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NURSING DIAGNOSIS IN PATIENTS UNDERGOING A CARDIAC CATHETERIZATION IN A UNIT OF CARDIOLOGY

DIAGNÓSTICOS DE ENFERMAGEM EM PACIENTES SUBMETIDOS A CATETERISMO CARDÍACO EM UMA UNIDADE DE CARDIOLOGIA

DIAGNÓSTICO DE ENFERMERÍA EN PACIENTES SOMETIDOS A UN CATETERISMO CARDÍACO EN UNA UNIDAD DE CARDIOLOGÍA

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ABSTRACT

Objective: identifying nursing diagnoses of patients undergoing cardiac catheterization in a cardiology unit. **Methodology:** an exploratory, descriptive study conducted with seven nurses from the cardiology unit of a university hospital in Curitiba/PR. Data collection was performed in three stages: preparation of case studies; individual resolution of nursing diagnoses by participants and group discussion and the data were subjected to descriptive analysis. The research had the project approved by the Research Ethics Committee, CAAE 0166.0.208.000-11. **Results:** from the discussions nine specific nursing diagnoses for patients undergoing cardiac catheterization emerged. **Conclusion:** nursing diagnoses contribute to guiding, organizing and supporting the knowledge of nurses, so that it can provide the necessary care to a specific population. **Descriptors:** Nursing; Nursing Process; Nursing Diagnoses; Cardiac Catheterization.

RESUMO

Objetivo: identificar os diagnósticos de enfermagem de pacientes submetidos a cateterismo cardíaco em uma unidade de cardiologia. **Metodologia:** estudo exploratório, descritivo, realizado com sete enfermeiros de uma unidade de cardiologia de um hospital universitário de Curitiba/PR. A coleta de dados foi realizada em três etapas: elaboração de estudos de caso; resolução individual dos diagnósticos de enfermagem pelos participantes e discussão de grupo e os dados foram submetidos à análise descritiva. A pesquisa teve o projeto aprovado pelo Comitê de Ética em Pesquisa, CAAE 0166.0.208.000-11. **Resultados:** a partir das discussões surgiram nove diagnósticos de enfermagem específicos para pacientes submetidos a cateterismo cardíaco. **Conclusão:** os diagnósticos de enfermagem contribuem para nortear, organizar e fundamentar o conhecimento do enfermeiro, de forma que possa prever os cuidados indispensáveis a uma população específica. **Descritores:** Enfermagem; Processos de Enfermagem; Diagnósticos de Enfermagem; Cateterismo Cardíaco.

RESUMEN

Objetivo: identificar los diagnósticos de enfermería de pacientes sometidos a cateterismo cardíaco en una unidad de cardiología. **Metodología:** un estudio exploratorio, descriptivo, realizado con siete enfermeras de la unidad de cardiología de un hospital universitario de Curitiba/PR. La recolección de datos se llevó a cabo en tres etapas: la preparación de estudios de caso; resolución individual de los diagnósticos de enfermería por los participantes y la discusión en grupo y los datos fueron sometidos al análisis descriptivo. La investigación tuvo el proyecto aprobado por el Comité de Ética de Investigación, CAAE 0166.0.208.000-11. **Resultados:** a partir de las discusiones surgieron nueve diagnósticos de enfermería específicos para los pacientes sometidos a cateterismo cardíaco. **Conclusión:** los diagnósticos de enfermería contribuyen para orientar, organizar y apoyar el conocimiento de las enfermeras, para que pueda brindar la atención necesaria a una población específica. **Descriptores:** Enfermería; Proceso de Enfermería; Diagnósticos de Enfermería; Cateterismo cardíaco.

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INTRODUCTION

Systematization of Nursing Care (SAE) is configured as a scientific methodology increasingly used by nurses to directing, organizing and systematizing activities, improving patient safety by encouraging greater contact and creating bonds, that results in improved quality of care. By using SAE the professional applies its technical and scientific knowledge, which gives to it greater autonomy, credibility, competence, job satisfaction, and provides greater visibility to the profession.¹

The Federal Council of Nursing (COFEN), through Resolution 358/2009, proposes as foundation of the nursing process (PE), five interdependent and concurrent stages: 1) Data collection of nursing or nursing history, 2) Nursing diagnosis, 3) Nursing planning, 4) Implementation and 5) Evaluation of nursing.²

