Original Article

Nursing Diagnosis Determined by Nursing Students for Patients after Cardiac Surgery

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Abstract

Background: As in all surgical procedures, nursing care after cardiac surgery has an important place in patient care. Standard nursing care using NANDA nursing diagnosis by nurses and nursing students is an important subject to be evaluated and investigated.

Aims: This study aimed to examine nursing diagnoses determined by nursing students for patients cared for post-cardiac surgery.

Methodology: This study is a descriptive, cross-sectional, and retrospective and it's sample consisted of 110 nursing care plans prepared by nursing students participating at the cardiovascular clinic in University Nursing Faculties in Izmir during the 2015-2016 academic years.

Results: It was determined that 39 existing and 14 risk nursing diagnoses, 5 collaborative problems, and 58 nursing diagnoses in total were reported in the care plans. Research results indicated that students are insufficient in making diagnoses for patients.

Conclusions: It was found that students are insufficient in making diagnosis for patients and mainly focused on physiological aspects, did not have a tendency to evaluate sexuality patterns, value and belief areas, and thus found fewer problems, and made terminologically inaccurate diagnosis.

Keywords: nursing care plan, nursing diagnosis, NANDA, cardiac surgery.

Introduction

Cardiovascular disease in the last few years has been the leading cause of death worldwide. The World Health Organization (WHO) reported that an estimated 17.7 million people died from cardiovascular diseases in 2015 (WHO, 2017). The Turkish Statistical Institute reported that the number of deaths caused by ischemic heart diseases reached 65,897 in 2016 (40.5% of deaths based on diseases of the circulatory system), and that the number of deaths caused by other heart diseases was 36,317 (22.3% of deaths based on diseases of the circulatory system) (Turkish Statistical Institute [TURKSTAT], 2016). Cardiovascular disease is a chronic condition and the major cause of worldwide morbidity and mortality which requires medical or surgical treatment to decrease symptoms of disease and allow patients to resume their normal life activities. The quality of nursing care is particularly important for surgical treatment processes (Ribeiro, Silveira, Benetti et al. 2015, p.161). The nursing process is a scientific method with a planning approach used by nurses to ensure quality patient care. The nursing process is the basis for nursing care, which includes making assessments and clinical judgments to formulate hypotheses or explanations about presenting actual or potential problems, risks, and/or health promotion opportunities (Herdman & Komitsuru, 2014; p. 22). Nursing involves diagnosis, planning, intervention, and evaluation. Nursing diagnosis is the basis for selecting interventions. The International Taxonomy [(NANDA-I (International)] by the North

American Nurse Diagnosis Association defines nursing diagnosis as 'a clinical judgment about individual, family, or community experiences/responses to actual or potential health problems/life processes' (Herdman & Komitsuru, 2014; p. 5).

Nursing diagnosis is essential to planning and providing quality nursing care that meets the needs and demands of patients (Costa, Costa, Souza, 2016, p.210), and to ensuring more effective results and safer patient care (Sousa, Lopes, Ferreire et al. 2016, 221). Technological advances in treatment of cardiovascular diseases and the complexity of care required by patients whose health status changes continuously after heart surgery require that nursing interventions be planned urgently and accurately on the basis of scientific principles (Ribeiro, Silveira, Benetti, et al. 2015, p.160). In order to provide quality nursing care after cardiac surgery, nursing diagnoses should be prepared for standard nursing interventions. In the study performed with Ribeiro et al. (2015), it was determined that nurses had 15 risk nursing diagnoses and 34 real diagnoses, and the diagnoses were mostly related to safety and protection (Ribeiro, Silveira, Benetti, et al. 2015, p.160). Pivoto et al. examined the nursing records of 20 patients after cardiac surgery and they concluded that there were 15 diagnoses by nurses (Pivoto, Filho, Costa Santos et al. 2010, p.665).

