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Carvalho, Inaiane Marlis de; Ferreira, Dayana Kelly Soares; Nelson, Ana Raquel Cortês; Duarte, Fernando Hiago da Silva; Prado, Nanete Caroline da Costa; Silva, Richardson Augusto Rosendo da

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## Sistematização da assistência de enfermagem no pós-operatório mediato de cirurgia cardíaca

Systematization of nursing care in mediate post-operative of cardiac surgery

Sistematización de la asistencia de enfermería en el post-operatorio intermedio de cirugía cardíaca

*Inaiane Marlisse de Carvalho<sup>1</sup>; Dayana Kelly Soares Ferreira<sup>2</sup>; Ana Raquel Cortês Nelson<sup>3</sup>; Fernando Hiago da Silva Duarte<sup>4</sup>; Nanete Caroline da Costa Prado<sup>5</sup>; Richardson Augusto Rosendo da Silva<sup>6</sup>*

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### ABSTRACT

**Objective:** To raise the nursing diagnoses according to NANDA International Taxonomy II; to identify the nursing interventions according to NIC from the diagnosis found; and to present the results expected according to NOC, based on planned interventions. **Methods:** A qualitative study of case report type, carried out based on the evaluation of a patient who was in mediate postoperative cardiac surgery admitted to the ICU of a university hospital. **Results:** The nursing diagnoses were: risk of infection, risk of constipation, risk of falls, impaired skin integrity, willingness for increased control of therapeutic regimen, risk of electrolyte imbalance, risk of imbalance in body temperature and impaired mobility in bed. The diagnosis profile of the patient, prepared based on his needs, offered a basis for determination of nursing interventions according to the NIC, resulting in effective actions to solve the problems. **Conclusion:** Nursing diagnoses were raised inserted in the areas: health promotion, nutrition, elimination and exchange, activity and rest, and safety/protection.

**Descriptors:** Nursing, Thoracic surgery, Nursing Care.

<sup>1</sup> Nurse, Federal University of Rio Grande do Norte/UFRN. Natal-RN, Brazil. E-mail: naianny-marlisse@hotmail.com.

<sup>2</sup> Nurse, Federal University of Rio Grande do Norte/UFRN. Natal-RN, Brazil. E-mail: enferdada@hotmail.com.

<sup>3</sup> Nurse, Federal University of Rio Grande do Norte/UFRN. Natal-RN, Brazil. E-mail: ana\_nelson88@hotmail.com.

<sup>4</sup> Nurse of the Family Health Strategy of São Paulo do Potengi-RN. Natal-RN, Brazil. E-mail: fernandohiago@hotmail.com.

<sup>5</sup> Nurse. Intern of Neonatal Intensive Therapy. Federal University of Rio Grande do Norte/UFRN. Natal-RN, Brazil. E-mail: caroline\_k16@hotmail.com.

<sup>6</sup> Nurse. PhD in Health Sciences. Adjunct Professor of the Undergraduate Program and the Graduate Program (Academic Masters and PhD) in Nursing at the Federal University of Rio Grande do Norte/UFRN. Natal-RN, Brazil. Member of the Research Group Relief and Epidemiologic Practice in Health and Nursing/PAESE/UFRN. E-mail: rirosendo@yahoo.com.br.

## RESUMO

**Objetivo:** Levantar os diagnósticos de enfermagem segundo a taxonomia II da NANDA Internacional; identificar as intervenções de enfermagem segundo a NIC, a partir dos diagnósticos encontrados; e apresentar os resultados esperados segundo a NOC, com base nas intervenções planejadas.

**Métodos:** Estudo de abordagem qualitativa, tipo relato de caso, realizado a partir da avaliação de um paciente que se encontrava em pós-operatório mediato de cirurgia cardíaca internado na UTI de um hospital universitário.

**Resultados:** Os diagnósticos de enfermagem encontrados foram: risco de infecção, risco de constipação, risco de quedas, integridade da pele prejudicada, disposição para controle aumentado do regime terapêutico, risco de desequilíbrio eletrolítico, risco de desequilíbrio na temperatura corporal e mobilidade no leito prejudicada. O perfil diagnóstico do paciente, elaborado com base em suas necessidades, ofereceu uma fundamentação para determinação das intervenções de enfermagem segundo a NIC, resultando em ações eficazes para a resolução dos problemas. **Conclusão:** Os diagnósticos de enfermagem levantados estavam inseridos nos domínios: promoção da saúde, nutrição, eliminação e troca, atividade e repouso e segurança/proteção.

