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NURSING INTERVENTIONS IN THE IMMEDIATE POSTOPERATIVE PERIOD OF MYOCARDIAL REVASCULARIZATION

Intervenções de enfermagem no pós-operatório imediato de revascularização do miocárdio

Intervenciones de enfermería en el postoperatorio inmediato de revascularización miocárdica

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RESUMO

Objetivo: correlacionar as intervenções de enfermagem na admissão de pacientes em pós-operatório imediato de revascularização do miocárdio, conforme recomendações da literatura e investigar as dificuldades e facilidades dos enfermeiros na admissão desses pacientes. **Método:** estudo de caso, exploratório, realizado com dez enfermeiras. A coleta de dados ocorreu nos meses de agosto a outubro de 2023, por meio de formulário virtual, contendo perguntas baseadas em ferramentas de critérios estabelecidos. A pesquisa teve parecer aprovado, número 6.144.100, pelo comitê de ética e pesquisa. **Resultados:** as intervenções mais registradas estão relacionadas ao estado cardiovascular, manutenção hemodinâmica, aferição de sinais vitais e checagem de drenos. As principais facilidades encontradas foram relacionadas à equipe e as dificuldades associadas aos pacientes. **Conclusão:** destacou-se intervenções acerca dos diagnósticos prioritários consonantes com a literatura, além da necessidade da criação de protocolos operacionais para evitar erros.

DESCRITORES: Cardiologia; Complicações pós-operatórias; Enfermagem; Infarto do miocárdio; Revascularização miocárdica.

ABSTRACT

Objectives: to correlate nursing interventions during the admission of patients in the immediate postoperative period of myocardial revascularization with literature recommendations and to investigate the difficulties and facilitators experienced

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by nurses in admitting these patients. **Method:** a case study, exploratory in nature, was conducted with ten nurses. Data collection took place from August to October 2023, using a virtual form containing questions based on established criteria tools. The research received ethical approval (Approval Number: 6.144.100) from the ethics and research committee. **Results:** the most frequently recorded interventions were related to cardiovascular status, hemodynamic maintenance, vital signs measurement, and drain checking. The main facilitators were related to the team, while difficulties were associated with the patients. **Conclusion:** the study highlighted interventions concerning priority diagnoses in line with the literature, emphasizing the need for the development of operational protocols to prevent errors.

DESCRIPTORS: Cardiology; Postoperative complications; Nursing; Myocardial infarction; Myocardial revascularization.

RESUMEN

Objetivo: correlacionar las intervenciones de enfermería en la admisión de pacientes en el período postoperatorio inmediato de la revascularización del miocardio con las recomendaciones de la literatura, e investigar las dificultades y facilitadores enfrentados por las enfermeras. **Método:** estudio de caso exploratorio realizado con diez enfermeras entre agosto y octubre de 2023, mediante formulario virtual con base en criterios establecidos. La investigación recibió la aprobación ética (Número de aprobación: 6.144.100) del comité de ética e investigación. **Resultados:** Las intervenciones más frecuentes se relacionaron con la evaluación cardiovascular, el mantenimiento hemodinámico, la medición de signos vitales y la verificación de drenajes. Las principales facilidades estuvieron vinculadas al equipo de salud, y las dificultades, a aspectos del estado clínico del paciente. **Conclusión:** Las intervenciones estuvieron alineadas con diagnósticos prioritarios descritos en la literatura. Se resalta la importancia de desarrollar protocolos operativos institucionales que promuevan una atención estandarizada y segura.

DESCRIPTORES: Cardiología; Complicaciones postoperatorias; Enfermería; Infarto de miocardio; Revascularización miocárdica.

INTRODUCTION

Cardiovascular diseases (CVD) are the leading cause of death worldwide, with coronary artery disease (CAD) being the most critical manifestation, leading to acute myocardial infarction (AMI). [1] AMI is a cardiac emergency characterized by decreased or absent blood supply, requiring immediate intervention to minimize damage and cell death, preserving cardiac function.[2]

In the last decade, Brazil recorded more than 976,000 deaths caused by AMI in the population over 20 years of age, with more than 453,000 deaths (46%) occurring in the Southeast region. [3] In addition, it was observed that the white population is the most affected (53%), when compared to the black (7%), Asian (0.58%), mixed-race (34%), indigenous (0.18%), and unknown ethnicity (3%) populations. During this same period, 32,153 revascularization surgeries were performed using cardiopulmonary bypass, of which 14,571 were in the Southeast region, 9,432 in the South region, 4,272 in the Midwest region, 2,999 in the Northeast region, and 879 in the North region.[4]