The importance of developing accurate, standardized nursing terminology cannot be overstressed. The development of a term or concept for standardized nursing terminology begins with the nursing diagnosis as the foundation for nursing interventions and nursing outcomes. Characteristics of the accuracy of a nursing diagnosis encompass the use of patient cues to support the nursing diagnosis (Wong, 2008, p.1991). Nursing students provide care according to the nursing care plans in their practical clinics. In addition, learning the nursing process is the basis of quality care for future nurses. Determining the appropriate nursing diagnosis is difficult for new nursing students. An accurate nursing diagnosis is the foundation for the plan of care to direct nursing interventions (Noh & Lee, 2015, Herdman & Komitsuru, 2014, p. 22). It is important for nursing students to determine patients' needs in accordance with the Functional Health care plans and to evaluate nursing care plans developed in accordance with the NANDA diagnosis list. In

this regard, nursing diagnosis promotes quality care and their use and level of implementation by nursing students should be evaluated. Hakverdioglu Yont et al. found that the majority of students decided that nursing diagnoses are a priority issue in nursing profession, should be used in patient care and nursing diagnoses should be documented in clinical records and 76.9% of the students knew what a nursing diagnosis was (Hakverdioglu Yont, Khorshid, Eser, 2009, p.168). Therefore, this study aimed to examine NANDA nursing diagnoses determined by nursing students for post-cardiac surgery patients.

Methodology

Study design and sample: This descriptive, cross-sectional, and retrospective study was conducted retrospectively to examine NANDA nursing diagnoses determined by nursing students for post-cardiac surgery patients. The study sample consisted of 110 nursing care plans prepared by 110 third-year nursing students participating in Practicing Module of Diseases and Nursing Care and fourth-year interns participating in Surgical Diseases Nursing at the cardiovascular clinic in University School of Nursing during the 2015-2016 academic years. Totally 110 nursing care plans, 73 were prepared by third-year nursing students and 31 were prepared by intern students has been reviewed.

Collection and Evaluation of Data: Faculty of Nursing students at a University collected data using the 'Personal Information Form' prepared in accordance with Gordon's functional health patterns to prepare nursing care processes. Nursing students performed nursing diagnosis in patients based on the classification of NANDA nursing diagnosis using Gordon's functional health patterns. This retrospective study examined 110 nursing care plans prepared by students and evaluated according to their compatibility of diagnoses with clinical characteristics of patients, number of nursing diagnoses, the accuracy of diagnoses, and compatibility of diagnoses with nursing terminology. Sociodemographic characteristics, clinical features, risk factors for cardiovascular diseases and nursing diagnoses determined by nursing students were quantified in numbers and percentages.

Ethical considerations: Written permission was obtained from the Scientific Ethical Committee of the Faculty of Nursing at a University, as well

as from the institution itself (03.10.2016, no:260).

Results

Examining the characteristics of patients for whom students prepared nursing care plans, it was determined that 64.6% of the patients were male, 59.1% were at least 60 years old, 87.3% were married, 50.9% had two children, and 69.1% were primary school graduates (Table 1). The mean age of patients for whom care plans were developed was 60.64±14.26. Within the scope of this study, most of the patients for whom students prepared nursing care plans underwent the following procedures: coronary artery bypass graft (46.4%), valve replacement (35.5%), and aortic aneurysm (7.3%) surgery. An examination of the clinical features of the patients was conducted and it was determined that 78.2% of the patients had comorbidity. When evaluating the risk factors of cardiovascular diseases, it was found that 50% of the patients were overweight, 20% were smokers, and 32.7% had a medical history of health disease (Table 1).

Fifty eight different nursing diagnoses were determined in total, of which 39 nursing diagnoses were grouped under Gordon's functional health patterns (Table 2), 14 risk nursing diagnoses (Table 3) and 5 collaborative issues. Evaluating 58 nursing diagnoses identified by students, the most common complications after cardiac surgery were: infection risk (99.1%), acute pain (78.2%), bleeding risk (69.1%), fatigue (60%), disorder in sleeping pattern (47.3%), and activity intolerance (46.4%). The determined nursing diagnosis was examined and it was found that among Gordon's functional health patterns, diagnosis included under 'value-belief' pattern were not used by students while diagnosis included in 'sexuality-reproductive' pattern were used less.