**Descritores:** Enfermagem; Cirurgia torácica; Cuidados de Enfermagem.

## RESUMEN

**Objetivo:** levantar los diagnósticos de enfermería según la taxonomía II de NANDA Internacional; identificar las intervenciones de enfermería según NIC, a partir de los diagnósticos encontrados; y presentar los resultados esperados según NOC, con base en las intervenciones planeadas.

**Métodos:** Estudio de enfoque cualitativo, tipo relato de caso, realizado a partir de la evaluación de un paciente que se encontraba en post-operatorio intermediario con cirugía cardíaca internado en UTI de un hospital universitario. **Resultados:** Los diagnósticos de enfermería encontrados fueron: riesgo de infección, riesgo de constipación, riesgo de caídas, integridad de la piel perjudicada, disposición para control aumentado del régimen terapéutico, riesgo de desequilibrio electrolítico, riesgo de desequilibrio en la temperatura corporal y movilidad en la cama perjudicada. El perfil diagnóstico del paciente, elaborado con base en sus necesidades, ofreció una fundamentación para determinación de las intervenciones de enfermería según NIC, resultando en acciones eficaces para la resolución de los problemas. **Conclusión:** Los diagnósticos de enfermería levantados estaban inseridos en los dominios: promoción de la salud, nutrición, eliminación y cambio, actividad y reposo y seguridad/protección.

**Descriptores:** Enfermería; Cirugía torácica; Atención de Enfermería.

## INTRODUCTION

Cardiovascular diseases are among the leading causes of morbidity and mortality of the world population. In Brazil, they account for 65% of all deaths in the age group from 30 to 69 years old, reaching the adult population in full production phase.<sup>1</sup>

The World Health Organization in its document “Innovative care for chronic conditions” emphasizes that the patient with heart disease need planned care, which can predict their basic needs and provide comprehensive care.<sup>2</sup>

Cardiac surgeries are complex interventions and require appropriate treatment in all operative phases. However, the postoperative period (PO), during which professionals observe and assist the patient’s recovery in surgical

post-anesthetic and post-distress, is marked by the instability of their condition, being full of peculiarities, especially because it is a period of critical care.<sup>3</sup>

Thus, nursing care to patients in the PO should aim to ensure a safe recovery, preventing, detecting and taking into account complications that may arise from surgical anesthesia. Although the scope of this objective is related to situations involving the patient as a whole, it is up to the recovery center in PO to gather enough resources to ensure the quality of nursing care in the mediate postoperative period.<sup>1</sup>

In this context, the complexity of care required by patients who are in the postoperative period of cardiac surgery, whose health conditions may vary from minute to minute, requires nursing interventions based on a systematic method that focuses on decision making. Therefore, the Systematization of Nursing Assistance (SNA) is a way to organize nursing care in order to intervene in accordance with the actual needs of the patient and promoting their fast recovery.

The SNA is based on a logical structure of actions, which consists of steps, namely: medical history, obtained through interviews and physical examination; nursing diagnosis; nursing prescription; implementation of assistance and nursing evolution.<sup>4</sup>

The nursing diagnoses were defined in the 9th conference of the International NANDA as “a clinical trial of individuals, family or community’s responses, to vital processes, to current or potential health problems, which provide the basis for the selection of nursing interventions, to achieve results for which the nurse is responsible”.<sup>4</sup> It is also mentioned the Nursing Interventions Classification (NIC), consisting of a standardized language describing the treatments performed by nurses, and Nursing Outcomes Classification (NOC), based on a standardized language of nursing results arising from interventions.<sup>5</sup>

By using the nursing classification systems it is possible to guide treatment and thus better meet the needs of patients, contributing to the construction of knowledge and enhancement of nursing.

Thus, the study is justified by the importance of a systematized nursing care that contributes to the implementation of rapid and effective actions to solve the problems identified in the postoperative period of cardiac surgery.

In this sense, this study pursued the following objectives: to survey the nursing diagnoses, according to NANDA International Taxonomy II; to identify the nursing interventions, according to NIC, from the diagnosis found; and to present the results expected according to NOC, based on planned interventions.

Given the above, one can see the relevance of the theme for nursing professionals, since the care based in nursing classification systems is key to preventing complications and early recovery of the patient in the post-cardiac surgery.

## METHOD

This is a descriptive study of qualitative approach, of case report type, involving a Health System user submitted to cardiac surgery procedure.

The research was conducted at a reference hospital for the treatment of cardiovascular diseases located in Natal, Rio Grande do Norte, Northeastern Brazil. It was conducted with a patient in the mediate postoperative period of cardiac surgery, which is understood as the period after the first 24 hours of the completion of the surgery. Data collection was performed through an interview script followed by physical examination script in order to raise human responses and related factors presented by the patient in the mediate postoperative period of cardiac surgery, which was the focus of the nursing work.