When clinical treatment is not effective, coronary artery bypass grafting (CABG) surgery is an alternative strategy. The beneficial effects of CABG surgery are widely established and undoubtedly contribute to reducing symptoms, morbidity and mortality, and increasing patient survival. These positive results depend not only on appropriate indication, but also on the choice of grafts used and the individualized surgical approach, taking into account the patient's clinical conditions, risks, and benefits.[5]

MVR is a long surgical procedure that requires extracorporeal circulation technologies, vessel grafting from one region to another, and the use of anticoagulant drugs and drugs that decrease cardiac contractility. Postoperative patient care by the nursing team aims to maintain hemodynamic and post-anesthetic stability, assessing neurological, cardiac, respiratory, renal, and hydroelectrolytic parameters.[6]

Therefore, the postoperative period requires a structured and organized nursing team to identify early signs of decompensation, rapid decision-making, and strategies that improve the patient's prognosis. In this sense, nurses must plan care in order to apply the methodological steps of the perioperative nursing process (PEP), allowing for interventions tailored to needs and reducing hospital stay.[7]

Complications involving patients in the postoperative period are largely related to individual factors such as age, lifestyle, comorbidities, and clinical status. These factors, associated with the surgical procedure and the need for cardiopulmonary bypass, can be vulnerable to the onset of cardiac, respiratory, and neurological complications, as well as infectious conditions.[8] In this sense, early identification of any

signs of decompensation by nurses and their team is essential for rapid care and maintenance of the patient.

This research focuses on nursing interventions in the admission of patients in the immediate postoperative period of coronary artery bypass grafting.

In addition, the following guiding questions are presented: What interventions do nurses need to perform when admitting patients in the immediate postoperative period of CABG? What are the facilities and difficulties encountered by nurses when admitting patients in the immediate postoperative period of CABG?

It is believed that nursing interventions and related practices in the care of patients in the immediate postoperative period of CABG are of great value to hospital services. Hospitalizations have a prolonged average length of stay, which is often avoidable, especially due to secondary complications, which leads to increased costs and can compromise the patient's functional capacity. In this context, the research aims to bring new studies and perspectives to the field of cardiology, enabling the provision of quality care based on scientific evidence.

The research objectives were to correlate nursing interventions in the admission of patients in the immediate postoperative period of MVV, according to recommendations in the literature, and to investigate the difficulties and facilities of nurses in the admission of these patients.

METHOD

This is a case study with an exploratory approach. Nurses from the surgical cardio-intensive care unit (SICU) took part in the research, and received an invitation letter sent by e-mail from the researcher. The convenience sampling method was used, in which the sample to be researched involves a population according to ease of access.

The participants who took part in the study accepted the informed consent form (ICF) and then filled in the data collection form in a virtual environment via Google Forms®. The instrument consisted of two stages. The first consisted of characterizing the professional: age, gender, time since graduation, time working in the service, academic qualifications and specialization in cardiology. The second stage, which aimed to investigate nursing interventions for patients in the immediate postoperative period of CABG, used a clinical case, together with a fictitious figure simulating a patient in a didactic scenario, consisting of four questions: what are the priority nursing interventions for this patient (figure) in the immediate postoperative period of CABG? Are there any other nursing interventions that you think are necessary that are not shown in the picture and that you would like to describe? What are the easiest things for you to do when caring for this patient? What are the greatest difficulties you face when caring for this patient?

It is worth mentioning that we chose to use the tool of established criteria for nursing care in patients in the post-operative period of CABG, from the Treatise on Medical-Surgical Nursing, 14th edition[6], as a template for the participants' expected answers, since it is an international reference book for nursing.

The inclusion criteria were: nurses over the age of 18 who had provided care in the immediate postoperative period of coronary artery bypass grafting and had been working in the service for at least one month. The exclusion criteria were: nurses in management or supervisory positions.

Data collection took place between August and October 2023. The quantitative data was organized in a spreadsheet using Microsoft Excel® version 365, and then analyzed using the R® statistical program version 3.4.1 for subsequent descriptive analysis, where the absolute value, percentage, mean, standard deviation and maximum and minimum values were verified. To analyze the qualitative information, the answers were grouped by proximity of themes, organized in a table, where two categories were created: facilities and difficulties, and subdivided by team and patient each. The findings were then correlated with the literature.