When examining the nursing diagnosis in terms of standardized nursing terminology, it was found that 27 of 58 nursing diagnoses were not stated in accordance with standard terminology and some students reported diagnosis in different ways. For instance, it was determined that these students used 'inability to provide self-hygiene', instead of 'self-care deficit'; 'risk for deterioration in cardiac tissue perfusion', instead of 'risk for decreased cardiac tissue perfusion'; 'swallowing difficulty', instead of 'impaired swallowing'; and 'alteration tissue perfusion', instead of 'ineffective tissue perfusion'.

Table 1. Socio-Demographic and Clinical Characteristics of Patients Prepared for Care Plan

Socio-Demographic and Clinical Characteristics of Patients Prepared for Care Plan	Number	Percent
Gender		
Female	39	35.4
Male	71	64.6
Age		
18-39 years	9	8.2
40-49 years	11	10.0
50-59 years	25	22.7
60 years and over	65	59.1
Marital Status		
Married	96	87.3
Single	14	12.7
Number of children		
No children	10	9.1
1 child	9	8.2
2 children	56	50.9
3 children and over	35	31.8

Educational status		
Illiterate	6	5.5
Primary education	78	70.9
High school	15	13.6
College degree	10	9.1
Graduate school	1	0.9
Surgical Procedures		
Coronary Artery Bypass Graft	51	46.4
Valve Replacement	39	35.5
Aortic Aneurysm	8	7.3
Heart Transplantation	3	2.7
Left Ventricular Assist Device	3	2.7
Atrial Septal Defect Closure	3	2.7
Coronary Artery Bypass Graft and Valve Replacement	2	1.8
Pericardiocentesis	1	0.9
Comorbities		
No comorbity	48	43.6
Hypertension	29	26.4
Diabetes Mellitus	4	3.6
Chronic Obstructive Pulmonary Disease	1	0.9
Hypertension and Diabetes Mellitus	5	4.6
Hypertension and Chronic Obstructive Pulmonary Disease	1	0.9
Chronic Renal Failure	1	0.9
Three or more Comorbidities	21	19.1
Risk Factors for Cardiovascular Diseases		
Overweight	55	50.0
Smoking	22	20.0
Alcoholism	4	3.6
Had a Medical History of Health Disease	36	32.7

Table 2. Real Nursing Diagnoses Made by Diseased Students Preparing a Care Plan

Nursing Diagnosis Grouped by Functional Health Patterns	Number	Percent
Health Awareness-Health Management		
Inaffective health maintance	10	9.1
Ineffective therapeutic regimen management	3	2.7
Nutrition-Metabolism		
Imbalanced nutrition: more than body requirements	14	12.7
Imbalanced nutrition: less than body requirements	21	19.1
Impaired skin integrity	10	9.1
Impaired tissue integrity	26	23.6
Ineffective thermoregulation	1	0.9
Impaired oral mucous membrane	12	10.9
Deficient fluid volume	2	1.8
Excess fluid volume	9	8.2
Impaired swallowing	1	0.9

Elimination and Exchange		
Urinary retention	2	1.8
Constipation	19	17.3
Activity-Exercise		
Activity intolerance	51	46.4
Impaired tissue integrity	4	3.6
Impaired tissue integrity (specific) (peripheral)	8	7.3
Ineffective breathing pattern	32	29.1
Impaired tissue integrity (specific) (renal)	2	1.8
Impaired physical mobility	15	13.6
Impaired gas exchange	21	19.1
Ineffective airway clearance	21	19.1
Decreased cardiac output	22	20.0
Self-care deficit	29	26.3
Perception/Cognition		
Acute pain	86	78.2
Deficient knowledge	34	30.9
Nausea	6	5.5
Labile emotional control	1	0.9
Impaired comfort	2	1.8
Self-Perception		
Anxiety	25	22.7
Disturbed personal identity	1	0.9
Fear	2	1.8
Grieving	1	0.9
Powerlessness	66	60.0
Role Relationship		
Interruped family processes	6	5.5
Ineffective role performance	2	1.8
Impaired verbal communication	2	1.8
Sexuality		
Ineffective sexuality pattern	2	1.8
Coping-Stress Tolerance		
Ineffective coping	1	0.9

