Parada cardiorrespiratória: vigilância, prevenção e cuidados após PCR
Cardiorespiratory arrest: surveillance, prevention and care after PCR
Paro cardíaco: vigilância, prevención y cuidados después de la PCR

Diego Bruno Santos Pinheiro¹; Edson Batista dos Santos Júnior²; Liliane de Sousa Borges Pinheiro³

How to quote this article:

ABSTRACT
Objective: The study’s purpose has been to gather scientific productions about surveillance actions, prevention and nursing care in cardiorespiratory arrest.

Methods: It was carried out a bibliographic search in both LILACS and MEDLINE databases.

Results: From the bibliographic research according to research indicators were obtained 22 articles.

Conclusions: Nursing is extremely important in patient surveillance and prevention, recognizing predisposing factors that would lead to cardiorespiratory arrest. During a cardiorespiratory arrest event, very often, the nursing team is the first to identify, demand the other professionals and initiate a cardiopulmonary resuscitation. They assist the medical staff and make the nursing record in the patient’s medical record. The nurse plays an important role by distributing functions to other members of the team and by taking care after a cardiopulmonary resuscitation.

Descriptors: Heart arrest, nursing care, cardiopulmonary resuscitation.

¹ Nursing Graduate by the Universidade Federal do Rio Grande do Norte (UFRN), Specialist’s Degree in Urgency and Emergency by the Faculdade Integrada de Patos (FIP), Specialist’s Degree in Intensive Therapy by the Instituto Superior de Teologia Aplicada (INTA/CE), Nurse at Hospital Regional Norte/CE.

² Nursing Graduate by the Universidade Federal do Rio Grande do Norte (UFRN), Specialist’s Degree in Intensive Therapy by the Escola de Saúde Pública do Ceará (ESP/CE), MSc by the Health and Society Postgraduate Program at Universidade do Estado do Rio Grande do Norte (UERN), PhD student enrolled in Nursing Postgraduate Program at Universidade Estadual do Ceará (UECE), Professor at Instituto Superior de Teologia Aplicada (INTA/CE).

³ Nursing Graduate by the Universidade Estadual do Vale do Acará (UVA/CE), Specialist’s Degree in Pediatric and Neonatal Nursing by the Faculdade Metropolitana da Grande Fortaleza (FAMETRO), Postgraduate student in Intensive Therapy by the Instituto Superior de Teologia Aplicada (INTA/CE), Coordinator of the Nursing Team of the Pediatric ICU at Hospital Regional Norte (HRN/CE).
RESUMEN

Objetivo: Reunir producciones científicas sobre vigilancia, prevención y cuidados de enfermería en el paro cardíaco. Métodos: Una búsqueda bibliográfica en las bases de datos LILACS y MEDLINE seleccionados. Resultados: El resultado de la literatura de investigación como indicadores produjeron 22 artículos. Conclusiones: La enfermería es esencial para la vigilancia y la prevención de la paciente, reconociendo factores predisponentes que conducirían a una PCR. Ellos ayudan al personal médico y de enfermería a identificar, acionar el restante equipo y comenzar la RCP. Conclusões: A enfermagem é primordial na vigilância e prevenção do paciente, reconhecendo fatores predisponentes que levariam a uma PCR. Resultados: O resultado da pesquisa bibliográfica conforme indicadores de pesquisa obtiveram-se 22 artigos. Conclusões: A enfermagem é primordial na vigilância e prevenção do paciente, reconhecendo fatores predisponentes que levariam a uma PCR. Durante a PCR, en geral, é a primeira equipe a identificar, acionar o restante dos profissionais e iniciar a RCP. Ellos ayudan al personal médico y de enfermería a identificar, acionar el restante equipo y comenzar la RCP. Ellos ayudan al personal médico y de enfermería a identificar, acionar el restante equipo y comenzar la RCP. Ellos ayudan al personal médico y de enfermería a identificar, acionar el restante equipo y comenzar la RCP.

Descritores: Parada Cardíaca, Cuidados de Enfermería, Reanimación Cardiopulmonar.

