ORIGINAL ARTICLE

Nursing diagnoses in the hemodynamics sector: an adaptive perspective

Diagnósticos de enfermagem no setor de hemodinâmica: uma perspectiva adaptativa

Diagnósticos de enfermería en el sector de hemodinámica: una perspectiva adaptativa

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ABSTRACT

Objective: To identify nursing diagnoses of NANDA-I Taxonomy II in patients treated in the Hemodynamics Sector. **Method:** A descriptive, cross-sectional study with a quantitative approach conducted in a teaching hospital in the interior of Rio Grande do Sul. Data were collected through a sociodemographic characterization instrument and information regarding the problems of physical-physiological adaptation. **Results:** 100 patients participated in the study. Defining characteristics, risk factors and related factors were identified through adaptation problems. In all, 28 nursing diagnoses were identified, and 13 were considered for the discussion which presented frequency above 50% and represented the main adaptive problems. Protection, neurological and activity and rest components were the most frequent. **Conclusion:** The recognition of nursing diagnoses facilitates a connection between the main problems of adaptation and nursing interventions.

DESCRIPTORS

Nursing Diagnosis; Cardiology; Nursing Care; Cardiovascular Nursing.

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INTRODUCTION

Cardiovascular diseases are globally recognized as the leading cause of death, annually accounting for more than 17 million deaths (30% of all deaths), 80% of which occur in low- and middle-income countries. Ischemic heart disease, which mainly consists of coronary artery disease, causes 46% of cardiovascular deaths in men and 38% in women[1]. Atherosclerosis, the underlying process that results in coronary disease, usually has a silent evolution over the years, so early diagnosis is important and an active search through diagnostic methods. Early diagnosis greatly depends on the way of life of the population and the access they have to health services. However, in our reality it is observed that many individuals will present an acute condition, with a high risk of death[2].

In this context, nursing care is essential for the recovery of an individual afflicted by cardiovascular disease or when they undergo invasive procedures[3]. To that end, nursing has sought to improve its field of action based on scientific methodology, such as the Systematization of Nursing Care (SNC), which is a method of organization of nursing work[3-4].

Systematizing nursing care involves implementing the Nursing Process. This process consists in the nurse defining the patient's problem, and will then establish a detailed care plan that must be properly implemented and documented. The nursing process is a work method which strives to be an assistance tool in professional practice and could be applied in any nursing professional activity[5].

Nursing diagnoses (ND), the second phase of the nursing process, are clinical evaluations of individuals' responses to health problems, which may guide nursing interventions, direct care and encourage the patient to participate in their treatment, contributing to achieving the results, to which nurses respond[4-6]. Thus, special nursing jargon such as the nursing diagnostics taxonomy developed by NANDA International (NANDA-I), form the foundation of the profession's practice standardization, pointing out areas that contribute to nursing in this care setting[7].

The Roy Adaptation Model[8], adopted as the theoretical basis of this research, is subdivided into four adaptive modes, and the physical-physiological mode was used in this study. This mode corresponds to the individual's response as a physical being to environmental stimuli from the five basic needs (oxygenation, nutrition, elimination, activity and rest, and protection) and the four complex processes (feelings, fluids and electrolytes, neurological function and endocrine function)[8].

It is considered that identifying the nursing diagnoses of patients assisted in the hemodynamics sector may qualify the care, since in addition to helping in forming a care plan through applying the Nursing Process, it will provide patient safety and autonomy to the team. Additionally, even though the proposal of this study has already been previously developed in a similar way[9], collecting new information about the same population in another scenario enables improvement of nursing care and a revision of the ND according to the NANDA-I.

From this scenario, this study aimed to identify the nursing diagnoses of NANDA-I Taxonomy II in patients attended to in the hemodynamics sector.

METHOD

STUDY TYPE

A cross-sectional and descriptive study with a quantitative approach was carried out.

SCENARIO

The research was developed in the hemodynamics sector of a teaching hospital in the interior of Rio Grande do Sul, a reference hospital of high cardiovascular complexity in the Vales region.

Sampling was defined by consecutive convenience, and consisted of 100 patients admitted to the hemodynamics sector and submitted to diagnostic or therapeutic procedures. The inclusion criteria were: patients of both genders, aged 18 years or older, conscientious and able to respond in the interview, who were admitted to the hemodynamics sector from Monday to Friday between 07:00 a.m. to 19:00h to perform a diagnostic or therapeutic procedure. Similar criteria were used in a previous study[9].