Table 3. Risk Nursing Diagnoses Made by Diseased Students Preparing a Care Plan

Risk Nursing Diagnosis Grouped by Functional Health Patterns	Number	Percent
Health Awareness-Health Management		
Risk for trauma	41	37.3
Risk for falls	24	21.8
Nutrition-Metabolism		
Risk for impaired skin integrity	7	6.4
Risk for electrolyte imbalance	1	0.9
Risk for infection	109	99.1
Risk for imbalanced body temperature/Hyperthermia	1	0.9
Risk for unstable blood glucose level	2	1.8
Risk for deficient fluid volume	9	8.2
Elimination and Exchange		
Risk for constipation	8	7.3
Activity-Exercise		
Risk for bleeding	76	69.1
Risk for decreased cardiac output	28	25.5
Risk for decreased cardiovascular function	8	7.3
Ineffective breathing pattern	22	20.0
Perception/Cognition		
Risk for aspiration	3	2.7
Collobrative Problems		
Risk for complications of hypovolaemia	1	0.9
Risk for complications of renal insufficiency	1	0.9
Risk for complications of hypocalcemia	1	0.9
Risk for venous tromboembolism	6	5.5
Risk for complications of hyperglycemia	1	0.9

Discussion

This study examined the NANDA nursing students' diagnoses of patients after cardiac surgery. It was found that the most common nursing diagnoses determined by the students after cardiac surgery were risk of infection (99.1%), acute pain (78.2%), risk of bleeding (69.1%), fatigue (60%), sleeping disorders (47.3%), and activity intolerance (46.4%). Ribeiro et al. (2015) examined the care plans of 26 patients in the immediate postoperative period of cardiac surgery and identified the following diagnoses: risk of infection, risk of bleeding, risk of decreased cardiac tissue perfusion, impaired physical mobility, and acute pain. Ozkan et al. (2003) evaluated the nursing care plans of 22 patients who had undergone at least one abdominal surgery and found that acute pain, risk of infection, and impaired physical mobility were the most common diagnoses. Ozturk et al. (2003) determined that 37 patients who had cerebrovascular accidents were mostly diagnosed for insufficient self-care, risk of infection and risk of trauma were in. Like other studies, the study results indicated that as the diagnoses by nursing students are commonly seen post-

operative diagnoses, it is assumed that they know these diagnoses better.

Low cardiac output following cardiac surgery is always a life-threatening condition for patients (Smeltzer, Bare, Hinkle et al. 2010, p.740). Following cardiac surgery, it is required that nurses should evaluate patients in terms of the diagnosis of 'risk of decreased cardiac output' associated with myocardial depression, hypothermia, bleeding, dysrhythmias, and hypoxemia (Smeltzer, Bare, Hinkle et al. 2010, p.740). In current study, it was found that only 27.3% of nursing students conducted nursing diagnoses in patients the 'risk of decreased cardiac output'. 'Respiratory distress syndrome' associated with cardiac surgery is another significant nursing diagnosis post-surgery (Smeltzer, Bare, Hinkle et al. 2010, p.740). However, only 19.1% of students diagnosed 'respiratory distress syndrome' nursing diagnosis. In patient care, it is important to define patients' problems, otherwise patient outcomes are negatively affected (Herdman & Komitsuru, 2014, p.21). This may be due to insufficient information and inaccurate data analysis. These results indicate that further studies should investigate the reasons why certain diagnoses are used less by students. As a result, it was determined that there were not any number of studies evaluating nursing diagnoses by nurses after cardiac surgery and there were no studies evaluating nursing diagnoses established by student nurses.

