

DOI: <https://doi.org/10.36489/saudecoletiva.2021v11i64p5582-5593>

Patient safety submitted to heart surgery: implications for nursing practice

Seguridad del paciente sometido a cirugía cardíaca: implicaciones para la práctica de enfermería

Segurança do paciente submetido à cirurgia cardíaca: implicações para a prática de enfermagem

ABSTRACT

Objective: to analyze the scientific evidence about the safety of patients undergoing cardiac surgery. **Method:** This is an integrative review carried out in the MEDLINE, LILACS, BDENF, IBICS and SciELO databases. 67 articles were identified and, after inclusion and exclusion criteria, 7 studies were obtained that comprised the sample. **Results:** From the analysis of the studies, the information was grouped into two thematic categories: Adverse events in cardiology units: factors that interfere with patient safety and Nursing performance in the care of patients undergoing cardiac surgery. **Conclusion:** It was possible to identify the main factors related to complications during the perioperative period, as well as the importance of implementing actions regarding the prevention of such events and directing permanent education programs in the service, aiming to guarantee quality care and patient safety.

DESCRIPTORS: Cardiac Surgery; Patient safety; Nursing care; Perioperative nursing.

RESUMEN

Objetivo: analizar la evidencia científica sobre la seguridad de los pacientes sometidos a cirugía cardíaca. **Método:** Se trata de una revisión integradora realizada en las bases de datos MEDLINE, LILACS, BDENF, IBICS y SciELO. Se identificaron 67 artículos y, tras criterios de inclusión y exclusión, se obtuvieron 7 estudios que componían la muestra. **Resultados:** A partir del análisis de los estudios, la información se agrupa en dos categorías temáticas: Eventos adversos en unidades de cardiología: factores que interfieren con la seguridad del paciente y el desempeño de enfermería en la atención de pacientes sometidos a cirugía cardíaca. **Conclusión:** fue posible identificar los principales factores relacionados con las complicaciones durante el período perioperatorio, así como la importancia de implementar acciones de prevención de dichos eventos y dirigir programas de educación permanente en el servicio, con el objetivo de garantizar la calidad de la atención y la seguridad del paciente.

DESCRIPTORES: Cirugía cardíaca; Seguridad del paciente; Cuidado de enfermeira; Enfermería perioperatoria.

RESUMO

Objetivo: analisar as evidências científicas acerca da segurança do paciente submetido à cirurgia cardíaca. **Método:** Trata-se de uma revisão integrativa realizada no período de agosto a setembro de 2020, a partir da combinação dos descritores selecionados nas bases de dados: MEDLINE, LILACS, BDENF, IBICS e SciELO. **Resultados:** Com base nos critérios de inclusão e exclusão, consideraram-se para análise 7 estudos. Emergiram duas categorias temáticas: Eventos adversos em unidades de cardiologia: fatores que interferem na segurança do paciente e Atuação da enfermagem no cuidado ao paciente submetido à cirurgia cardíaca. Os estudos destacam a importância da assistência de enfermagem através de condutas que visam reduzir a ocorrência de eventos adversos. **Conclusão:** Foi possível identificar os principais fatores relacionados as complicações durante o período perioperatório, bem como a importância da implementação de ações quanto à prevenção de tais eventos, visando garantir uma assistência de qualidade e a segurança do paciente.

DESCRIPTORES: Cirurgia Cardíaca; Segurança do Paciente; Cuidados de enfermagem; Enfermagem perioperatória.

RECEIVED ON: 01/21/2021 APPROVED ON: 02/01/2021



Amanda Rodrigues Bastos

Nurse graduated from the Faculty of Nursing Nova Esperança.
ORCID: 0000-0002-3125-7584.

Salmana Rianne Pereira Alves

Nurse. Master by the Postgraduate Program in Family Health, by the Faculty of Nursing Nova Esperança.
ORCID: 0000-0002-4472-2289.

Glaydes Nely Sousa da Silva

Nurse. Master by the Postgraduate Program in Family Health, by the Faculty of Nursing Nova Esperança.
ORCID: 0000-0002-6564-657X.

Hirla Vanessa Soares de Araújo

Nurse. Doctoral student in Nursing at the Associate Nursing Graduate Program at UPE-UEPB.
ORCID: 0000-0002-9995-7288.