It is noteworthy that the second stage is to identifying the responses of the individual, family or community against the health-disease process, which accurately directs the selection of interventions by nurses to achieving the expected results for quality life improvement.²

Aims, among others, standardizing and universalizing the nomenclature used to refer to the problems related to the health-disease process of the patient, which are the responsibility of the nurse. It was standardized from taxonomies, whose proposed classification of DE (nursing diagnosis) ranges acceptance and recognition among many writers and researchers to guide the planning, implementation and evaluation of nursing interventions.³⁻⁴

For a more accurate selection of DE, nurses need to develop intellectual, interpersonal and technical skills, besides improving the personal development of consistent elements of tolerance of ambiguity and use of reflective practice.⁵

The DE contributes solidly to identifying the responses of patients facing cardiovascular disease (CVD), especially given the need for interventional cardiac catheterization. This is a diagnostic and therapeutic use in patients with CVD mode. Due to increasing rate of coronary heart disease in the world, this technique is one of the most relevant medical.⁶

Cardiac catheterization presents potential complications, such as: bruise, pseudoaneurysm and bleeding, among other risks. Thus systematized require assistance in accordance with national guidelines, which

extends from the patient's arrival until its discharge.⁶

In the educational institution where the research was conducted the Directorate of Nursing has made efforts to standardizing and universalizing the nursing process. Thus, in order to contributing to local nurses and others, the research aims outlined:

- Identifying nursing diagnoses of patients undergoing cardiac catheterization in a cardiology unit.

METHOD

This is a descriptive and exploratory survey conducted in the Functional Cardiovascular and Pulmonary Unit (CPU) of a teaching hospital in the period from April to June 2013 in the city of Curitiba, Parana, Brazil.

The UCP has twelve nurses distributed as follows: five in the Intensive Care Unit Cardiology (CTI-C) and Coronary Care Unit (CCU); one in cardiology inpatient unit; Laboratory of Hemodynamics in three, one in Cardiological methods and two in the Pulmonology Clinic.

Participated in the research nurses who accepted and met the following inclusion criteria: being a nurse in one of the sectors related to cardiology UCP of that institution, provide direct care to patients undergoing cardiac catheterization, to sign an Informed Consent Form (ICF), have minimal care practice experience of one year and six months in cardiology, in DE and be active during the data collection phase of the research. Exclusion criteria were: not provide direct care to patients undergoing cardiac catheterization, four nurses participated.

In order to broadening the discussion, three nurses, who presented relevant to the inclusion criteria, were invited characteristics: a teaching discipline Clinical Nursing; one connected with the Director of Nursing involved in implementing the SAE nurse; a resident of the nursing second year, linked to the Integrated Multidisciplinary Residency Program in Hospital Care - Cardiovascular Area. Thus, the research involved seven participants.

The research was approved by the Research Ethics Committee of the institution with Humans by CAAE 0166.0.208.000-11 and record 2553.160 / 2011-08, subjected to the provisions of Resolution No. 466/12 and other correlated.⁷

Data collection took place in two stages. Initially it was given to each nurse six case studies of patients undergoing cardiac catheterization. The information that

Aquino EM, Roehrs H, Méier MJ .

supported the case studies was obtained by collecting patient data from medical records and research instrument itself. In the second stage the nurses had a period of one to three weeks to identify individually relevant to each case DE, according to NANDA-I Taxonomy II. After returning, the researcher compiled the DE and each patient had a single diagnostic list.

In the third stage the compiled DE was presented to participants in three meetings in order to discussing the accuracy thereof and electing the most accurate DE for patients undergoing cardiac catheterization. The DE included in the final diagnostic list obtained greater than or equal to 70% approval.

Data were analyzed using descriptive analysis and in accordance with the NANDA-I taxonomy. For didactic purposes, the DE was classified as follows: related to the reason for admission, the risk of heart disease, cardiac catheterization and hospitalization factors. These were discussed based on the literature

Nursing diagnosis in patients undergoing a...

and other converging to the topic of this research work.

RESULTS

Seven nurses participated in the survey, being six females and one male, aged between 24 and 45 years old. Regarding training time ranged from two to ten years and performance in cardiology sector comprised between one and six years, and the guy with one year of operation already had previous experience of six years in healthcare practice. Of the seven nurses, one has other employment. As for titles, two nurses have *expertise sensu* and *lato sensu stricto*, and three (master); others are in qualification.