DATA COLLECTION

Data collection was performed by nursing researchers during the months of July and August of 2016, via a specific anamnesis and physical examination instrument divided into sociodemographic, clinical characterization data and changes in the physical-physiological mode of Roy's Adaptation Model[8]. This was subdivided into five basic needs (oxygenation, nutrition, elimination, activity and rest, protection) and complex processes (feelings, fluids and electrolytes, and neurological function). The patients were approached regarding the study either before or after performing the procedures.

In order to characterize the sample, the following sociodemographic/clinical variables were used: gender, age (categorized as 20 in 20 years), marital status (individuals living with or without a partner), skin color (white, brown or black), schooling (incomplete primary education, elementary school, high school or higher education), occupation (active worker, retired or unemployed), origin (Santa Cruz do Sul or other cities), comorbidities (hypertension, diabetes, congestive heart failure, chronic renal failure, dyslipidemia), body mass index (BMI) classification (obesity, overweight

or normal weight) and performed procedures (cardiac catheterization, coronary angioplasty, electrophysiological study, peripheral angioplasty, pacemaker implantation).

DATA ANALYSIS AND PROCESSING

The collected information was compiled into a database, and the Statistical Package for Social Sciences (SPSS) version 23.0 software (IBM, Armonk, NY, USA) and Microsoft Excel program were used. A descriptive analysis of the collected variables was performed (all categories) which were expressed in absolute and relative frequency. After identifying the defining characteristics, related factors and more prevalent risk factors in this population by NANDA-I Taxonomy II, sociodemographic/clinical characterization and the data collected in relation to the physical-physiological adaptation problems, the NDs were then selected in three stages. First, a list of 28 possible NDs were identified from the search of the defining characteristics and risk factors in this taxonomy, and those with a frequency greater than 50% were established as the cut-off point for analysis. In the second stage, the most frequent NDs were validated for the study population through clinical reasoning and critical thinking according to recommended nursing care methodology, based on the analysis of the physiological adaptive mode. This step was independently performed by two nurses with expertise in this theme, and any divergent validations were decided by consensus between them. The third step was to calculate the prevalence of each validated ND from the frequency of defining characteristics and risk factors found in each ND. Nursing diagnoses were classified according to domains and classes of the NANDA-I Taxonomy II.

ETHICAL ASPECTS

The study was approved by the Research Ethics Committee of the Universidade de Santa Cruz do Sul, Report No. 1.625.420. The ethical precepts of Resolution 466/2012 of the National Health Council were respected, and all study participants signed a clear and Informed Consent Form.

RESULTS

One hundred (100) patients participated in the study. Regarding the sample characterization, it was observed that 55% of the interviewees were male in the age group of 30 to 90 years, with a predominance in the age group from 50 to 69 (60%), which corresponds to an average age of 64.56 years. There was a predominance of white people (86%) who lived with a companion (78%). There was also low schooling in the sample, where 47% studied until elementary school, and most were retired (57%). It was also observed that about half of the patients came from municipalities in the region, which is justified by the fact

that the institution of the study scenario is the reference center for the region.

It was identified that the majority of subjects had more than one associated comorbidity, emphasizing systemic arterial hypertension (85%), dyslipidemia (49%) and diabetes mellitus (30%). Regarding body mass index, 53% of the participants were overweight according to the classifications described by the World Health Organization[10]. Regarding the type of procedure performed, 64% underwent cardiac catheterization and 21% underwent percutaneous transluminal coronary angioplasty.

According to the data collection instrument used to investigate the main problems of physiological adaptation[8], it was possible to identify the main defining characteristics, risk factors and related factors that resulted in identifying the nursing diagnoses through clinical reasoning and diagnostic judgment. Likewise, the most prevalent nursing diagnoses were described and associated with the components (basic needs) and the complex processes of the physiological mode in Roy's Adaptation Model.

Thus, 28 nursing diagnoses (Table 1), with a relative frequency between 15% and 100% were identified, which were divided into two groups. The first was represented by NDs with a frequency below 50%, and the second by 13 NDs with a frequency of more than 50%. Five of these were risk diagnoses: Risk for infection, Risk for impaired cardiovascular function, Risk for bleeding, Risk for adverse reaction to iodinated contrast media, Risk for decreased cardiac tissue perfusion; and eight diagnoses were focused on the problem: Overweight, Decreased cardiac output, Ineffective peripheral tissue perfusion, Activity intolerance, Impaired verbal communication, Impaired walking, Acute pain, and Impaired physical mobility. The second group was chosen to represent the studied sample with a cut-off point of 50%, and all 13 diagnoses were validated by consensus among specialists in order to represent the main adaptive problems found in patients with cardiovascular diseases treated in the hemodynamics sector.