Regina Célia de Oliveira

Nurse. Post-Doctorate, University of Pernambuco/UPE.
ORCID: 0000-0002-6559-5872.

Camila Abrantes Cordeiro Morais

Nurse. Doctoral student in Nursing at the Associate Nursing Graduate Program at UPE-UEPB.
ORCID: 0000-0003-3780-9340

INTRODUCTION

Despite the increasing progress in clinical treatment, diagnostic resources and techniques related to minimally invasive procedures, cardiac surgery is still considered an important therapeutic resource for many individuals with cardiovascular diseases.¹⁻²

Cardiac surgery improves symptoms and favors increased survival and a better quality of life for individuals with heart disease. However, several complications can arise, mainly in the immediate postoperative period (IPP), related to the following factors: type of surgery, pain related to surgical incision, insertion of drains, previous comorbidities, need for cardiopulmonary bypass (CPB), among others.³⁻⁴

In the last decade, there has been a growing concern with patient safety throughout the health sector, especially in an environment in which complex procedures occur, which favor the occurrence of adverse events, such as surgical procedures.⁵⁻⁶ The discussion about patient safety has acquired great importance in the world, aiming at the use of best practices that can reduce adverse events related to health care.⁶

Adverse event (AE) is defined as an

incident that results in unnecessary damage to the patient, which occurs during the care provided throughout the patient's hospitalization. It is estimated that 50% of AEs are related to surgical assistance and that they could have been avoided, contributing to increase the patient's stay in the hospital environment, high costs of hospitalization and, in the most severe cases, risk of death.⁷

The nursing team that works in cardiac surgery units has multiple assignments with a high degree of demands and responsibilities, such as performing more complex procedures, in addition to organizing and coordinating services. In this context, institutions must propose strategies that make it possible to develop and/or improve knowledge, skills and attitudes in order to contribute to qualified and safe patient care.⁸⁻⁹

In view of the complexity of care necessary for the patient undergoing cardiac surgery, nursing professionals must be qualified to meet the patient's demands, especially in the postoperative period that requires continuous observation, quick decision-making and specific systematized actions from the team with the objective of identifying and relating changes in hemody-

namic parameters, carrying out water balance, ensuring ventilatory support and paying attention to the presence of bleeding.¹⁰

Thus, studies on the theme become relevant, in view of the importance of nursing care in contributing to the implementation of effective strategies to improve the quality and safety of health care. Also considering that failures in measures for patient safety can cause significant damage, it becomes increasingly necessary to discuss nursing practice in patients undergoing cardiac surgery, aiming to contribute to improving the quality of care, reducing time hospitalization of the patient and reduction of the occurrence of adverse events. Therefore, this study aims to analyze the scientific evidence about the safety of patients undergoing cardiac surgery.

METHOD

This is an Integrative Literature Review, in which the following steps were taken: problem identification, with the definition of the research question; establishment of criteria for inclusion and/or exclusion of studies to search for scientific literature; definition of the information to be extracted from

the studies; evaluation of studies; interpretation of results and presentation of the review/synthesis of knowledge.¹¹ In view of the objective previously described, the following research question was defined: "What is the scientific evidence on the safety of patients undergoing cardiac surgery?"

The research was carried out independently by two researchers, from August to September 2020, in the following databases: Medical Literature Analysis and Retrieval System Online (MEDLINE), Latin American Caribbean Literature in Health Sciences (LILACS) and Nursing Databases (BDENF) through the Virtual Health Library (VHL) Portal, in addition to the Scientific Electronic Library Onli-

ne (SciELO) periodical database.

The search was made operational based on the use of terms identified in the vocabulary on the basis of Health Sciences Descriptors (DeCS) and Medical Subject Headings (MeSH). Thus, a combination of descriptors was used: "Segurança do paciente", "Cirurgia cardíaca", "Assistência de enfermagem" and "Evento adverso", separated by the Boolean operator "AND".

Inclusion criteria were defined: publications in the form of an article, full text, published from 2010 to 2020, in Portuguese, Spanish and English. It should be noted that publications such as: theses, dissertations, monographs, course completion papers, literature review, manuals, previous notes and stu-

dies that did not address the proposed theme were excluded.

