Original Article

Nursing diagnoses in patients in the postoperative period of cardiac surgery*

Diagnósticos de enfermagem em pacientes no período pós-operatório de cirurgias cardíacas

Diagnósticos de enfermería en pacientes en el período postoperatorio de cirugías cardíacas

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ABSTRACT

Objective: To identify - together with working nurses at a Postoperative Cardiac Intensive Care Unit - the nursing diagnoses of patients in the postoperative period of cardiac surgery, with the intention of, in the future, implement the nursing process on that unit. **Methods:** This is a qualitative study based on convergent-care research. Data were obtained from nursing records of 20 patients who underwent surgery in April 2008, plus the professional experience of six participating nurses from the convergence group who met for five sessions. **Results:** 15 diagnoses were established according to Taxonomy II of the North American Nursing Diagnosis Association, which were corroborated by other authors. **Conclusion:** The identification of standard nursing diagnoses, in postoperative cardiac surgery patients, can guide the nursing care and subsidize the development of interventions that have solid basis and are appropriate to individual needs that patients have.
Keywords: Nursing diagnosis; Postoperative care; Cardiac surgical procedures

RESUMO

Objetivo: Identificar, em conjunto com enfermeiras de uma Unidade de Tratamento Intensivo Pós-Operatória Cardiológica, diagnósticos de enfermagem presentes em pacientes no período pós-operatório de cirurgias cardíacas, com vistas à futura implementação do processo de enfermagem nessa unidade. **Métodos:** Trata-se de um estudo qualitativo, ancorado na pesquisa convergente-assistencial. Os dados foram obtidos, nos registros de enfermagem de 20 pacientes submetidos à cirurgia cardíaca, no mês de abril de 2008, acrescidos da experiência profissional de seis enfermeiras participantes do grupo de convergência reunido durante cinco encontros. **Resultados:** Foram estabelecidos 15 diagnósticos, segundo a Taxonomia II da *North American Nursing Diagnosis Association,* corroborados por outros autores. **Conclusão:** Identificar diagnósticos de enfermagem comuns em pacientes no pós-operatório de cirurgias cardíacas permite um direcionamento da assistência de enfermagem e subsidia o estabelecimento de intervenções fundamentadas e adequadas às necessidades individuais apresentadas por esses pacientes.
Descritores: Diagnóstico de enfermagem; Cuidados pós-operatórios; Procedimentos cirúrgicos cardíacos

RESUMEN

Objetivo: Identificar en conjunto con las enfermeras, de una Unidad de Tratamiento Intensivo Postoperatorio Cardiológico, los diagnósticos de enfermería realizados en pacientes en el período postoperatorio de cirugías cardíacas, con la finalidad de, futuramente, implementar el proceso de enfermería en esa unidad. **Métodos:** Se trata de un estudio cualitativo, basado en la investigación convergente-asistencial. Los datos fueron obtenidos de los registros de enfermería de 20 pacientes sometidos a cirugía cardíaca, en el mes de abril de 2008, acrecidos de la experiencia profesional de seis enfermeras participantes del grupo de convergencia que se reunió durante cinco encuentros. **Resultados:** Fueron establecidos 15 diagnósticos, según la Taxonomía II de la *North American Nursing Diagnosis Association,* corroborados por otros autores. **Conclusión:** La identificación de diagnósticos estándar de enfermería en pacientes en el postoperatorio de cirugías cardíacas permite orientar la asistencia de enfermería y subsidiar el establecimiento de intervenciones que tiene sólidas bases y son adecuadas a las necesidades individuales que tienen esos pacientes.
Descriptores: Diagnostico de enfermeria; Cuidados post operatórios; Procedimientos quirúrgicos cardiacos

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INTRODUCTION

Cardiovascular diseases are among the main morbidity and mortality causes in the world. In Brazil, they are the main mortality cause, also due to the population's increased lifespan and the adoption of life habits with a higher exposure to risk factors[1]. The cardiovascular diseases therapeutic approaches can be either clinic or surgical. Surgery is indicated when the survival probability is higher by means of the surgical treatment than the clinical treatment. Cardiac surgeries can be classified as corrective, when related to correcting ductus arteriosus, artrial or ventricular septum defects; reconstructive, with the purpose of myocardial revascularization, or cardiac valve repair; and substitutive, comprising the valve replacement and transplant procedures[2-5].