Data collection occurred in February 2014 through a structured interview and a physical examination script adapted of Posso,<sup>7</sup> which helped to identify specific diagnoses of patients undergoing the process of cardiac surgery who were in the immediate postoperative period. The interview was carried out explaining in advance the purpose of the research and requesting signing the Informed Consent Form (ICF), ensuring the anonymity of the user, as well as the withdrawal of the survey at any time.

After data collection, authors proceeded to the identification of nursing diagnoses, comprised by the relevant data, grouping the data, appointment of human response and identification of related factor and defining characteristic. Then, the nursing interventions were raised from the NIC, and the nursing results, based on NOC, which were related to nursing diagnoses. Afterwards, the data was analyzed using the nursing classification systems (NANDA International, NIC and NOC) and the scientific literature related to post-operative of cardiac surgery.

This study was submitted to the Ethics Committee for Research on Humans of the Federal University of Rio Grande do Norte (CEP-UFRN), in accordance with the provisions of Resolution 466/2012 that defines the regulatory guidelines and standards for research involving human subjects, receiving favorable opinion with Certificate of Presentation for Ethical Consideration No. 07380912.3.0000.5537.

## RESULTS AND DISCUSSION

The study was conducted based on the evaluation of a patient who was in mediate postoperative of cardiac surgery admitted to the ICU of the aforementioned hospital. The patient was N.T.S.L; women; 64 years old; 1.74 meters high; born and raised in that state; married; Catholic; completed high school and retired. She underwent stent placement surgery and pacemaker insertion. She is hypertensive, obese, denies diabetes and allergic processes. Also, she has surgical history, denies alcoholism and claims abstinence

from smoking for 20 years. She refers that appetite remains the same and reports consuming a small amount of liquid, approximately 500 ml per day. She reported problems in the pattern of sleep and rest, sleeping only two hours a day, being interrupted sleep with delay in starting it. She was still confined to bed because of the surgical process and complications postoperatively, having limited capacity to perform activities of daily living.

On physical examination, she presented systolic hypotension (112x50 mmHg), normocardia (pulse 79 bpm), tachypnea (26 breaths per minute), overweight, body weight of 94 kg and BMI of 31. She was in conscious, oriented, pale, with anasarca, presence of palpable pulses, with no visual impairment, preserved hearing acuity, flaws in dental arch and absence of infarcted lymph nodes. On auscultation, it was observed normal chest expansion, presence of thoracic-vocal thrill and breath sounds and absence of breath sounds. Cardiac auscultation presented normal rhythm, normophonetic heartbeats in two stages. She had distended abdomen, resistant to the touch, painless, with hyperactive bowel sounds. Finally, upper and lower limbs presented edema (3+/4+).

The table below shows the nursing diagnoses identified.

**Table 1** - Frequency distribution of nursing diagnoses identified in the study participant - HUOL, Natal/RN, 2014

Nursing diagnoses
Risk of infection
Risk of constipation
Risk of falls
Impaired skin integrity
Willingness for increased control of therapeutic regimen
Risk of electrolyte imbalance
Risk of imbalance in body temperature
Impaired mobility in bed

### Suggested interventions and results

From the diagnoses found in the study, according to NANDA, the key interventions and nursing expected results were identified according to the NIC and the NOC.

#### Risk of infection:

Interventions: washing hands before and after patient care activity; wearing gloves as requirement of standardized precautions; wearing sterile gloves when appropriate; ensuring aseptic handling of all intravenous lines; ensuring the use of proper techniques in wound care.<sup>9</sup>

Expected results: scar formation; development of effective strategies to control risks.<sup>10</sup>

#### Risk of constipation:

Interventions: assisting the patient to wear shoes that facilitate walking and prevent injuries; consulting a physical therapist on the walking plans, if necessary; encouraging

increased fluid intake, unless it is contraindicated; monitoring the intestinal evacuations, including frequency, consistency, shape, volume and color, as appropriate; monitoring bowel sounds; evaluating intake in relation to nutritional content recorded.<sup>9</sup>

Expected results: food intake consistent with the prescribed diet.<sup>11</sup>

### **Risk of falls:**

Interventions: using bed rails with adequate length and height to prevent falls, as needed; guiding the patient to call help for moving, when appropriate; providing coping mechanisms to increase the safety of the environment; monitoring the environment for changes in safety conditions.<sup>10</sup>