The article selection process involved stages. The first consisted of reading the titles, in order to reject those that did not meet the inclusion criteria. In the second stage, by reading the summary, studies that met the inclusion criteria were selected. Finally, in order to select the articles to be included in the review, they were read in full.

The results were displayed by means of tables and grouped into thematic categories. The analysis of articles was performed in a descriptive manner, with the synthesis of the evidence of each publication.

RESULTS

Initially, a total of 67 publications were identified. After the identification, screening and eligibility steps, the sample consisted of 7 articles. Figure 1 shows a flowchart of the search and selection process for articles by database.

To facilitate the analysis of the data, an instrument adapted from the literature by the authors was used, which includes characteristics of identification of the article such as: title, authors, year, database, methodological description (type of study and approach) and the objective.

Regarding the databases where the articles were indexed, LILACS was the one with the most publications, 4 (57,1%). It was found that 100% articles were published in national journals, with emphasis on Revista SOBECC with 3 studies (42,8%), as shown in Chart 1.

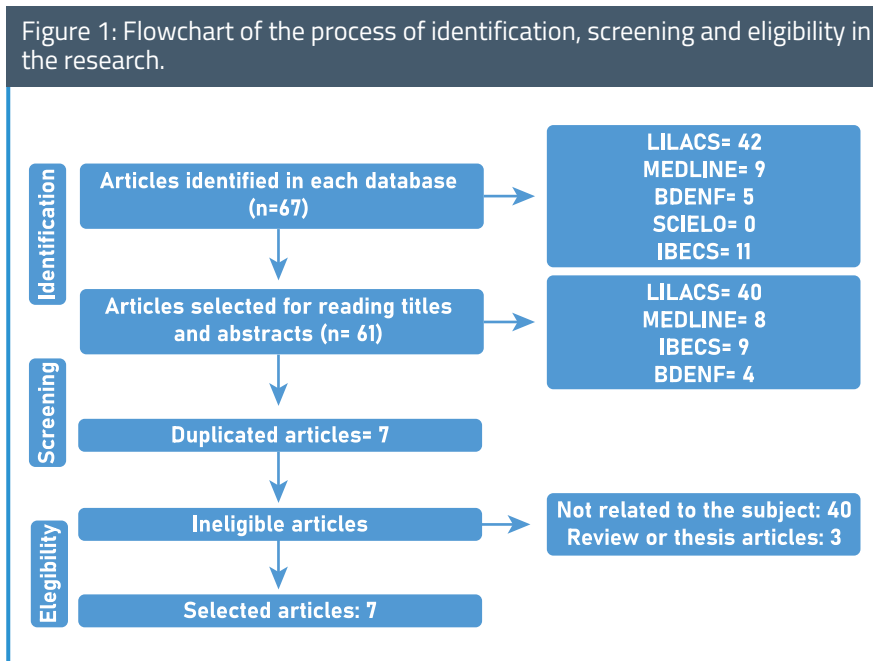


Chart 1: Distribution of articles selected for the integrative review. João Pessoa (PB), Brazil, 2020.

| YEAR | AUTHOR/TITLE/JOURNAL | DATA BASE |
|------|---|-----------|
| 2019 | Lanzoni GMM, Goularte AF, Koerich C, Reisdorfer E, Miotello M, Meirelles BHS. Adverse events and incidents without damage in inpatient units of a hospital specializing in cardiology. Rev Min Enferm. ⁷ | LILACS |
| 2016 | Carvalho IM, Ferreira DKS, Nelson ARC et al. Systematization of nursing care in the immediate postoperative period of cardiac surgery. Rev Fund Care Online. ¹² | LILACS |
| 2016 | Sene ESO, Jardim DP. Nursing performance in video-assisted minimally invasive cardiac surgery. Rev SOBECC. ¹³ | LILACS |

| | | |
|------|---|--------|
| 2019 | Andrade AYT, Tanaka PSL, Poveda VB, Turrini RNT. Complications in the immediate postoperative period of myocardial revascularization. Rev SOBECC. ¹⁴ | BDEF |
| 2016 | Giannattasio MB, Taniguchi FP. Evaluation of patient safety in cardiac surgery at a public hospital. Rev SOBECC. ⁵ | LILACS |
| 2019 | Eskildesen L. Application of the ELPO scale to patients undergoing cardiovascular surgery. Cuidarte Enferm. ¹⁵ | BDEF |
| 2017 | Rosseto KRC, Nunes KZ, Romero WG, Furieri LB, Massaroni L, Fioresi M. Educational nursing intervention to the client submitted to cardiac surgery. Rev Baiana Enferm. ¹⁶ | BDEF |

Source: research data, 2020.