The expressive cardiovascular disease incidence among the population and the technological advances for their treatment, as well as the complexity and details related to care required by patients who undergo cardiac surgeries, whose health conditions go through constant and abrupt changes, demand immediate and accurate nursing interventions, lacking of previous and scientifically based planning. Several studies demonstrate a concern regarding the nursing diagnosis identification for specific groups, such as: inpatients of surgical practice[6] and medical practice[7] units; hospitalized elderly patients[8]; medullary injury patients[9], cardiac catheterization patients[10], laparoscopic Cholecystectomy immediate postoperative patients[11], patients during surgical preoperative, intraoperative, and postoperative[2-4,12]. Such studies emphasize the relevance of verifying clinical manifestations of common characteristic patient groups, enabling knowledge of the affected human needs, and thus contributing to the direct and individual nursing interventions development, resulting in the implementation of quick and effective actions to solve the identified problems.

In the 1970's, a nursing Diagnoses naming classification process was initiated, resulting in the development of the Nursing Diagnoses Classification System, by the *North American Nursing Diagnosis Association* (NANDA-I*)*. The current NANDA International Taxonomy II has a multiaxial format, structured over eight axes, comprised of three levels, expressed by 13 domains, 47 classes, and 187 nursing Diagnoses[13]. The nursing Diagnoses establishment represents an essential step of the nursing process, for they reflect the clinical judgment of identified care needs, supported by interviews and physical exams during the nursing record capture, and provide the foundations for the interventions establishment, directly impacting the results reached[13-15].

Therefore, the nursing process guided by theory and based on practical and scientific knowledge can be understood as a methodology that favors people's care knowledge to action implementation[16]. It can also be understood as a methodological instrument systematizing practice, providing perception, interpretation and anticipation of the individual responses to health alterations, as well as leading to the appropriate intervention, which is planned and based on the identified problems and results assessment[14,17-18]. Moreover, it enables the currently applied practice – not yet entirely noticed – to be demonstrated, organized and exposed, for it adds specificity and evidence to the actions, according to the evaluative, organizational and solving aspects of care, providing written proof of the developed actions.

Therefore, due to the nursing process relevance, reflecting in the meaning attributed to the profession and care quality, the present study aimed to collaborate with the area scientific production, approaching one of its phases: the nursing diagnoses identification. In order to do so, the objective set was identifying nursing diagnoses for cardiac surgery postoperative patients along with Cardiologic Postoperative Intensive Care Unit Nurses, aiming towards a future implementation of the nursing process in the studied unit.

METHODS

The present study is based on the convergent-assistential research methodology, characterized by the convergence among research, assistance and subject participation, along with the knowledge construction process, which are intentionally delimited according to their representation and information depth. The research questions come from practical experiences, and the results aim to improve the site studied. The data collection and analysis methods are not established, for they are comprised of different methods, techniques and strategies of information gathering and analysis[19-20].

As to type, this is a qualitative research that took place in the Cardiologic Postoperative Intensive Care Unit (UTI-UPO) of the Hospital de Cardiologia e Oncologia Dr. Pedro Bertoni (Cardiology and Oncology Hospital Dr. Pedro Bertoni), part of the Associação de Caridade Santa Casa do Rio Grande (ACSCRG) complex, Rio Grande do Sul, Brazil. The UTI-UPO is comprised of seven beds, of which one is an isolation bed. It provides cardiac surgery intensive, post-anesthetic and postoperative care. The frequency with which cardiac surgeries are performed in the hospital is once a day, apart from emergency cases, with an average of 20 monthly surgeries, among which the main one is myocardial revascularization, valve repair and replacement, aortic aneurysm, aortic dissection and interatrial communication.

Regarding the subjects, after the research project was approved by the Research Ethics Committee of ACSCRG (Legal opinion n. 008/2008), the eight nurses providing care in the unit were invited to participate in the study. Six of them accepted the invitation and signed the Informed Consent term. The Nursing Service presented in the study focuses on care written organization and planning: the cardiac surgery postoperative patient admission record is elaborated in a specific form, as well as the nursing evolution, which is recorded in the patient's form in a daily basis. Such structure facilitated the research fulfillment.