Through the changes found in the study population, it was possible to gain knowledge and relate the physiological/physical-physiological findings according to Roy's Model, as shown in Table 1.

When analyzing the diagnoses, it was observed that the need for protection was the group that presented the highest number of diagnoses (8), followed by neurological (4), activity and rest (4), oxygenation (3), feelings (3), liquid, electrolytes and acid-base balance (2), nutrition (2) and eliminations (2). Only the complex process of endocrine function did not present diagnoses, since it was not contemplated in the data collection instrument. The discussion of the main NDs was expanded, relating them to their defining characteristics, related factors and risk factors, as described in Table 2.

Table 1 – Nursing diagnoses identified in patients submitted to a diagnostic or therapeutic procedure in the Hemodynamic Sector – Santa Cruz do Sul, RS, Brazil, 2016.

Nursing diagnoses by components and complex processes	N	%
Oxygenation		
Decreased cardiac output (00029)	70	70
Ineffective breathing pattern (00032)	33	33
Impaired gas exchange (00030)	25	25
Protection		
Risk for infection (00004)	100	100
Risk for adverse reaction to iodinated contrast media (00218)	90	90
Impaired skin integrity (00046)	46	46
Impaired Comfort (00214)	45	45
Ineffective protection (00043)	41	41
Risk for pressure ulcer (00249)	38	38
Impaired Dentition (00048)	32	32
Risk for allergic reaction(00217)	15	15
Senses		
Impaired verbal communication (00051)	55	55
Impaired walking (00088)	53	53
Acute pain (00132)	53	53
Liquids, electrolytes and basic acid balance		
Ineffective peripheral tissue perfusion (00204)	65	65
Excess fluid volume (00026)	31	31
Neurological		
Fear (00148)	35	35
Anxiety (00146)	34	34
Risk for powerlessness (00152)	27	27
Risk for acute confusion (00173)	16	16
Nutrition		
Overweight (00233)	77	77
Obesity (00232)	50	50
Elimination		
Risk for bleeding (00206)	100	100
Impaired urinary elimination (00016)	21	21
Activity and rest		
Risk of impaired cardiovascular function (00239)	100	100
Risk for decreased cardiac tissue perfusion (00200)	85	85
Activity Intolerance (00092)	57	57
Impaired physical mobility (00085)	50	50

Table 2 – Association of Nursing Diagnoses most frequently present in patients submitted to diagnostic or therapeutic procedures in the Hemodynamics Sector – Santa Cruz do Sul, RS, Brazil, 2016.

Nursing diagnosis	Defining characteristics	%	Related or risk factors	%
Risk for infection			Invasive procedure	100
Risk of impaired cardiovascular function			History of cardiovascular disease	100
Risk for bleeding			Treatment regimen	100
Risk for adverse reaction to iodinated contrast media			Contrast media precipitates adverse event	90
Risk for decreased cardiac tissue perfusion			Coronary Artery Spasm	85

...continuation

Nursing diagnosis	Defining characteristics	%	Related or risk factors	%
Impaired walking	Impaired ability to walk the required distances	16	Insufficient muscle strength	37
Impaired physical mobility	Slowed Movements	16	Activity Intolerance	34
Acute pain	Self-reported intensity using	03	Physical injury agent	29
			Biological injury agent	21
Decreased cardiac output	Decreased in peripheral pulses	21	Alteration in heart rhythm	25
	Edema	14		
	Abnormal skin color	10		
Overweight	High BMI	53	Average daily physical activity is less than recommended for gender and age	24
Activity intolerance	Exertional Dyspnea	17	Physical deconditioning	16
	Fatigue	16	Immobility	08
Ineffective peripheral tissue perfusion	Decreased in peripheral pulses	21	Insufficient knowledge of modificable factors	14
	Changed motor function	16		
	Edema	14		
Impaired verbal communication	Difficulty comprehending communication	20	Emotional disturbances	13
	Difficult speaking	09	Physical barrier	05
	Difficulty in selective attending	08		

DISCUSSION

Cardiovascular diseases have been the main cause of death and are responsible for the high hospitalization frequency. Much progress has been made in relation to treating coronary diseases, and the percutaneous approach is an increasingly prevalent intervention. In this context, patient care is performed by a multidisciplinary team, and nurses play an important role in care, since it is the professional who assists the patient throughout his or her hospital stay[10].