Regarding the year, we found that the highest incidence of publication of the studies was in 2016 and 2019, both with 3 (42,8%) articles. It should be noted that, in the years 2010 to 2015 and 2018, no publication was found that met the criteria of this study.

In Table 2, we summarize the 7 studies included in this review, referring to the method used in the research and the purpose of each publication. It is concluded that there was a predominance of descriptive studies (57,1%), with the quantitative approach being the most prevalent (57,1%).

DISCUSSION

Following the analysis of the included studies, two thematic categories were identified: Adverse events in cardiology units: factors that interfere with patient safety and Nursing performance in the care of patients undergoing cardiac surgery.

Adverse events in cardiology units: factors that interfere with patient safety

A study carried out in order to characterize adverse events in inpatient units of a reference hospital in Cardiology, showed that of the 190

notifications that occurred in 155 patients, 26,3% were due to medication errors, 40% of which were linked to hematomas resulting from subcutaneous medications and 18,9% related to venipuncture, in which, as a consequence, patients had phlebitis and/or bruising. ^{7,15}

Considering that one of the goals of patient safety is to improve safety in the prescription, use and administration of medications, it is essential to implement double checking and qualification of the professional record before and after the administration of medications. The preparation and administration of medications are the res-

Chart 2: Distribution of studies on the safety of patients undergoing cardiac surgery, according to the characteristics of the articles. João Pessoa (PB), Brazil, 2020.

| TYPE OF STUDY AND APPROACH | OBJECTIVE |
|---|---|
| Descriptive study with a quantitative approach. | To characterize adverse events in inpatient units of a reference hospital in Cardiology in the state of Santa Catarina. |
| Descriptive study with a qualitative approach. | Survey nursing diagnoses according to NANDA International Taxonomy II; identify nursing interventions according to the NIC based on the diagnosis found; and present the expected results according to the NOC, based on the planned interventions. |
| Descriptive study with a qualitative approach. | To report the performance of nursing in the operative period of video-assisted minimally invasive cardiac surgery. |
| Cohort study with a quantitative approach. | To verify the main complications of coronary artery bypass graft (CABG) surgery with cardiopulmonary bypass (CPB) and its association with modifiable and non-modifiable risk factors, nursing diagnoses, CPB time and nursing hours. |
| Cross-sectional observational study with a quantitative approach. | To evaluate safety items in cardiac surgery in patients at a public hospital. |
| Cross-sectional descriptive study with a quantitative approach. | Apply the ELPO scale and assess the scores according to the score obtained by patients undergoing cardiovascular surgery. |
| Intervention study with a qualitative approach. | To analyze whether an educational nursing program favors knowledge and guides the conduct adopted by clients in the postoperative period of cardiac surgery. |

Source: research data, 2020.

possibility of all members of the nursing team, and the nurse is responsible for planning, directing and supervising actions related to medications.¹⁷⁻¹⁹

Another established international goal is to reduce the risk of falls during hospitalization, being considered the most prevalent adverse event.^{20,21} In a cardiology unit, the highest prevalence for risk of falling was observed in male patients, most between 61 and 70 years old. Of the total falls recorded during data collection, 65,0% ranged from mild injuries to fractures. Adverse events related to pressure injuries were also found, representing 6,8% of the notifications, 69,2% of which in stage II and 54% in coronary units.^{7,14}

Use of a bracelet with identification of the risk of falling, elevation of the bars on the bed, signage in the medical record, keeping the corridor or the area close to the patient free of objects that make it difficult to move, assess the level of consciousness daily to identify confusion, delusions or restlessness, are important measures that must be adopted contribute to improve the practice of nurses in safe care for people with cardiovascular disease.^{18,14}

A research aimed at evaluating safety items in cardiac surgery in patients from a public hospital, applied a script based on the 3 phases of the WHO safe surgery checklist and concluded the absence of patient identification, incomplete surgical team, absence of informed surgical consent and patient's anesthetic, inadequate room set-up and ignorance about patient's allergies as factors that lead to unsafe surgery. It concludes that the challenge in a specific surgical center is to focus on patient safety throughout the institution, so that the checklist is not just another form to be applied, but a tool for safety and quality of care.⁵