From the resolution of individual cases by nurses, there was compiled a diagnostic list that ranged from 27 to 38 DE, averaging 32.8 diagnoses per patient. After discussions in consensus meetings, the variability was 17-20 diagnoses, averaging 17.5 diagnoses per case, as shown in Figure 1.

Case	Amount of DE / case	
	Before consensus	Post consensus
1	27	17
2	28	15
3	35	20
4	38	18
5	35	19
6	34	16

Figure 1. Description of amount of nursing diagnoses per case and average, in relation to group consensus meetings. Curitiba, 2013

The DEs were grouped according to the didactic classification, allowing the diagnostics identify specifically related to cardiac catheterization procedure:

- **Reason for hospitalization** - Altered nutrition: less than body requirements, decreased cardiac output, activity intolerance, risk for decreased cardiac tissue perfusion.
- **Inpatient hospital** - Risk of constipation, impaired sleep pattern, impaired physical mobility, risk of ineffective gastrointestinal perfusion.
- **Hospitalization** - Feeling of powerlessness, risk of falls, risk of allergic response, risk factors for heart disease, Sedentary Lifestyle, Self ineffective health, health behavior prone to risk, risk of unstable blood sugar, risk of tissue perfusion brain ineffective, ineffective sexuality pattern, Anxiety.
- **Procedure (cardiac catheterization)** - Mobility Impaired bed, Risk of ineffective renal perfusion, Risk for ineffective peripheral

tissue perfusion, risk of infection, risk of bleeding, risk of impaired skin integrity, Risk of adverse response to contrast media with iodine , acute pain, impaired Comfort.

It is noteworthy that some nurses reported difficulties in the individual preparation of DE about the accuracy thereof, due to the fragility of personal interpretation of the data presented. It also stated that the group discussions facilitated a better understanding of this stage of the nursing process.

DISCUSSION

In this research an average of 17,5 DE per patient was found. Studies about ischemic heart disease and percutaneous transluminal coronary angioplasty (PTCA) found an average of 16 and 19 DE/patient.^{3,8} It is evident that PTCA is similar to cardiac catheterization with regard to technical intervention and recovery of the postprocedure patient.

Most of DE selected in this research are of domain four (activity/rest), four (Cardiovascular responses/lung) NANDA-I

class. Some of these diagnoses were associated with sociodemographic and clinical data, which allows early identification of subjects by risk.^{5,9}

It emphasizes that the DE risk of ineffective gastrointestinal perfusion is not directly related to the cardiovascular system either cardiac catheterization. However, this diagnosis was considered a function of a patient, according to the evaluation of the group, presented this need.

In this case it is therefore considered that the PE is configured as a relevant tool in qualified nursing practice and this requires a holistic look at the individual, able to conduct a full assessment of their needs affected.¹⁰

However, for purposes of discussion we considered the DE specifically related to cardiac catheterization:

Impaired bed mobility. Diagnosis defined as "constraint to move independently from one position to another in bed".⁵ Cardiac catheterization is a diagnostic and therapeutic method consisting in the insertion of a catheter for one, usually the femoral artery, which runs until heart. This test has potential complications to the patient, such as risk of bleeding at the puncture site bruise, pseudoaneurysm, and trauma due to catheterization, clot formation, vasospasm and acute myocardial infarction. Thus, interventions that the nurse on DE involves guiding the patient about the need for absolute rest for at least 12 hours without mobilizing the punctured member and monitor pulses.⁶

Risk of ineffective renal perfusion. This diagnosis was found in similar studies.^{4,8} And defined as "risk reduction in blood flow to the kidneys, which can compromise the health".⁵ It is related to exposure to nephrotoxic and comorbidities such as hypertension, hyperlipidemia and Diabetes Mellitus (DM).⁵

The contrast medium (CM) causes renal vasoconstriction, reduce glomerular filtration rate and thus can lead to acute renal failure (ARF). Despite the evolution of MC, they are the third leading cause of ARF in the hospital environment, increasing the length of stay, costs, morbidity and mortality.¹¹⁻¹²

Although less than 1% of patients requiring dialysis after administration of MC, about 36% of these may progress to death during hospitalization, and 19% have two years of survival.¹¹

The main risk factors are chronic (CRF) renal failure and DM; other factors include dehydration, advanced age, administration of

large amounts of MC, nephrotoxic drugs and acute myocardial infarction.¹¹⁻¹²

Studies show the need for extreme care to patients in need of angiographic procedures for presenting one or more risk factors. This care includes attention to the volume of contrast administered, oral hydration and/or prior to the examination and subsequent intravenous.¹¹⁻¹²

