INTTEGRATIVE REVIEW ARTICLE

NURSING DIAGNOSIS IN POSTOPERATIVE CARDIAC SURGERY: INTEGRATIVE REVIEW

DIAGNÓSTICOS DE ENFERMAGEM NO PÓS-OPERATÓRIO DE CIRURGIA CARDÍACA: REVISÃO INTEGRATIVA

DIAGNÓSTICO DE ENFERMEIRIA EN EL POST-OPERATORIO DE CIRUGÍA CARDIÁCA: REVISIÓN INTEGRADORA

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RESUMO
Objetivo: analisar a produção científica sobre os diagnósticos de enfermagem em pacientes no pós-operatório de cirurgia cardíaca. Método: revisão integradora, a partir da questão norteadora: Quais os diagnósticos de enfermagem encontrados na literatura científica perante o paciente em pós-operatório de cirurgia cardíaca? Foi realizada a busca no período de dezembro de 2014 a janeiro de 2015 nas Bases de Dados MEDLINE, LILACS e CINAHL. Os descritores utilizados foram “Cuidados Pós-operatórios”, “Cirurgia Cardíaca” e “Diagnóstico de Enfermagem”. Para análise, utilizou-se um instrumento adaptado, que contemplou: fonte, intervenção estudada, resultados e considerações finais/conclusões. Resultados: as inferências diagnósticas foram: Risco para infecção; Dor aguda; Desobstrução ineficaz das vias aéreas; Risco para volume de líquidos desequilibrados; Comunicação verbal prejudicada; Troca de gases prejudicada; Risco para aspiração; Integridade da pele prejudicada e Ansiedade. Conclusão: os diagnósticos encontrados estavam localizados nos domínios: segurança/proteção, conforto, nutrição, percepção/cognição, eliminação e troca e enfrentamento/tolerância ao estresse. Descriptores: Diagnósticos de Enfermagem; Cuidados Pós-Operatórios; Cirurgia Cardíaca.

ABSTRACT
Objective: to analyze the scientific production on nursing diagnoses in patients after cardiac surgery. Method: an integrative review, from the guiding question: What are the nursing diagnoses found in the scientific literature toward the patient in the postoperative period of cardiac surgery? This research was conducted from December 2014 to January 2015 in MEDLINE, LILACS and CINAHL databases. The descriptors used were “Postoperative Care”, “Heart Surgery” and “Nursing Diagnoses”. For analysis, authors used an adapted instrument, which included: source, studied intervention, and results final thoughts /conclusions. Results: the diagnostic inferences were: Risk for infection; Acute pain; Ineffective airway clearance; Risk for imbalanced fluid volume; Impaired verbal communication; Impaired gas exchange; Risk for aspiration; Impaired skin integrity and Anxiety. Conclusion: the diagnoses found were placed in the domains: safety / protection, comfort, nutrition, perception / cognition, elimination and exchange and coping / stress tolerance. Descriptors: Nursing Diagnoses; Postoperative Care; Heart Surgery.

RESUMEN
Objetivo: analizar la producción científica sobre los diagnósticos de enfermería en pacientes en el postoperatorio de cirugía cardíaca. Método: revisión integradora, a partir de la pregunta guía: ¿Cuáles son los diagnósticos de enfermería encontrados en la literatura científica ante el paciente en postoperatorio de cirugía cardíaca? Fue realizada la búsqueda en el período de diciembre de 2014 a enero de 2015 en las Bases de Dados MEDLINE, LILACS y CINAHL. Los descritores utilizados fueron “Cuidados Postoperatorios”, “Cirugía Cardíaca” y “Diagnóstico de Enfermería”. Para análisis, se utilizó un instrumento adaptado, que contempló: fuente, intervención estudiada, resultados y consideraciones finales/conclusiones. Resultados: las inferencias diagnósticas fueron: Riesgo para infección; Dolor agudo; Desobstrucción ineficaz de las vías aéreas; Riesgo para volumen de líquidos desequilibrados; Comunicación verbal prejudicada; Cambio de gases prejudicado; Riesgo para aspiración; Integridad de la piel prejudicada y Ansiedad. Conclusión: los diagnósticos encontrados estaban localizados en los dominios: seguridad/protección, confort, nutrición, percepción/cognición, eliminación y cambio y enfrentamiento/tolerancia al estrés. Descriptores: Diagnósticos de Enfermería; Cuidados Postoperatorios; Cirugía de Corazón.
INTRODUCTION