Nursing performance in caring for patients undergoing cardiac surgery

Surgical positioning is one of the main indicators of quality of care in

perioperative care, as it contributes to safety during the procedure. A patient undergoing cardiac surgery spends a long time on the operating table in a single position, presenting a greater chance of developing pressure injuries.^{21,22}

In a cardiology unit, the highest prevalence for risk of falling was observed in male patients, most between 61 and 70 years old. Of the total falls recorded during data collection, 65,0% ranged from mild injuries to fractures.

The Risk Assessment Scale for the Development of Injuries Resulting from Surgical Positioning (ELPO) has been used by perioperative nursing as an instrument to determine the pre-

disposition of the lesion resulting from surgical positioning. When applying this to patients undergoing cardiovascular surgery, a large number of scores with a score ≥ 20 was identified, classified as having the highest risk of developing Pressure Injury.^{22,23}

When reporting the performance of nursing in the perioperative period of video-assisted minimally invasive cardiac surgery in a cardiology teaching hospital, the research 13 highlights the importance of adequate training for the nursing team in the handling of specific devices and equipment for each procedure, in addition to the relevant performance in receiving the patient, assisting the anesthetic act, preparing the patient for surgery, attending the team in the intraoperative period and in the postoperative period.

Presence of arrhythmias, hypotension, low cardiac output syndrome, cardiorespiratory arrest, bleeding, hypothermia and pulmonary changes, were complications pointed out in the studies^{14,23-25} after coronary artery bypass graft surgery with CPB. In view of the complexity of care needed by the patient undergoing cardiac surgery, nursing professionals must be qualified to meet the patient's demands, especially in the postoperative period that requires continuous observation and quick decision-making by the team.^{17,26}

When directing the Nursing Care Systematization (SAE - Sistematização da Assistência de enfermagem) to patients undergoing cardiac surgery, the following nursing diagnoses predominated: Risk of infection, Risk of bleeding, Decreased cardiac output, Acute pain, Impaired skin integrity, Risk shock, risk of falling, among others. Such diagnoses were related to the variables: CPB duration, bleeding in the immediate postoperative period (IPP), use of vasoactive drugs, anesthesia duration, comorbidities and hospital stay.¹⁴ Thus, the planning of nursing interventions must be based on the needs

of each patient, resulting in effective actions to solve problems.^{12,17}

A study¹⁶ points out that educational interventions in the postoperative period are considered important because they favor adherence to treatment and aid in recovery. However, participants may have limited understanding of some common postoperative procedures and

such guidelines should not be provided with a long interval before surgery.

CONCLUSION

With this study it was possible to identify the main factors that interfere in the safety of the patient submitted to cardiac surgery. Even with the low num-

ber of publications in the sample as a limitation, it is noteworthy that nursing practice can have a positive influence on patient safety, contributing to the reduction of adverse events. Thus, in view of the importance of the topic, further investigations are necessary in order to stimulate and promote the discussion about quality for safe care. ■