In order to produce data, documentary research techniques were used, as well as the formed convergence group. The documentary research was performed utilizing records of the twenty patients who went through cardiac surgeries, from the 1st to the 30th of April 2008. Relevant data regarding gender, age, surgical procedure type, and postoperative evolution, besides clinical manifestations presented by the postoperative patients from the UTI-UPO were collected.

The convergence group provided discussion, construction, and legitimacy to the work, for such technique gathers the involved actors in a process aiming to build knowledge concerning the professional practice through a participative approach[21]. The group had five meetings in the unit, each lasted for about two hours, and occurred in the period between the 27th of June to the 10th of July, 2008, where, based on relevant data collected from the area literature, added to the participants' professional experience, nursing diagnoses were established to cardiac surgery postoperative patients, which were inserted to NANDA-I Taxonomy II[13]. The data analysis was performed through the presentation of the nursing diagnoses established, as well as their defining characteristics and related/risk factors supported by some authors statements on the theme, besides the research participants' experience.

RESULTS

Among the twenty patients, whose nursing records were consulted, 11 were men, aged between 43 and 78 years, one of which was between 41 and 50 years old, four were between 51 and 60 years old, eight were between 61 and 70 years old, and seven were between 71 and 80 years old. The surgical procedures they underwent included: myocardial revascularization of 16 patients, 2 of which also underwent an edarterectomy of the right carotid; mitral valve implant in two patients, one of which also went through an atrioseptoplasty; metallic aortic prosthesis implant in one patient; mitral valve repair of one patient; and one patient had to undergo a mediastinotomy due to postoperative complications. Concerning such patients postoperative evolution in the unit, one patient died in the 1st postoperative day. As to the UTI-UPO releases: three patients were released on the 2nd day after the surgery, ten patients, in the 3rd day, four patients, in the 4th day, and two patients were released in the 5th day after undergoing the surgery.

The relevant data collected through the documental research allowed a profile to be created, with all the affected needs manifested by cardiac surgery postoperative patients, and 15 nursing diagnoses to be established for this type of patient, according to NANDA-I Taxonomy II[13]. From the total number of established diagnoses, 12 were classified as real, namely: Impaired Gas Exchange; Ineffective Airway Clearance; Impaired Verbal Communication; Impaired Bed Mobility; Impaired Skin Integrity; Hypothermia; Hyperthermia; Decreased Cardiac Output; Ineffective Renal Tissue Perfusion; Acute Pain; Insomnia; Anxiety; for which defining characteristics and related factors were established, and: Risk for Infections; Risk for Imbalanced Fluid Volume; Risk for Unstable Blood Glucose, considered risk diagnoses, for which the respective risk factors were established[13].

DISCUSSION

The data collected represented the patients affected needs during the cardiac surgery postoperative period, and the reality of care provided at the UTI-UPO. They also enabled, when allied to the participants professional experience, the establishment of the nursing diagnoses identified by this study, commonly presented by this specific patient group, which coincide with the nursing diagnoses identified and obtained by other authors.

A study with myocardial revascularization cardiac surgery postoperative patients that aimed to identify possible nursing diagnoses, according to NANDA-I Taxonomy II, identified 19 diagnoses, among them: Risk of Infection; Impaired Skin Integrity; Impaired Physical Mobility; Insomnia; Anxiety; Ineffective Airway Clearance; Acute Pain; Impaired Gas Exchange; and Impaired Verbal Communication[4]. In another research with cardiac surgery postoperative patients, 14 diagnoses related to immediate postoperative patients were identified, namely: Risk of Infection; Impaired Physical Mobility; Impaired Skin Integrity; Risk for Imbalanced Fluid Volume; Impaired Verbal Communication; Risk for Altered Body Temperature; Ineffective Airway Clearance; Impaired Gas Exchange and Pain[3].