Deaths from cardiovascular disease have shown significant numbers over the years, represented with a specific mortality rate (SMR) of 53.8 deaths from ischemic heart disease per 100 thousand inhabitants; it is thus considered the leading cause of death in Brazil. Men still show higher incidence (15.3/1000) in relation to women (12.8/1000).1

The cause for this incidence relates to behavioral factors such as poor diet, smoking, alcohol consumption, lack of physical activity and lipid syndromes that compose this etiologic profile. From these morbidity factors, male or female individuals may develop heart diseases, thus requiring some type of surgical intervention according to the nature of the disease: acute, chronic or congenital. Among the various interventional therapeutic approaches, there is the angioplasty and the cardiac revascularization.2

The cardiac revascularization requires care by a multidisciplinary team, for all the perioperative period, especially intra and postoperative periods, demands more interventionist needs to the patient. The postoperative period requires from the team a systematic and immediate action, since this period in is critical in revascularized patients and there may be numerous instabilities, especially cardiorespiratory arrest (CRA).3

The nursing activity at this time requires specific knowledge and skills to meet the patient undergoing heart surgery. Among the nursing interventions, there are the maintenance of hemodynamic balance, oxygenation and ventilatory support, and promoting comfort to the patient. These interventions, when articulated in a systematic way through the nursing process, provide satisfaction and enhances professional development.4

The nursing process must be synergistically articulated in the following phases: history, diagnosis, intervention, implementation and evaluation. The development of the nursing diagnosis is a vital step to be considered the intellectual activity that the nursing professional develops in their daily lives in order to judge the human responses that require nursing interventions. For its construction, the nurse should use their knowledge, their cognitive, interpersonal skills and their professional attitudes that determine the content and quality of the results of its use, drawing the clinical reasoning, which is the articulation mechanism of the nursing process.5

In order to implement any kind of systematic mechanism, such as the creation of the nursing diagnosis, it is essential to use a unified terminology, for the care documentation, according to the nursing process, is made possible through the use of terminologies in line with a theory.1 In this sense, it is essential to know the nursing diagnoses in patients after cardiac surgery. Thus, this study aimed to analyze the scientific production on nursing diagnoses in patients after cardiac surgery.

METHOD

This is an integrative review, a method that gathers and summarizes results of research on a limited topic in a systematic and organized manner, contributing to the deepening of the knowledge of the research theme. Thus, to carry out this study, the authors followed the six stages of the integrative review, which are: elaboration of guiding question; establishing the objectives of the review and inclusion and exclusion criteria of the articles; definition of the information to be drawn from the research; selection of articles in the literature; analysis of results; discussion of findings; and presentation of the review.7

The guiding question of the study was: what are the nursing diagnoses found in the scientific literature toward the patient in the postoperative period of cardiac surgery?

For the selection of articles, authors used on-line access to the following databases: Cumulative Index to Nursing Allied Health Literature (CINAHL), Latin American and Caribbean Health Sciences (LILACS) and MEDLINE® Online Search System and Medical Literature Analysis (Medical Literature Analysis and Retrieval System Online). The Health Sciences Descriptors (DeCS) “Postoperative Care” and “Heart Surgery” used for data collection were combined through the Boolean connector “AND” with the descriptor “Nursing Diagnosis” in Portuguese, English and Spanish languages.

The bibliographic survey was conducted from December 2014 to January 2015. Inclusion criteria for the selection of the articles analyzed were: full articles available for free in Portuguese, English or Spanish languages which had built nursing diagnosis and adopted Nanda International8 as nomenclature, published in the last five years (2009-2013). The exclusion criteria were: articles in editorial format and letters to the editor, duplications, dissertations and theses.