Risk of adverse response to iodine contrast medium. This is defined as "risk of harmful or unintended response, associated with the use of iodine contrast medium, which can occur within seven (7) days after injection of contrast medium".⁵ Studies show that the use of MC in exams can lead not infrequently to contrast-induced nephropathy (CIN).¹¹⁻¹²

The NIC is a more severe form of ARF that occurs especially in high-risk patients. There is an increase in serum creatinine of 0,5 mg/dl or 25% increase compared to baseline creatinine within 48 hours after infusion of MC and oliguria occurs after 24 hours of the procedure. Oliguria is transient, may persist for 2-5 days. The peak serum creatinine occurs in 5 to 10 days, with return to baseline from 14 to 21 days.¹³

The nurse must be aware of patients at risk by means of the nursing pre-procedure: to observe the levels of creatinine, history of hypersensitivity and/or allergy to MC; need hydration pre and post the exam, according to the clinical status of the patient; pause time in nephrotoxic medications, duration of suspension of metformin for diabetics and reintroduction of drugs excreted by the kidneys are relevant guidelines that the nurse should give patients.^{11-12,14}

Risk factors are decisive for the appearance of adverse reactions to CM, which can be mild, moderate or severe and contraindicate its use. In these cases, we recommend a scheme of prior medications that include the combination of corticosteroids and antihistamines, can minimize the reactions.¹⁴

Risk of ineffective peripheral tissue perfusion. It is defined as "the risk of a reduction in peripheral blood flow, which can compromise health".⁵

Cardiac catheterization performed by transradial can lead to early or late occlusion of the radial artery (OAR). This is a complication that predisposes to ischemic endpoints, but with a lower incidence than the femoral. Is also associated with how the dressing is applied. This should allow the continuity of blood flow during compression.¹⁴

Other risk factors include the OAR caliber introducers, multiple radial artery catheterizations, and low doses of heparin.¹⁴

Reprocessing of hydrophilic catheters up to four times, with careful control, showed no association with OAR.¹⁵

Risk of infection. Defined as "the risk of being invaded by pathogenic organisms"⁵, this DE corroborates results of previous studies that found the same result in 100% of patients, heart patients, some requiring cardiac catheterization.³⁻⁴

The cardiac catheterization procedure involves complications that can range from mild transient adverse events and serious adverse events up. Bacteremia is one of the complications considered as moderate and although low frequency, it is nonexistent. The procedure can serve as a gateway for micro-organisms and cause local or remote infection, especially if the catheter is reused.¹⁶⁻¹⁷

Despite the nursing staff, coordinated by nurse practitioners is that they are longer in contact with the patient most likely to act in the prevention and control of infections. Continuing education programs must reach the entire multidisciplinary team, in addition to the development of institutional guidelines on preventive measures such as adoption of strict aseptic measures during the procedure and care about the safety of the use of reused.¹⁶⁻¹⁸

Bleeding risk. Defined as "risk reduction in blood volume can impair health"⁵, this DE was selected by configure itself as one of the possible complications of cardiac catheterization, which increase the risk of ischemic events.

The bleeding increases the risk of ischemic events and is related to factors such as age, early pharmacological and interventional aggressive measures needed to stabilize the frame, plus a hard compression, especially in obese are determinants that can increase the risk of bleeding complications hospital.^{6,19-20}

The most frequent hospital bleeding is related to the femoral puncture in about 79% of cases and is most significant in the elderly. Proper technique of removal of the catheter and needle as well as an effective compression can reduce this complication.^{6,19} Although the bleeding is a common complication is the occurrence reported in only 14% of cases.⁶

Compression can be either manually or mechanically, without striking difference in the control of major bleeding at the insertion site between one technique and another.²¹ The protocol calls for the institution of manual

compression at the site of arterial puncture and the realization of composite compressive dressing a cushion made of gauze pad and tape or micropore tracks.