The premises of Resolution 466/2012 and 510/2016 of the Ministry of Health were respected, understanding that the research involves human beings. The project was submitted to the Ethics and Research Committee (CEP) of the proposing institution and the co-participating institution, with approved opinions no. 4.980.152 and no. 6.144.100, respectively.

RESULTS

The decision was made to collect data by creating a section dedicated to professional characterization. In this section, 10 responses were obtained from nurses who are part of the SICU team, which represents 100% of the sample. From this, it was identified that, on average, the professionals are 41 years old (min: 30, SD: 8.21 and max: 53), have 18 years of academic training (min: 6, SD: 7.71 and max: 31) and 12 years working in the unit (min: 1, SD: 7.52 and max: 22). Among these professionals, six (60%) have a postgraduate degree, one (10%) has a master's degree and three (30%) have a residency, in addition to four (40%) of the total having a specialization in cardiology.

In order to investigate nursing interventions in the care of patients in the immediate postoperative period of CABG, and to correlate them with the established criteria tools recommended in the literature[6], three priority nursing diagnoses were considered: decreased cardiac output, impaired gas exchange and risk of imbalance in fluid volume and electrolytes. Therefore, the answers from the first question were grouped by proximity of themes and compared with the tool (Table 1).

Table 1 - Distribution of nursing interventions associated with nursing diagnoses reported by nurses (n=10). Rio de Janeiro, RJ, Brazil, 2023

Interventions associated with nursing diagnoses	n (%)
Decreased cardiac output	
Interventions related to cardiovascular status	10 (100)
Hemodynamic maintenance	10 (100)
Measuring vital signs	10 (100)
Monitoring signs of bleeding	8 (80)
Checking for signs of cardiac tamponade	-
Search for signs of heart failure	-
Impaired gas exchange	
Care of the mechanical fan (assembly, function test and connection)	5 (50)
Airway suction	5 (50)
Monitoring the correct positioning of the orotracheal tube	5 (50)
Arterial and venous blood gas collection	2 (20)
Assessment of level of consciousness, sedation and awakening	2 (20)
Perform pulmonary auscultation	-
Help with ventilator weaning	-
Post-extubation care	-
Risk of fluid volume and electrolyte imbalance	
Monitoring the water balance	6 (60)
Monitoring urine output	6 (60)
Hourly capillary blood glucose checks	2 (20)
Checking drains	8 (80)
Electrolyte monitoring	-

Source: Developed by the researchers.

Regarding the diagnosis of decreased cardiac output, 100% of the nurses reported interventions related to cardiovascular status, hemodynamic maintenance and measuring vital signs. However, no responses were identified in relation to cardiac tamponade or the search for signs of heart failure.

For the diagnosis of impaired gas exchange, no care was identified related to lung auscultation, help with ventilator weaning or care after extubation. With regard to the diagnosis of risk of imbalance of fluid volume and electrolytes, 80% of the professionals reported the importance of checking drains.

However, some nurses mentioned other precautions which, although not immediate, are important in the patient's health-disease process. These include identifying pumps and regulating infusions, four (40%), patient safety, such as lifting grids and identification bracelets, five (50%), skin integrity, surgical dressing care, body temperature and comfort (both were present in 50% of the responses), correct positioning of the nasogastric tube, three (30%) and conditions and permeability of access and invasive blood pressure, two (20%).

With regard to the facilities and difficulties faced by the professionals when caring for these patients, it was possible to identify a pattern in the answers and, therefore, they were divided up in relation to the facilities and difficulties among the team and with patient care. We decided to organize these findings in Table 1.

Chart 1 - Distribution of the number of occurrences recorded by nurses (n=10) about facilities and difficulties encountered by teams and patients. Rio de Janeiro, RJ, Brazil, 2023.

Facilities		**Difficulties**	
Team	**Patient**	**Team**	**Patient**
Experience and specialization of teams (5)	Continuous monitoring of vital signs (1)	Difficulty communicating with different professional categories (2)	Hemodynamic stability, mobilization and adjustment of ventilatory pattern(5)
Communication between nursing staff (3)			
Availability of human and material resources(2)			Patient's agitated awakening (1)

Source: Developed by the researchers.

DISCUSSION

Cardiovascular diseases remain the leading cause of death in Brazil and worldwide, and coronary insufficiency is one of the most common manifestations of these diseases.[1] Thanks to technological advances and cost optimization, CABG is becoming the preeminent choice for relieving symptoms and improving quality of life, especially when other less invasive methods fail.