To perform the sample analysis, authors used an adapted instrument7, which included the following aspects: source, studied
intervention, results and final thoughts / considerations. The authors in this study were properly referenced, respecting and identifying the sources of research, observing ethical rigor as for intellectual property of scientific texts that were analyzed in relation to the use of content and citation of parts of studies consulted. In order to maintain quality studies in this research, pre-selected articles were evaluated as relevant and methodologically adequate by using a form for evaluating studies prepared by the Critical Appraisal Skills Programme (CASP)\textsuperscript{10}. Studies that reached a score of 7 out of 10 points were included in the sample, reaching the amount of six articles.

In this context, authors adopted the evidence-based practice (EBP), which emphasizes the use of research to guide clinical decision-making and requires learning skills for the use of different processes to evaluate the literature critically and reflectively. Evidence is defined as the presence of facts or signs that clearly show that something exists or is true, that is, evidence is proof or demonstration that something might be legally subjected to the determination of the truth of a matter. It was proposed a seven-level rating for the evaluation of evidence from research. This classification considers the methodological approach of the study, the research design and its accuracy: level 1 - evidence from systematic review or meta-analysis of all relevant randomized controlled clinical trials or arising from clinical guidelines, based on systematic review of randomized controlled clinical trials; level 2 - evidence from at least one randomized well-designed controlled clinical trial; level 3 - evidence from well-designed clinical trials without randomization; level 4 - evidence from cohort studies and well-designed case-control study; level 5 - evidence from systematic review of descriptive and qualitative studies; level 6 - evidence from a single descriptive or qualitative study; level 7 - evidence from scholars’ opinions and / or expert committee reports.\textsuperscript{11}

The data are shown in a figure and a table, discussed descriptively from the literature.

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|}
\hline
\textbf{Study} & \textbf{Results} & \textbf{Conclusion} \\
\hline
Study 1 & & \\
\hline
Study 2 & & \\
\hline
Study 3 & & \\
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Study 4 & & \\
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Study 5 & & \\
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Study 6 & & \\
\hline
\end{tabular}
\caption{Results of the studies evaluated.}
\end{table}

\textbf{RESULTS}

The studies that composed in the sample, consisting of six articles, were listed according to a source, type of study, results and final thoughts, as provided in Figure 1:
This integrative review enabled to list 34 Nursing Diagnoses according to NANDA International Taxonomy. After excluding synonyms, nine remained as the most incidents, these being: Risk for infection; Acute pain; Ineffective airway clearance; Risk for imbalanced fluid volume; Impaired verbal communication; Impaired gas exchange; Risk for aspiration; Impaired skin integrity and Anxiety, which are listed as the frequency in Table 1:

