3396	29.15
Respiration	1017	8.83
Connection between the roles	0	0
Safety	65	0.55
Self-care	5	0.04
Self-concept	5	0.04
Sensitive	100	0.85
Skin health	828	7.10
Tissues blood supply	30	0.25
Urinary excretion	945	8.11
Life cycle	0	0
Total	11650	100

of the body, due to the thinning of the blood and reduction of oncotic pressure and the release of the inflammatory mediators, causes a significant movement in the water and electrolytes in different parts of the body. The changes of water or other liquids may cause various disorders like cardiovascular, respiratory, neurological and kidney disorders during surgery and after surgery in patients, The diagnosis of disorders in the volume of fluid in the period following the surgery has an important role in treatment of the patients and prevention of complications.

Among 97 nursing interventions which were extracted from the patients' cases through content analysis 24 hours after the surgery, the most common interventions were related to monitoring the fluid volume and the physical examination and the care related to physical compliance. In the study of Moss and et al, 111 nursing interventions were identified and the most common interventions were related to monitoring of the fluid volume, which is consistent with the results of this study (18). In the study of Varzeshnejad et al, among 103 nursing interventions in the NICU, the most common interventions were those which were done following the doctor's order and was not consistent with the result of this study(15).

It seems that due to the sensitive and emergency conditions of the patients in ICU of cardiac surgery, and also based on observance of policies and standards, nurses are permitted to do a lot of interventions without a doctor's immediate order. Performing interventions and the permission to do it by the nurses is that the doctors write and sign a protocol of the section and leave some authority to the nurses for their own responsibility. For example, fluid resuscitation,

correction of electrolytes, pharmacotherapy in acidosis and alkalosis, insulin injections and other care is done based on the patient's condition and nurse's diagnosis and there is no need for the patient to be visited by the doctor all the time.

In Toolabi et al study, the most common interventions that were recorded fully were changes in the vital systems, absorbed and extracted fluids and chest pain which is consistent with the present study(21).

In the case of care components, 11,650 phrases related to the care components recorded which are much less than 274,957 care component phrases in the Moss et.al study (18). Perhaps one of the most important reasons is that in Iran the reports are recorded routinely and nursing process is not used in the recording of the care. In the study of Varzeshnejad et.al, 33,588 phrases were recorded, that according to the differences in the parts of study and also the numerous but partial care in the NICU and investigation of the cases of infants with various medical diagnoses, the difference with this study can be justified.

The most common care components in CABG patients 24 hours after surgery are those related to the physical health and fluid volume which is consistent with the study of Moss etal (18). Patients who are undergoing open heart surgery, due to high volumes of fluids and blood products, and the extent of surgery, experience a significant movement in body fluids during surgery. Also because of the nature and extent of the surgery in terms of physical health and hemodynamic balance and control of vital signs, they must be constantly reviewed (22,23).

In the study of Varzeshnejad et al in the NICU, the most common care component was related to respiratory care and pharmacotherapy; this inconsistency is due to the differences in the parts of the research (15). In the study of Toolabi et al because of the differences in the purpose of the study, no division was made based on the care components.

To determine the agreement percentage of recorded nursing care with the CCC the Delphi technique was used. The experts 92.90% agreed on the compliance correctness of the nursing diagnoses and interventions with the CCC.

Among 160 nursing diagnoses of CABG patients in the CCC, 76 phrases were extracted through the content analysis of the diagnosis and the compliance percentage of the nursing diagnoses was 47.5%. The compliance percentage of nursing interventions among 762 interventions was 97 recorded interventions which is 12.72%. The overall percentage of compliance (diagnosis and intervention) is 11.30%. In the study of Moss 79.8% of care complied with the CCC(18). In the study of Varzeshnejad this amount was 42.07% (15). It seems that not using the nursing process in recording the nursing care and also lack of a standard recording system is the reason for the low compliance.

The results of several studies in Iran show that only 17.09% of nurses had favorable nursing reports and 35.81% of them had an incomplete report. Although it is possible that manual documentation causes some errors in nursing records that may go undetected, it may have a serious effect on the quality of care. Given the importance of the nursing reports and their role in education, research, legislation, health care cost estimates; monitoring the performance of the healthcare team and estimating the quality of its services and improving its quality and particularly the great communication role of reporting, which is one of the main and effective bases in the nursing care is of high importance. According to studies the poor quality of nursing reports in Iran can be improved by launching and using a standard recording system.

The results show that the lack of a system of documentation based on the nursing process as well as not using a standard language and the CCC for recording the care, in some cases causes difficulty in providing regular care. Due to the lack of familiarity of nurses with the nursing process and its application in the documentation of care, using the CCC is suggested to record the nursing reports.

References