When caring for patients undergoing MVR, nurses must be able to provide unique, quality care based on PEP and scientific evidence. In this context, the importance of continuing education stands out as an ally for both newly qualified nurses and those seeking to improve their knowledge.[9]

It is widely recognized that nurses play a crucial role as multipliers of knowledge within the healthcare team, demonstrating competencies in management, leadership and education through training and practices aimed at ensuring agile, complete and individualized care. The nurse plays a fundamental role as an agent of transformation in the workplace.[10] In this context, the study showed that the participating nurses display remarkable technical competence and leadership skills, reflected in their academic backgrounds (such as postgraduate, master's and residency).

It is estimated that the Unified Health System (SUS) is responsible for 80% of CABG surgeries in the country. This confirms the need for a nursing team, especially nurses, who are trained to identify early signs of decompensation and promote more effective treatment, considering that these complications can prolong hospitalization and generate high costs for public health.[11] Chronic non-communicable diseases (CNCD), such as AMI, account for approximately 70% of healthcare costs and are often associated with low adherence to treatment and failures in the healthcare network.[12]

The main complications in the postoperative period are varied and generally present as hemorrhages, arrhythmias, surgical site infections, strokes, acute kidney injuries leading to renal failure, as well as complications in the respiratory system, such as respiratory failure and pleural effusion.[13] The onset of these problems is strongly related to the patient's clinical conditions, such as gender, age, hypertension, diabetes, high cholesterol levels, smoking, obesity and family history.[14] It is important to note that many of these complications occur in the first 24 hours, so it is essential that nurses and their teams are alert to any signs of decompensation or instability.

By cross-referencing the data obtained with the theoretical framework used, it was possible to identify that the nurses proposed interventions for patients in the immediate postoperative period in line with the care plan described in the literature.[6] Most of the answers indicated a line of care that included welcoming the patient from the operating room, adequate hemodynamic and respiratory monitoring, management of invasive devices and promoting comfort in bed.

Considering that CABG requires invasive mechanical ventilation (IMV) in the immediate postoperative period, patients may be exposed to the risk of developing ventilator-associated pneumonia (VAP). The National Health Surveillance Agency (ANVISA) recommends measures such as a daily wake-up protocol and clear criteria for extubation. However, it was observed that less than half of the participants reported interventions related to this aspect, even though it is a healthcare-related infection (HAI) with the potential to prolong hospitalization, raise costs and increase mortality.[15]

Regarding the facilities and challenges faced, the nurses reported that the most prominent facilities included the experience and specialization of the team, as well as effective

communication between team members, reaffirming the importance of improving knowledge.

One of the main challenges highlighted by the nurses was communication with the multi-professional team. It is known that ineffective communication can jeopardize the care process, damage the working environment and, consequently, affect the quality of patient care. It is therefore essential that nurses dedicate themselves to promoting the growth of the team, encouraging each member to take responsibility for their contribution to achieving common goals. To do this, it is important to cultivate values such as respect, resilience and recognizing the importance of each individual within the team, thus strengthening collaboration and efficiency in patient care.[16]

These noises in communication between nurses and other team members have been associated with discontinuity of care and inadequate management, especially in intensive care units. Errors in shift handovers can cause harm, which is why effective communication is one of the goals of the National Patient Safety Plan.[17] Efficient communication is essential for the continuity of safe, quality nursing care.[16]

Although the care plan proposed in the literature was not fully covered, the sample analyzed demonstrated competence, the ability to solve problems and appropriate decision-making. The importance of creating institutional operational protocols that standardize procedures is also highlighted, since the absence of these guidelines can lead to errors in care practice.

CONCLUSION

The study showed that the interventions regarding the priority diagnoses were in line with the literature and the main facilities found were related to the team and the difficulties associated with the patients.

Scientific knowledge on the part of nurses favors the identification of decompensation and clinical reasoning for better resolution of the patient's demands. It is believed that the results of this research can provide scientific evidence to elucidate the potential and weaknesses of professionals who provide care to the patient profile investigated.

Finally, it should be noted that the results of this study may contain limitations in terms of data collection. As this is a virtual survey involving human beings, in which none of the questions have to be answered, not all the selected participants were interested in answering, and of those who did take part, not all the questions were answered, which may lead to results that are not as precise.

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