<table>
<thead>
<tr>
<th>Source</th>
<th>Type of Study / Level of Evidence</th>
<th>Results</th>
<th>Final Thoughts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Rocha, Maia, Silva.</td>
<td>Exploratory and cross-sectional / Level of Evidence: 1</td>
<td>It identified 15 nursing diagnoses, particularly: Risk for infection; Risk for constipation; Bathing self-care deficit and Impaired skin integrity.</td>
<td>It is crucial to develop studies about nursing diagnoses to direct analyzes of problems in patients.</td>
</tr>
<tr>
<td>2 Cruz, Lopes.</td>
<td>Descriptive / Level of Evidence: 1</td>
<td>The profile of patients was men over 70 years old and retired. The associated diseases were: hypertension and diabetes mellitus, acute myocardial infarction, coronary artery disease and congestive heart failure as the main indicators of myocardial revascularization.</td>
<td>This work will contribute to the development of the nursing care plan and the construction and validation of data collection instruments to identify nursing diagnoses in patients during the study period.</td>
</tr>
<tr>
<td>3 Miranda, Silva, Caetano, Sousa, Almeida.</td>
<td>Descriptive and exploratory / Level of Evidence: 6</td>
<td>Analysis of the data before and after performing the nursing procedure indicated that pain occurred in different classifications. The main changes in vital signs occurred in blood pressure.</td>
<td>Pain intensity is related with the results of vital signs and the care provided is essential to restoring the patient’s health.</td>
</tr>
<tr>
<td>4 Magalhães, Alves, Alcântara, Bezerra.</td>
<td>Retrospective, descriptive and cross-sectional / Level of Evidence: 6</td>
<td>There was a high mortality rate due to mediastinitis. Risk factors were identified, such as high blood pressure, smoking, diabetes mellitus and obesity, mostly in patients undergoing myocardial revascularization.</td>
<td>Mediastinitis is a serious infection that needs continuous supervision of nursing and preventive measures for early diagnosis and decreased mortality.</td>
</tr>
<tr>
<td>5 Galdeano, Rossi, Santos, Dantas.</td>
<td>Descriptive / Level of Evidence: 1</td>
<td>Not all nurses participating in the research agreed as the establishment of the said diagnoses.</td>
<td>There are individual differences, such as professional experience and knowledge, which interfere with the ability to interpret data and establish a diagnosis.</td>
</tr>
<tr>
<td>6 Pivoto, Filho, Santos, Almeida, Silveira.</td>
<td>Convergent-care / Level of Evidence: 4</td>
<td>A total of 15 diagnoses were established according to Taxonomy II of the North American Nursing Diagnosis Association, corroborated by other authors; five were risk diagnoses and 10 were actual diagnoses.</td>
<td>Identifying common nursing diagnoses among patients in the postoperative period of cardiac surgery allows directing care and subsidizes the establishment of justified and adequate interventions for each patient.</td>
</tr>
</tbody>
</table>

Figure 1. Distribution of the selected articles according to a source, type of study, results and final thoughts.
The hospital environment is propitious to the development of infection, because the entire microbiota is modified, resulting from circulation of diseases. When the patient undergoes invasive procedures, such as surgery, intubation, mechanical ventilation, puncture of central venous access, chest and mediastinal drains, urinary catheter, puncture for mean arterial pressure measurement, they become susceptible to infections. Another factor contributing to this spectrum is the non-adherence of aseptic techniques by health professionals.

In face of the diagnostic inferences found in this study, the risk for infection was present in all, since the patient who is subjected to the revascularization process, a major surgery, becomes vulnerable due to the immunocompetence of the primary defenses. In order to reduce the chances of infection to which patients are exposed, it is essential that nurses participate in the individual supervision, in the care with infections associated with mechanical ventilation, exchange of catheters, probes and drains, always giving attention to the state of their sites and insertion.

The diagnosis of pain is related to surgical incision, surgical trauma, irritation caused by intubation, chest tubes and immobility in bed. The pain must be taken into consideration because such sensory experience together with anxiety can trigger changes in pulse rate and in other vital signs, increase oxygen consumption, energy waste, thus burdening the heart muscle. It is noticed that the painful sensation unbalances the physiological functioning and therefore must be treated with importance in the postoperative phase. An individual who has just undergone a major surgical procedure such as heart surgery will refer pain in the postoperative period after recovery from anesthesia, and controlling it is essential.

So that the physiological aspect is not unbalanced by the subjective sensation of pain, the nurse should pay attention to the complaints of the patient, the intensity, location, type and frequency so they can intervene with resoluteness in the administration of drugs according to prescription and promoting non-pharmacological techniques for pain management, controlling the environment, maintaining the comfort and reducing anxiety as major non-pharmacological approaches. Changes perceived in vital signs after dressing changes together with subjective pain complaints emphasize the importance of nursing care to promote patient comfort in cardiac postoperative.

The dependence of an artificial airway and immobility in bed are factors for building the diagnosis Ineffective airway clearance, for the secretion produced due to the increased blood volume in the interstitium keeps retained in the cells, leading to accumulation and thereby decreasing the blood oxyhemoglobin infusion. Another factor contributing to this framework is the use of tobacco, because it causes modification of the epithelial tissue of the trachea with destruction of the cilia that help pushing the secretions.

During the cardiac perioperative period, the patient is subject to a stop in the heartbeat and cardiopulmonary bypass (CPB), thus requiring artificial ventilatory support. As the presence of an artificial airway hinders the elimination of tracheobronchial secretions by the patient, the nurse should always be alert, monitoring vital signs, keeping the head elevated and making the airway aspiration when needed, while monitoring the oxygen saturation and respiratory and heart rates during the postoperative period.