Expected results: tolerance to ambulation.<sup>9</sup>

### **Impaired skin integrity:**

Interventions: examining the condition of the surgical incision, when appropriate; examining redness, excessive heat or drainage in the skin and mucous membranes; monitoring areas of redness and skin breakdown; monitoring dryness and excessive moisture in the skin; monitoring skin color; monitoring skin temperature.<sup>10</sup>

Expected results: scar formation; inflammation in the wound; edema around the wound.<sup>9</sup>

### **Willingness for increased control of therapeutic regimen:**

Interventions: increasing guidance to patient about the reality, when appropriate; encouraging verbalization of feelings, perceptions and concerns; providing time for the patient to ask questions and discuss concerns; promoting patient compliance to the situation, when appropriate.<sup>9</sup>

Expected results: search of reliable information on the diagnosis; discussion of the prescribed treatment regimen with health professional; performance of the therapeutic regimen according to prescription.<sup>10</sup>

### **Risk of electrolyte imbalance:**

Interventions: identifying possible causes of electrolyte imbalances; monitoring nausea, vomiting and diarrhea; identifying treatments that change the electrolyte state, such as gastrointestinal drainage, diuretic and antihypertensive drugs and calcium channel blockers; administering additional electrolytes prescribed, if appropriate; providing a proper diet for patients with electrolyte imbalance.<sup>9</sup>

Expected results: electrolyte and acid-base balance.

### **Risk of imbalance in body temperature:**

Interventions: monitoring the temperature as often as appropriate; monitoring the insensible loss of fluids; monitoring the color and the skin temperature; administering

antipyretic drugs, if appropriate; monitoring the ingestion and elimination.<sup>9</sup>

Expected results: recognition of environmental factors that increase the body temperature; recognition of health conditions that reduce heat generation.<sup>10</sup>

### **Impaired mobility in bed:**

Interventions: making full assessment of peripheral circulation; helping the patient to perform active or passive range of motion exercises, as appropriate; changing the patient's position every two hours or strolling, as tolerated; administering low-dose of prophylactic anticoagulant medication and/or antiplatelet drugs.<sup>9</sup>

Expected results: mobility and coordinated movement.<sup>10</sup>

Therefore, nursing care for patients in the postoperative period should aim to ensure a safe recovery, preventing, detecting and taking into account complications that may arise from surgical anesthesia. Although the scope of this objective is related to situations involving the user as a whole, it is up to nursing to gather enough resources to ensure quality of care during this period.<sup>6</sup>

The diagnosis profile of the patient, prepared based on their real needs, provides a basis for determination of nursing interventions, facilitating the implementation of nursing care planning.

In the present study, eight nursing diagnoses were found. Despite the existence of few studies on the mediate postoperative of cardiac surgery, according to studies on this theme<sup>1,3</sup>, it is clear that some diagnoses persist from the immediate postoperative period as the risk for infection, impaired skin integrity, risk of electrolyte imbalance and risk of imbalance in body temperature.

Risk of infection is defined as the increased risk from being invaded by pathogenic organisms.<sup>11</sup> This diagnosis is commonly found in patients who have undergone some form of heart surgery because of the relationship with invasive procedures such as bladder catheterization, the central access, chest tubes and mediastinum, access to the mean arterial pressure, in addition to destruction of tissue and inadequate primary defenses (broken skin) due to surgery.

In addition to invasive procedures and inadequate primary defenses caused by surgical trauma, there are other factors that favor the emergence of pathogens, contributing to the incidence of infection, such as: the very hospital environment, the user's length of stay, patient's clinical preoperative conditions (age, nutritional status, chronic diseases, etc.), the technical conditions under which the surgery was performed, preoperative hospital stay (the longer, the greater the chance of surgical infection, due to the replacement of the patient flora by hospital flora) and factors related to cardiopulmonary bypass.<sup>13</sup>

The surgical wound infection is a serious complication that interferes with the healing process and may increase patient discomfort. The period covering the first 24 to 48 hours after surgery is critical because the process of

inflammation begins to destroy bacteria that may have been deposited while the wound was open.<sup>6</sup>

The nursing diagnosis of risk of constipation is defined as the risk of a decrease in the normal stool frequency, accompanied by elimination of hard stools or incomplete and/or eliminating excessively hard and dried stool.<sup>11</sup> This diagnosis had as risk factors the insufficient physical activity, poor eating habits and decreased motility of the entire gastrointestinal tract. This diagnosis was present in similar research conducted with patients who underwent heart surgery process at a frequency of 100% of the sample subjects.<sup>3</sup>