The **Impaired Gas Exchange** diagnosis is defined as "excess or deficit in oxygenation and/or carbon dioxide elimination at the alveolar-capillary membrane"[13]. In the present study, they were identified as possible factors related to the surgical intervention and the ventilation-perfusion imbalance. Respiratory frequency, rhythm, and

depth alterations, dyspnea, tachycardia, skin color alterations and somnolence were identified as defining characteristics. The Impaired Gas Exchange diagnosis is probably related to the fact that, during the transoperative, patients are induced to anesthetic coma, cardiac arrest, and the oxygenation and blood pumping occur artificially. Consequently, patients lose the vital ability of spontaneous breathing, requiring mechanical ventilation until spontaneous breathing is reestablished; such procedure occurs during the postoperative period, and depends on a constant assessment of patients' respiratory pattern[3].

Depending on an artificial airway means patients are unable to eliminate tracheobronchial secretions and need them to be sucked out, which justifies the **Ineffective Airway Clearance** diagnosis, possibly related to the fact patients depend to an artificial airway and do not have enough mobility in bed. The defining characteristics include altered respiratory frequency and rhythm and adventitious respiratory sounds. Besides, the endotrachial intubation disables patients' verbal communication, and is related to the **Impaired Verbal Communication**, evidenced by patients' verbal expression inability, which can be observed in all patients who undergo cardiac surgeries, due to the anesthetic coma induction and the artificial airway needs during the transoperative[3-4].

The **Impaired Bed Mobility** diagnosis, defined as "Limitation of movement in bed from one side to another"[13], may be related to the restrictions due to the surgical procedure, the drains presence, restraining the body movements, and the pain sensation when moving. The defining characteristics include the restriction imposed to movements, due to the surgical trauma, drains, and an impaired ability to move from one side to the other.

Impaired Skin Integrity due to epidermis or dermis alterations[13] is another commonly evidenced diagnosis in cardiac surgery postoperative patient. Such nursing diagnosis identification in cardiac surgery postoperative patients was evidenced in most patients researched, indicating the surgical trauma as a related factor[4]. It is also important to add that the vein and artery punctures are another factor. The defining characteristics are the invasive procedures patients had to go through.

The **Hypothermia** nursing diagnosis, understood as a lower body temperature than normal standards[13], is usually observed in cardiac surgery patients, just after the procedure is finished, and demands immediate heating measures. This nursing diagnosis can be due to transoperative hypothermia, which aims to decrease metabolic demands during the extracorporeal circulation[3,5]. It is also related to being exposed to the surgical room low temperature, parenteral infusion of cold liquids, to the administration of vasodilatator drugs and the surgical trauma. It can be evidenced through low body temperature, below 36°C, cold skin and shivering.

The **Hyperthermia** is a common diagnosis after a cardiac surgery, possibly related to the surgical trauma, and the presence of invasive devices that increase propensity to infection. It can be evidenced through high body temperature, above 37,5°C, hot skin and sweat.

Blood loss due to the surgical procedure, as well as a compromised myocardial function resulting from the previous cardiopathy and surgical manipulation are related to the **Decreased Cardiac Output** diagnosis, defined as "inadequate blood pumped by the heart to meet the metabolic demands of the body"[13]. Such diagnosis defining characteristics include: hypotension; altered cardiac frequency; arrhythmia; altered central venous pressure; altered left atrial pressure; altered peripheral perfusion; alterations to skin appearance and color; and oliguria. These cardiac output variations can be identified through cardiac frequency and rhythm monitoring, blood pressure, central venous pressure, left atrial pressure measurements, and through clinical observation[5].

The Decreased Cardiac Output can also be related to another diagnosis, namely, **Ineffective Renal Tissue Perfusion**, for the renal function is closely influenced by the cardiac function[5]. Alterations to the diuresis volume and appearance comprehend possible defining characteristics of this diagnosis, translated into a decreased oxygenation, which results in an inadequate tissue nutrition in the capillary level[13].