REFERENCES

- Kazitani BS, Furuya RK, Dantas RAS, Dessotte CAM. Ansiedade e depressão pré-operatória: diferenças entre pacientes submetidos à primeira cirurgia cardíaca. *Rev Rene*. 2018;19:e3079.
- Monteiro GM, Moreira DM. Mortalidade em Cirurgias Cardíacas em Hospital Terciário do Sul do Brasil. *International Journal of Cardiovascular Sciences*. 2015;28(3):200-205.
- Ribeiro KRA. Pós-operatório de revascularização do miocárdio: complicações e implicações para enfermagem. *Rev Fund Care Online*. 2018;10(1):242-247.
- Almeida PS, Pellanda LC, Caregnato RCA, Souza E. Implementação de orientações de enfermagem aos pacientes pré-operatórios de cirurgia cardíaca em meio digital. *Rev. SOBECC*. 2017;22(2):68-75.
- Giannattasio MB, Taniguchi FP. Avaliação da segurança do paciente em cirurgia cardíaca de um hospital público. *Rev SOBECC*. 2016;21(3):125-31.
- Aires RSP, Fernandes EGV, Alves MM, Gomides MDA, Silveira AOS, Sadoyama G. Segurança do Paciente na assistência à saúde. *Blucher Education Proceedings*. 2017;2(1):198-204.
- Lanzoni GMM, Goularte AF, Koerich C, Reisdorfer E, Miotello M, Meirelles BHS. Eventos adversos e incidentes sem dano em unidades de internação de um hospital especializado em cardiologia. *Rev Min Enferm*. 2019;23:e-1184.
- Almeida PS, Pellanda LC, Caregnato RCA, Souza EN. Implementação de orientações de Enfermagem aos pacientes pré-operatórios de cirurgia cardíaca em meio digital. *Rev SOBECC* 2017;22(2):68-75.
- Santos APA, Camelo SHH, Santos FC, Leal LA, Silva B. O enfermeiro no pós-operatório de cirurgia cardíaca: competências profissionais e estratégias da organização. *Rev Esc Enferm. USP*. 2016;50(3):474-481.
- Braga DV, Brandão MAG. Diagnostic evaluation of risk for bleeding in cardiac surgery with extracorporeal circulation. *Rev. Latino-Am. Enfermagem*. 2018;26:e3092.
- Souza MT, Silva MD, Carvalho R. Revisão Integrativa: o que é e como fazer. *Einstein*. 2010;8(1):102-06.
- Carvalho IM, Ferreira DKS, Nelson ARC, Duarte FHA, Prado NCC. Sistematização da assistência de enfermagem no pós-operatório mediato de cirurgia cardíaca. *Rev Fund Care Online*. 2016;5062-5067.
- Sene ESO, Jardim DP. Atuação da enfermagem em cirurgia cardíaca minimamente invasiva videoassistida. *Rev SOBECC. Revista SOBECC*. 2016;21(3):170-177.
- Andrade AYT, Tanaka PSL, Poveda VB, Turrini RNT. Complicações à pós-operatório Imediato de revascularização do miocárdio. *Rev SOBECC*. 2019;24(4):224-230.
- Eskildesen L. Aplicação da escala ELPO em pacientes submetidos à cirurgias cardiovasculares. *Rev Cuidarte Enferm*. 2019;13(2):116-121.
- Rosseto KRC, Nunes KZ, Romero WG, Furieri LB, Massaroni L, Fioresi M. Intervenção educativa de enfermagem ao cliente submetido à cirurgia cardíaca. *Rev Baiana Enferm*. 2017;31(4):e22441.
- Dessotte CAM, Rodrigues HF, Furuya RK, Rossi LA, Dantas RAS. Estressores percebidos por pacientes no pós-operatório imediato de cirurgia cardíaca. *Rev Bras Enferm*. 2016;69(4):741-750.
- Aruto GC, Lanzoni GMM, Meirelles BHS. Melhores práticas no cuidado à pessoa com doença cardiovascular: interface entre liderança e segurança do paciente. *Cogitare Enferm*. 2016;21n.esp:01-09.
- Ferreira MMM, Alves FS, Jacobina FMB. O profissional de enfermagem e a administração segura de medicamento. *Rev Enferm Contemporânea*. 2014;3(1):61-9.
- Sarges NA, Santos MIPO, Chaves EC. Evaluation of the safety of hospitalized older adults as for the risk of falls. *Rev Bras Enferm*. 2017;70(4):860-7.
- Tiensooli SD, Santos ML, Moreira AD, Corrêa AR, Gomes FSL. Características dos idosos atendidos em um pronto-socorro em decorrência de queda. *Rev Gaúcha Enferm*. 2019;40:e20180285.
- Lopes CMM, Haas VJ, Dantas RAS, Oliveira CG, Galvão CM. Assessment scale of risk for surgical positioning injuries. *Rev. Latino-Am. Enfermagem*. 2016;24:e2704.
- Peixoto CA, Ferreira MGB, Felix MMS, Pires PS, Barichello E, Barbosa MH. Risk assessment for perioperative pressure injuries. *Rev. Latino-Am. Enfermagem*. 2019;27:e3117.
- Soares JL, Sousa AMBD, Medeiros JMD. Tratamento Fisioterapêutico no pré e pós-operatório de cirurgia cardíaca: revisão integrativa. *Revista Ciência & Saberes-Facema*. 2017;3(3):624-629.