By prioritizing comprehensive care from a holistic view of the individual, Nursing treats the human responses to health conditions and life processes, or a vulnerability to such a response, thus identifying health problems and a state of risk[6]. Diagnostic indicators are identified based on the characteristics found in the anamnesis and the physical examination, which include defining characteristics and related factors to compose NDs with a focus on the problem as well as vulnerabilities, which indicate the risk diagnoses. It should be emphasized that the diagnostic phase is the guideline to obtain results which are sensitive to nursing interventions.

In this study, the diagnosis Risk for infection was predominant, having the performance of invasive procedures as a risk factor with the same statistical frequency. Another similar study also showed a predominance of this diagnosis in their sample, possibly being related to the fact that patients are submitted to invasive procedures, so that the vast majority of those hospitalized will present a risk for infection, especially if they undergo a surgical procedure[11].

Another predominant diagnosis was Risk for bleeding, defined as "vulnerability to a reduction of blood volume that may compromise health"[6]. According to a study performed in a hemodynamic laboratory of a university hospital in the Metropolitan Region of Rio Grande do Sul, Brazil, with patients undergoing cardiac catheterization, "bleeding at the puncture site was observed as the second vascular complication"[12]. Another study conducted in 47 hospitals in all Brazilian regions analyzed the occurrence of adverse cardiovascular events in patients submitted to angioplasty according to the arterial access route, finding severe bleeding in 1.1% of the sample, with no statistical difference between the radial and femoral pathways[13].

The diagnosis Risk of impaired cardiovascular function is defined as "vulnerability to internal or external causes that can damage one or more vital organs or the circulatory system"[6]. Identifying this diagnosis is related to changes in cardiovascular function. The results of a study performed in the coronary unit of the Federal University of São Paulo school hospital with all hypertensive patients, and a majority with dyslipidemia and diabetes, showed a relation between acute coronary syndrome and cardiovascular risk factors[14].

The diagnosis Risk for adverse reaction to iodinated contrast media is defined as "vulnerability to a harmful or unintentional response associated with the use of iodine contrast medium, which may occur within 7 days after contrast medium injection, which can compromise health"[6]. A study carried out in a teaching hospital in Curitiba, Paraná state[15] identified the same nursing diagnoses in patients undergoing cardiac catheterization as in the present study. In another study conducted in French hospitals with patients who had image-guided cardiovascular interventions requiring contrast administration, 3.1% of hospitalizations were due to acute kidney injury, being the third

cause of hospitalization[16]. Thus, it is important to identify this risk for establishing a care plan aimed at preventing complications to which patients are exposed when using contrast medium.

The diagnosis Impaired verbal communication is defined as diminished, delayed, or absent verbal ability[6], and in the present study the difficulty of understanding communication, speaking and selective attention were the defining characteristics. Such alterations may be partly explained by the predominantly older adult sample, since these constitute common changes in this age group. This diagnosis requires that nurses take a careful look at developing interventions that promote more effective communication between staff and patients, since patients in this unit will receive many care guidelines, as well as frequently need to communicate their health complaints to the team.

Decreased cardiac output is among the major adaptive problems found in the study, and can be defined as "insufficient amount of blood pumped by the heart to meet the body's metabolic demands"[6]. The defining characteristics of the signs and symptoms presented by the patients were abnormal skin color, edema and diminished peripheral pulses. Therefore, cardiovascular problems may alter myocardial function, thereby causing repercussions on cardiac output[7].

The risk for decreased cardiac tissue perfusion is defined as "vulnerability to reduced cardiac (coronary) circulation that may compromise health"[6]; a diagnosis identified from the clinical data of patients at risk of blood flow interruption, such as those with acute myocardial infarction, coronary insufficiency and unstable angina. Acute myocardial infarction occurs "in non-specific heart regions, and the most frequent cause is related to blood flow interruption through coronary artery narrowing," which may occur by obstruction of the artery by thrombus, atherosclerosis, or blood clot[17].

The diagnosis Acute pain was identified by chest complaints, when the patients reported precordial or retrosternal pain, and had the surgical procedure as a related factor. Precordial pain and anxiety present in myocardial ischemic syndromes usually cause sympathetic nervous system hyperactivity, and may cause increased oxygen consumption in the cardiac muscle[18].

High BMI is a recognized risk factor for cardiovascular diseases, and was evidenced in a large proportion of the sample, while an overweight nursing diagnosis was also identified in these patients. A significant number of patients were obese and also had abnormal lipids, high triglycerides, were associated with smoking, hypertension, diabetes, abdominal obesity, and psychosocial stress; factors which represent a risk of acute myocardial infarction[19].