The dressing should not impede blood flow to the extremity of the catheterized limb. Thus, the member should be observed for temperature, color, perfusion, peripheral pulses and subjective symptoms of paresthesia.⁶

Another important aspect that requires attention of the nurse is monitoring of hemoglobin. Score according to the BARC (Bleeding Academic Research Consortium) bleeding can be classified as type 3A (if any drop 3-5g/dl) or 3B (a decrease >5 g/dL) provided related to bleeding.²²

Risk for impaired skin integrity. In this study the consensus choice of DE, defined as "risk of epidermis and/or dermis changed", was given by nurses who understand the defining characteristics presented by patients are not related to cardiac catheterization itself, but the individual condition of each predisposes the patient to break the skin, especially the elderly. Another study presented the DE of impaired skin integrity, however, related to a required cardioversion during catheterization.⁴

Acute pain. This diagnosis is defined as "unpleasant sensory and emotional experience arising from actual or potential tissue damage or described in terms of such lesion with anticipated or predictable end and a duration of less than six months".⁵ The complaint of severe pain at the site of arterial puncture associated with hypotension and pallor may indicate retroperitoneal bleeding, even in the absence of bleeding or hematoma.⁶

Another complaint that requires attention of the nurse and the team is pain or discomfort thoracic. It can indicate ischemia related to catheterization as angina, and ranges from mild to moderate or the occurrence of acute myocardial infarction (AMI), considered a serious complication.^{6,16}

The patient may report pain verbally or non-verbally, with behaviors such as crying, moaning, restlessness, changes in sweating and/or blood pressure, among other.²³

Impaired comfort. Defined as "perceived feeling of psychospiritual comfort environmental, cultural and social fault, relief and transcendence in physical dimensions".⁵ This DE was selected for understanding the nurses that is comprehensive and encompasses other pointed in a previous study such as Fear, Anxiety, impaired sleep pattern.⁴

These DE are related to stressors that affect the patient's comfort, which can be mitigated and even eliminated with proposed strategies by nurses, such as the easing of standards and continuing education of staff, information and/or early guidelines, multidisciplinary approach, maintaining companion as long as possible with the patient before the exam. The orientation reduces stress and thus vagal complications anxiety and pain.^{16,24-25}

The selection of the diagnoses listed in items two three may seem redundant. It is noteworthy, however, that nurses generally reported difficulties in interpreting data during the survey of individual nursing diagnoses and also who had doubts about the accuracy thereof.

These results are consistent with other studies that showed varying difficulty for the implementation of PE in practice with a percentage of 58,5% with the phase of DE, being the only non-registered in the records.²⁶⁻²⁸

With the term "nursing diagnosis", nurses are considered "diagnosticians", focusing on the needs of the individual as a whole and the profession became more visible. However, in health institutions where nurses do not use this technology, or make use of it without concern for accuracy or precision, the invisibility of its role as such may still exist.⁵

To be good diagnosticians, nurses need to consider that one of the main elements in the interpretation of the data is the fact that they are subject to error. Thus, it is necessary to develop intellectual, interpersonal and technical skills, and consistent personal elements of tolerance of ambiguity and use of reflective practice.⁵

CONCLUSION

The aim of this study was achieving and demonstrating the importance of the recognition of DE in professional nursing practice; because it facilitates the connection between the clinical data of greater complexity and nursing care. Helps to guide, organize and support the knowledge of the nurse so she can predict the necessary care to a specific population. Furthermore, it is essential for the organization of hospital services and education programs, both patients and professionals.

The lack of knowledge on the part of nurses hinders their performance relating to the clinical judgment of the patient towards the state of health responses. However, the greater the nurse has familiarity with the DE,

the greater their skill, agility and accuracy in diagnosis, resulting in greater visibility for the profession.

It is imperative that nurses seek to perfect with the methodologies of nursing care in order to support the knowledge and facilitate full, and resolving humanized care. Thus, it is necessary to promote awareness of these professionals about the benefits of using SAE through training, so that the subject underwent cardiac catheterization can receive effective care, contributing to the improvement in prognosis.

The proposed methodology enabled rich discussions towards improving prior knowledge of nurses, as well as fostering new discoveries. Thus, it is believed that this study can contribute to the organization as well as the continuity of nursing care in this institution, as it will enable the consolidation of some priorities in the planning of nursing interventions in patients undergoing cardiac catheterization, in order to optimize the time of the nursing staff, improve the quality of care and encourage education activities for patients.

Regarding the improvement of knowledge, critical and clinical thinking, home nursing was presented as a great condition of in-service training to improving the quality of professional practice and improving the quality of training. We emphasize the need for future investigations in order to contributing to consolidation of the EP.

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