'Activity intolerance' related to oxygen supply deficiency caused by decreased cardiac output is another significant nursing diagnosis to be evaluated (Smeltzer, Bare, Hinkle et al. 2010, p.740). In this study, it was determined that 46.4% of the students diagnosed patients with 'activity intolerance'. Surgical trauma and 'acute pain' after sternotomy and 'risk of infection' related to surgical incision are significant nursing diagnosis that should be evaluated after cardiac surgery as in other post-operative processes (Smeltzer, Bare, Hinkle et al. 2010, p.740). In this study, 78.2% and 99.1% of students diagnosed the patients with 'pain' and 'risk of infection', respectively. This indicates that nursing students have sufficient information regarding the diagnoses of 'activity tolerance', 'acute pain', and 'risk of infection'.

Nursing students face numerous challenges in performing the clinical judgment to identify nursing diagnosis (Sousa, Lopes, Ferreira et al. 2016). When examining the determined nursing diagnoses, it was found that nursing students did not have a tendency to make possible diagnoses of patients, and risk nursing diagnoses were in very low numbers. Patients who undergo cardiac surgery are subject to life-threatening health risks during the post-operative period. Although the main purpose of nursing care is to identify patients' health problems and plan nursing interventions accordingly, it also requires the evaluation of possible risks, defining of accurate risk diagnoses, and planning necessary nursing interventions for these risks (Herdman & Komitsuru, 2014; Korhan, Hakverdioglu, Demiray et al. 2015).

The literature suggests that nursing students feel uncomfortable and shy talking about their patients' sexual problems (Korhan, Hakverdioglu, Demiray et al. 2015, p.17; Ribeiro, Silveira, Benetti et al. 2015, p.160; Sabanciogullari, Ata, Kelleci et al. 2011, p.117; Türk, Tugrul, Şahbaz, 2013, 129). When examining the diagnoses in nursing care plans, it was determined that nursing students diagnosed patients with 9 patterns (Table 3), made fewer diagnoses related to sexuality patterns, and did not make any diagnosis related to beliefs and values patterns. Uysal, Gurol, Yilmaz et al. (2016) conducted a study with second-year nursing students and determined that these students did not make any diagnosis related to 'sexuality-reproductive' and 'value-belief' patterns. Sabanciogullari, Ata, Kelleci et al. (2011) found that nurses who worked in psychiatric clinics rarely evaluated sexuality patterns, beliefs and values in their caring plans, and determined fewer problems in these areas. It is assumed that the few determinations of problems regarding sexuality, beliefs, and values may be due to lack of information and shyness on the part of the nursing students.

Standardized language among nurses and other health professionals should be developed in order to easily express and state the health status and health problems of patients (Korhan, Hakverdioglu, Demiray et al. 2015, p.18). It was determined that there are several benefits of the use of standard nursing terminology, such as maintaining healthier communication between nurse-patient and nurse-other, minimizing misunderstandings, recording nursing practicing, increasing professional knowledge, enhancing continuity of care, facilitating care (Herdman &

Komitsuru, 2014, p.22; Karaca & Aslan 2018, p.114). Therefore, the use of standardized nursing language is essential. When examining students' caring plans, deficiencies were found in the use of standard terminology, and 27 of 58 nursing diagnoses were not compatible with the standard terminology and some nursing students used different expressions all together. Korhan, Hakverdioglu, Demiray et al. (2015) examined the files of the patients in the intensive care unit in a university hospital and found that standard terminology was not used in the records during the nursing process. Further, seven nursing diagnoses were not compatible with the standard terminology. This result indicates that there are some deficiencies in the use of a standardized language by future nurses.

The results of this study indicated that nursing students are insufficient in making diagnosis for post-cardiovascular surgery patients. It was found that students mainly focused on physiological aspects, did not have a tendency to evaluate sexuality patterns, value and belief areas, and thus found fewer problems, and made terminologically inaccurate diagnoses.

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