In order to prevent a potential problem, identifying the main NDs in this sample enables nurses to use interventions to reduce the impact of the risks, thus contributing to better patient adaptation[9].

The Nursing Process allows the nurse to organize their professional work in a dynamic and systematic way, thus enabling them to attend to the real health needs of the patients. In addition, it is a process that favors identifying the necessary team for implementing care and interrelates their actions, also making it possible to identify qualification and improvement needs[7,20].

In a study conducted in Fortaleza, Ceará state, Brazil[9], which also sought to identify "nursing diagnoses in patients with coronary disease treated in a Hemodynamic Laboratory, in light of the physico-physiological mode of Roy's adaptation model", the results were similar to those in the present study. The main diagnoses were Risk of infection and risk of bleeding. However, as a result of NANDA-I updates, it was not possible to identify important diagnoses with better accuracy for the patients' profiles, such as the diagnosis of impaired cardiovascular function risk (inserted in 2013) and the Risk of adverse response to iodine contrast medium (inserted in 2010-2013).

CONCLUSION

In performing this study it was possible to identify sociodemographic and clinical characteristics, the defining characteristics, the risk factors, the related factors and the nursing diagnoses through the adaptation problems of the physiological mode. ND recognition facilitates the link between the main adaptation problems and nursing interventions.

The use of the physiological adaptation model enabled identifying 28 NDs of the patients treated in the hemodynamic sector, and 13 of which were considered for the discussion, which represented the main adaptive problems. The most frequent were those of protection, neurological and activity and rest components, which assisted in providing in-depth knowledge of the health and disease vulnerability situation during the procedures. Thus, nursing has the crucial role of identifying these signs and symptoms in care to develop a care plan that addresses the real needs, so as to make the care individualized.

With the presented results, it will be possible to plan specific care for patients submitted to invasive procedures in the hemodynamics sector, as well as to organize nursing care in order to optimize team time and improve the care quality, thereby reducing injury and health risks to patients.

The nurses in the institution where the study was performed did not perform all stages of the Nursing Process; therefore, by conducting this research it was possible to collaborate to improve nursing professionals, encouraging them to perform Nursing Care Systematization with views to improving care.

RESUMO

Objetivo: Identificar os diagnósticos de enfermagem da Taxonomia II da NANDA-I em pacientes atendidos no Setor de Hemodinâmica. **Método:** Estudo descritivo, transversal, com abordagem quantitativa, realizado em um Hospital de Ensino do interior do Rio Grande do Sul. Os dados foram coletados por intermédio de um instrumento de caracterização sociodemográfica e informações referentes aos problemas de adaptação do modo físico-fisiológico. **Resultados:** Participaram do estudo 100 pacientes. Foram identificados as características definidoras, os fatores de risco e os fatores relacionados por meio dos problemas de adaptação. No total, identificaram-se 28 diagnósticos de enfermagem, e para a discussão foram considerados 13, os quais apresentaram frequência acima de 50% e representaram os principais problemas adaptativos. Os componentes proteção, neurológico e atividade e repouso foram os mais frequentes. **Conclusão:** O reconhecimento dos diagnósticos de enfermagem facilita a ligação entre os principais problemas de adaptação e as intervenções de enfermagem.

DESCRITORES

Diagnóstico de Enfermagem; Cardiologia; Cuidados de Enfermagem; Enfermagem Cardiovascular.

RESUMEN

Objetivo: Identificar los diagnósticos de enfermería de la Taxonomía II de NANDA-I en pacientes atendidos en el Sector de Hemodinámica. **Método:** Estudio descriptivo, transversal, con abordaje cuantitativo, llevado a cabo en un Hospital de Enseñanza del interior de Río Grande do Sul. Los datos fueron recogidos por intermedio de un instrumento de caracterización sociodemográfica e informaciones referentes a los problemas de adaptación del modo físico fisiológico. **Resultados:** Participaron en el estudio 100 pacientes. Fueron identificadas las características definidoras, los factores de riesgo y los factores relacionados mediante los problemas de adaptación. En total, se identificaron 28 diagnósticos de enfermería, y para la discusión fueron considerados 13, los que presentaron frecuencia superior al 50% y representaron los principales problemas adaptativos. Los componentes protección, neurológico y actividad y reposo fueron los más frecuentes. **Conclusión:** El reconocimiento de los diagnósticos de enfermería facilita la conexión entre los principales problemas de adaptación y las intervenciones enfermeras.

DESCRIPTORES

Diagnóstico de Enfermería; Cardiología; Atención de Enfermería; Enfermería Cardiovascular.

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