INTRODUCTION

In the global context, ischemic heart disease is the leading cause of death. In Brazil, an estimated 300,000 to 400,000 deaths per year are also estimated. Cardiovascular issues are the main causes of unexpected death.1 Cardiovascular diseases are one of the major underlying diseases for serious events, such as Cardiorespiratory Arrest (CRA) in patients in the hospital environment. Surveillance of these patients in this environment is a primary responsibility of the nursing team. Thus, this team plays an essential role in the identification of CRA and beginning of the maneuvers of Cardiopulmonary Resuscitation (CPR).2

CRA is the interruption of respiratory and circulatory activities, where there are signs and symptoms such as apnea, an absence of central pulse and unconsciousness, characterizing CRA. In this scenario, CPR and defibrillation are initiated in the victim early to restore oxygenation and circulation.3-5

The main causes of CRA are the results of myocardial ischemia, circulatory shock, septic shock, trauma, and cardiovascular disease among other pathologies.4 The time is like gold, because every minute that happens in CRA, reduces the chance of survival of the patient by about 10%.6 A CPR with rapid, safe, effective and high-quality intervention of professionals can double or triple the survival after a CRA event.3

Successful care for an CRA depends on immediate resuscitation measures and some factors are related: early recognition of CRA, activation of the emergency team, application of protocols for a CPR, defibrillation and use of drugs interrelated with the patient’s condition (age, comorbidities, CRA initial rhythm, site of the event) and the hospital structure (materials and place of care after a CRA event).7-9

Nursing professionals, in general, are the first to encounter a CRA in the hospital. They are the ones who call the service team the most and initiate Basic Life Support (BLS) maneuvers as they await the arrival of the Advanced Life Support (ALS) team. These professionals need to be up-to-date on emergency care, technical skills, fast decision making, priority assessment, and immediate action in a CRA event.2,10

Automation and prior knowledge by practitioners in identifying a deteriorating patient through continuous monitoring and a rapid response team could potentially prevent CRA and alleviate cultural barriers.9,11

Hence, patient vigilance becomes a key factor. Given this context, the nursing team has an essential role in identifying signs and symptoms precursors of a CRA as well as in post-CPR care, such as: maintaining blood pressure, therapeutic hypothermia, decreasing metabolic stress and evaluating brain death. Nurses’ attitudes and behaviors influence the speed, decision making and level of care of the rest of the team.12 Given the aforementioned, the following guiding question was elaborated: What are the main actions of surveillance, prevention and nursing care in CRA?

OBJECTIVES

The study’s goal is to gather scientific productions about surveillance actions, prevention and nursing care in cardiopulmonary arrest.

METHODS

This is an integrative review of scientific literature by searching databases available online. This type of objective study, through a systematic methodology of search, selection, and analysis, describes the scientific production about a thematic, highlighting the state of the art and presenting the possibilities of future investigations.11

Data collection was carried out from August to November 2016. The scientific articles were consulted in the Biblioteca Virtual da Saúde (BVS). The BVS Portal is the area of integration of health information sources that promotes the democratization and expansion of access to scientific and technical health information in Latin America and the Caribbean.

According to the descriptors of health sciences, the terms “cardiac arrest”, “nursing care” and “cardiopulmonary arrest: surveillance...” were used in CRA, reduces the chance of survival of the patient by...
resuscitation” were used as descriptors. These descriptors were associated with the Boolean operator “AND”. The following inclusion criteria were adopted: articles available in full text, publications between 2007 and 2016, Portuguese language, and that addressed the topic of nursing care in CRA.

Thus, for the development of this integrative review, Ganong’s proposal was chosen, in which the following steps are involved: 1) identification of the hypothesis or guiding question; 2) selection of sampling - determination of inclusion or exclusion criteria; 3) categorization of studies; 4) evaluation of the studies - the analysis of the data extracted should be critical; 5) discussion and interpretation of results; 6) presentation of the integrative review and synthesis of knowledge - one should contemplate the information of each reviewed article in a succinct and systematized manner demonstrating the evidence found.

From the established criteria, the selected articles were identified in both LILACS and MEDLINE databases. Both cover index of scientific and technical literature from America and other regions of the world. We found 750 scientific articles in LILACS using descriptors and 32,909 in MEDLINE. The articles available in full, published in the Portuguese language and in the 2007-2016 period resulted in 73 and 62 articles, respectively. Considering only the articles responding to the guiding question, 24 and 6, respectively. Eight articles were repeated. Therefore, the study sample consisted of 22 scientific articles found in the databases aforesaid.

RESULTS

From the analysis of the articles found in the present research, then it was possible to elaborate the Table 1 that describes the characteristics of the articles according to the variables defined by the authors. They consist of main author/year, method, magazine, and database found.