The **Acute Pain** diagnosis, defined as an "unpleasant sensory and emotional experience arising from actual or potential tissue damage or described in terms of such damage"[13] is commonly identified in cardiac surgery postoperative patients. A study that also elaborated nursing diagnoses for this type of patient evidenced Acute Pain in 59.1% of the researched patients. Such diagnosis can be related to the physical injury resulting from the surgical trauma, the endotrachial intubation, the irritation caused by thoracic drains, the myocardial ischemia and to the immobility in bed imposed by the movement restriction after the surgery. The facial expression, along with muscle contraction and a verbal report of the pain are the defining characteristics. Patients' pain complaints have to be investigated, once it can have a traumatic or ischemic origin, caused by the coronary arteries constriction, which reduces the blood flow, and require a different approach depending on the case[4].

The **Insomnia** diagnosis is defined by an alteration to sleep quality and number of hours that changes the organism function. Insomnia may be related to the hospitalization, and consequently, to a different environment, besides the concerns with one's health state; to the environment noises; to being anxious due to the odd new environment and health problems; or related to pain, caused by the surgical trauma, myocardial ischemia, and inability to move in bed[3,4,12]. The defining

characteristics are: somnolence and patients' report of not having slept well.

Anxiety, a diagnosis defined as a "vague uneasy feeling of discomfort or dread accompanied by an autonomic response"[13], is a commonly experienced feeling by cardiac surgery postoperative patients. It can directly influence the postoperative recovery, therefore, it is relevant to approach and identify patients' feelings from the preoperative, guiding them and clarifying questions concerning the different periods, which tends to reduce anxiety and facilitate the recovery[22]. Consequently, the nursing care needs to approach patients integrally during the postoperative period, covering their post-surgery complications and offering emotional support to patients and their families.

Anxiety can also be related to hospitalization, because of being in a different environment, far from family, and due to the stereotype intensive care units carry[4]; the health state alteration; the uncertainties related to the recovery after a surgery and the possibility of maintaining daily life activities; the postoperative; the impossibility of verbally expressing yourself, related to the endotrachial tube, specially when the anesthetic begins to fade and the patient wakes up not knowing whether the surgery is over or not; and the dependency to perform daily life activities.

Among the risk diagnoses, **Risk for Infection** was established and conceptualized as an increased susceptibility to pathogen invasion[13]. It is commonly identified in cardiac surgery postoperative patients, due to the causality relationship with the surgical trauma and invasive procedures, inherent to such intervention. Studies report such diagnosis incidence in 100% of the post cardiac surgery patients researched[3-4].

The **Risk for Imbalanced Fluid Volume** diagnosis, defined as a "state in which a person is at risk to experience a decrease, increase, or rapid shift from one to the other of intravascular, interstitial, and/or intercellular fluids", in other words "it concerns body fluids loss, gain or both"[13]. A study evidenced this diagnosis in all investigated postoperative patients[3], which leads to the conclusion that all cardiac surgery patients go through it, and the diagnosis can be related to fluid volume alterations caused by the surgical intervention, infusions and/or losses due to catheters and drains.

The **Risk for Unstable Glucose** diagnosis is understood as a risk for serum glucose variations[13]. The blood glucose variations are common in the postoperative period, mainly glucose elevations, and their main risk factor, besides the chronic disease, the metabolic alterations caused by the surgical intervention.

FINAL CONSIDERATIONS

Identifying common cardiac surgery postoperative nursing diagnoses guides the nursing care, for it enables a previous recognition of the needs manifested by such patients and provides subsidies for the establishment of proven nursing interventions that are appropriate to individual needs. The convergent-assistential methodology proved to be adequate for the results it aimed, based on the professional practice, collectively developing the nursing practice scientificity.

The information collected through the documental research in the nursing records allowed nursing diagnoses to be established according to cardiac surgery postoperative patients' profiles. The convergence group was well received by the unit nurses, and used to discuss the practice, and the interest in improving it, besides being a collective construction tool for changes in nursing, providing food for thought.

Realizing that the collected data reflected a specific and relevant professional experience, involving cardiac surgery patient care, providing scientific evidence to what had empirically been observed, as well as establishing diagnoses that reflected the clinical thought and judgment, in a daily basis, demonstrated how relevant the decisions made were. The present study can be understood as a collective production, resulting from the participant nurses experience and thoughts, scientifically based on the care practice. Therefore, it reflects activities that have been performed, and most of the times are unnoticed, for they lack a systematized and explicit record.

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