Impaired skin integrity means changed epidermis and/or dermis.<sup>11</sup> Study of patients who underwent cardiac surgery<sup>13</sup> found that this diagnosis was present in 100% of respondents. Just as in this study, it was found that this diagnosis was related to mechanical factors, secondary to the procedure. The patient who has undergone cardiac surgery remains bedridden for a long period, and thus can acquire an injury due to positioning. It is noteworthy that the anesthetic agents interfere with the normal vasodilation and constriction, thereby reducing the infusion to the bony prominences and regions under pressure, thus favoring the appearance of lesions.<sup>5</sup>

The risk of falls includes increased susceptibility to falls that can cause physical damage.<sup>11</sup> This diagnosis was elaborated due to the major complications that they can cause to the patient, in the event of such an accident. It had as risk factors the unfamiliar room and the postoperative conditions.

The diagnosis willingness for increased control of the therapeutic regimen is defined as the standard of regulation and integration into the daily life of a disease treatment program and its sequels, which is sufficient to achieve the goals related to health and that can be strengthened.<sup>11</sup> It is an uncommon diagnosis in the existing literature on the subject, but it is striking and expresses the interest of the patient to contribute to their treatment regimen. The defining characteristics of the diagnosis were: expressing desire to control the disease and expressing little difficulty with the prescribed treatment regimen.

The risk of electrolyte imbalance is related to the risk of changes in serum electrolyte levels that can endanger health.<sup>11</sup> The electrolyte changes may occur due to bleeding, to insensitive to losses, to kidney disorders and to hemodilution used in Extra-corporeal Circulation (ECC).

The electrolyte imbalance can occur after cardiac surgery. The hypovolemia is characterized by a decrease in intravascular volume and may be the result of an inadequate volume replacement or of fluid sequestration into the interstitial space.<sup>5</sup> Electrolyte abnormalities may occur as a result of hemodilution used in the ECC, and the most important changes are those occurred with potassium, calcium and magnesium, which are responsible, among others, for the transmission and conduction of nerve

impulses and for the contraction of heart muscle. High glucose levels are common in the postoperative period.<sup>5</sup>

The risk of imbalance in body temperature is defined as the risk of failing to maintain body temperature within normal parameters.<sup>11</sup> This diagnosis has as risk factors inactivity, extreme weight and medications that cause vasodilation. Considering the peculiarities of heart surgery, it is observed the cooling at the start of ECC and reheating at the end, the prolonged surgical time and patient's intrinsic factors (obesity and age). Besides these, after heart surgery, the patient is at risk for developing elevated body temperature caused by infection. In addition, debilitated patients and with extremes of age are at higher risk for changes in temperature in the immediate postoperative.<sup>6</sup>

According to a study that deals with the implementation of the nursing process, there was a growing improvement in the patient's health after performance of nursing interventions, bringing favorable results to health and to quality of life.<sup>14</sup>

The nursing diagnosis impaired physical mobility is used to demonstrate the limited physical movement of the body or of one or more ends.<sup>11</sup> In a research of 991 patients admitted to an Intensive Care Unit, 59.3% of patients had a diagnosis of impaired physical mobility.<sup>15</sup> The same diagnosis was described as prevalent in other studies with patients in the postoperative period.<sup>16-17</sup> These data reinforce the importance of knowing the nursing diagnoses of patients to provide an appropriate care, since they are common in clinical practice.

## CONCLUSIONS

The present study identified eight nursing diagnoses, which are: risk of infection, risk of constipation, risk of falls, impaired skin integrity, willingness for increased control of the therapeutic regimen, risk of electrolyte imbalance, risk of imbalance in body temperature and impaired mobility in bed. These diagnoses are entered in the following fields: health promotion, nutrition, elimination and exchange, activity and rest, and safety/protection.

The preparation of this report enabled to identify the importance of the implementation of Systematization of Nursing Care to patients who underwent cardiac surgery. The use of a structured instrument for the realization of clinical history and physical examination, when all information is collected and properly recorded, allowed the construction and application of the following steps of the nursing process: data collection or survey (history and physical examination), nursing diagnosis and care planning.

It is concluded that the identification of nursing diagnoses of that period is intended to assist in the planning of established nursing care and appropriate to the needs of each patient, resulting in effective actions to solve the problems. This work may also lead to validation studies through clinical practice. In this way, it can contribute to the scientific advance of the profession.

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### Mailing address:

Richardson Augusto Rosendo da Silva  
University of do Rio Grande do Norte  
Central Campus. Department of Nursing.  
Rua Lagoa Nova, S/N. Natal (RN), Brazil.  
ZIP code: 59078-970.