The incidence of the diagnosis Risk for imbalanced fluid volume in the context of cardiac surgery is related to the change in fluid volume, i.e., an imbalance between what is infused and losses through catheters and drains. The complexity of heart surgery puts the patient at a number of risks. In the case of fluid volume, it may increase or decrease if there is an imbalance between the fluid and electrolytes in and out of cells.
Controlling losses or fluid retention becomes critical so that the nurse can have a view of the electrolyte status of the patient in order to avoid excess (edema) or deficiency that leads to hypovolemic shock. So, nursing actions must aim to maintain the patient’s fluid balance and analyze all ionic indices, such as sodium, potassium, chloride, magnesium, phosphate and chlorine, in order to prevent future instability.16-17

The patient in cardiac postoperative period presents impaired verbal communication as nursing diagnosis; this stems from intubation and sedation. Some important points raised by research studies argue that many patients who are weaning from mechanical ventilation have dysphonia due to injury in the laryngeal nerve. It is supposed that the cause is the inadequate management of the procedure.17

In this sense, the communication between patient and staff is substantial for the course of the care. If the patient cannot communicate effectively, this hinders the understanding of the staff about the complaints they refer. Therefore, it is important that the nurse is always close and meet signs of pain or uneasiness. Family participation front to the patient’s needs can also contribute to the nursing care practices.17,18

The nursing diagnosis Impaired gas exchange in patients after cardiac surgery is related to respiratory physiological change resulting from invasive procedures or from the use of drugs that affect the respiratory center. The ventilation-perfusion system can be unstable and as a result of this picture the patient presents factors such as dyspnoea, changes in rhythm, rate and depth of breathing, tachycardia, skin color.18

Cardiac arrest during surgery and intubation for mechanical ventilation are factors that make the return of spontaneous respiratory movements happen gradually, and the exchange between inspired oxygen and carbon dioxide may become poor. Given these facts, it must be carried out a suitable weaning, as well as the measurement of gases through arterial blood gas analysis and the analysis of laboratory data such as hematocrit so that nurses can prevent future complications.19

The diagnostic inference Risk for aspiration is caused, in patients who are in cardiac postoperative period, by the difficulty of raising the upper body; depression of cough and swallowing reflexes; increase of intragastric pressure, and drugs that can trigger vomiting.19-20 Impaired skin integrity refers to the presence of a surgical wound front to its possible complications and to the long stay of the patient restricted to the bed, which makes them susceptible to the formation of pressure ulcers on bony prominences.20

Care for the operatory wound is paramount, performed through the dressing change and inspection of inflammatory signs. Other places where drains or catheters were inserted must also be monitored. Care for pressure ulcers should be performed if the patient already has them, and prevention of these ulcers must be performed by changing positions and using cushions on bony prominences.20,1

So as pain, anxiety plays a detrimental role in the development and improvement of the patient. The change of environment, the view of ICU as a scary place and being far from family relate to the state of anxiety in the postoperative period. Thus, it is possible to assess the importance of emotional support to the patient from the preoperative period, throughout their stay in the hospital until their discharge to home. Support for the family and the patient is important to promote well-being. Active listening is important, as well as answering questions, promoting comfort and improved coping health status, showing the patient the changes that must occur in their lifestyle and return home. The role of nursing is essential.21

CONCLUSION

The main diagnoses in patients after cardiac surgery were: Risk for infection; Acute pain; Ineffective airway clearance; Risk for imbalanced fluid volume; Impaired verbal communication; Impaired gas exchange; Risk for aspiration; Impaired skin integrity and Anxiety; mostly related to surgical trauma and intubation for mechanical ventilation.

The number of cardiac surgical procedures reflects the need for systematization and preparation of the nursing profession, particularly in providing care. Thus, the use of the systematization of care helps to validate nursing as a science and profession, since developing systematic actions based in the needs of each patient leads to a holistic care, minimizing risks and favoring adequate recovery.

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