Table 1 - Distribution of the studies found regarding the first name of the author/year, method, published journal and the databases found

<table>
<thead>
<tr>
<th>Author/Year</th>
<th>Method</th>
<th>Journal</th>
<th>Database</th>
</tr>
</thead>
<tbody>
<tr>
<td>DALRI, 2008</td>
<td>Systematic review</td>
<td>Revista Latino Americana de Enfermagem</td>
<td>LILACS</td>
</tr>
<tr>
<td>LUZIA, 2009</td>
<td>Systematic review</td>
<td>Revista Gaúcha de Enfermagem</td>
<td>LILACS</td>
</tr>
<tr>
<td>FALCÃO, 2011</td>
<td>Literature review</td>
<td>Revista Brasileira de Anestesiologia</td>
<td>LILACS</td>
</tr>
<tr>
<td>BELLAN, 2010</td>
<td>Prospective Research</td>
<td>Revista Brasileira de Enfermagem</td>
<td>MEDLINE</td>
</tr>
<tr>
<td>BERTOGLIO, 2008</td>
<td>Cross-sectional study</td>
<td>Revista Gaúcha de Enfermagem</td>
<td>LILACS</td>
</tr>
</tbody>
</table>

(To be continued)

Of the 22 selected studies, seven are publications from 2008, two from 2009, one from 2010, two from 2011, two from 2012, three from 2013, three from 2014, one from 2015 and one from 2017. As for the study method five systematic reviews, three literature reviews, a prospective investigation, four cross-sectional studies, a descriptive/quantitative study, a quantitative research, an exploratory study, a theoretical guide, three case reports, a retrospective an integrative review. Regarding the publication of the articles, two
publications were published in the Revista Latino Americana Enfermagem, two in the Revista Gaucho de Enfermagem, one in the Revista Brasileira de Anestesiologia, one in the Revista Brasileira de Enfermagem, one in the Revista da Escola Anna Nery, one in the Revista da Escola de Enfermagem from the Universidade de São Paulo, one in the Com. Ciências Saúde, the three in the Arquivos Brasileiros de Cardiologia, three in the Revista Brasileira de Terapia Intensiva, one in the Revista da Rede de Enfermagem do Nordeste, one in the Revista Relança, one in the Revista Eletrônica de Enfermagem, one in the Revista Einstein (São Paulo), one in the Revista Pediatria Moderna and one in the Arquivos Catarinenses de Medicina. In relation to the databases, sixteen were found in LILACS and six in MEDLINE.

Table 2 refers to the main author/year and the answers to the guiding question: What are the main actions of surveillance, prevention and nursing care in CRA?

<table>
<thead>
<tr>
<th>Author/Year</th>
<th>Prevention</th>
<th>Surveillance</th>
<th>Nursing care in CRA</th>
</tr>
</thead>
<tbody>
<tr>
<td>DALRI, 2008</td>
<td>Not specified</td>
<td>Not specified</td>
<td>Taking intensive care of the patient undergoing a CRA event, during CPR and after. Permanently and vigilantly assessing the performance of techniques and procedures complementary to medical therapeutics. Acting in the orientation and non-acceptance of family members. Adopting participatory leadership styles, share and demand roles.</td>
</tr>
<tr>
<td>LUZIA, 2009</td>
<td>Distribution of the functions of the other team members. To transmit security to the team, to act in an objective and synchronized way. Observe signs of deterioration (including changes in vital signs) that patients exhibit before a CRA event. Promote and stimulate continuing education programs with its team, updating it according to international guidelines.</td>
<td>Not specified</td>
<td>Not specified</td>
</tr>
<tr>
<td>FALCÃO, 2011</td>
<td>Not specified</td>
<td>Not specified</td>
<td>Understanding of CPR maneuvers is a priority for all health professionals.</td>
</tr>
<tr>
<td>BELLAN, 2010</td>
<td>Not specified</td>
<td>Not specified</td>
<td>Implementing the BLS maneuvers. Recognizing heart rate through monitoring. Rationalize the care for defibrillation. Registering the CRA service. Knowing the contents of the emergency cart and the disposal of the materials.</td>
</tr>
<tr>
<td>BERTOGLIO, 2008</td>
<td>Continuing education strategies should be encouraged and maintained systematically to ensure the best team performance.</td>
<td>Not specified</td>
<td>Not specified</td>
</tr>
<tr>
<td>ALMEIDA, 2011</td>
<td>Not specified</td>
<td>Performing CRA detection. Asking for help and emergency cart with defibrillator.</td>
<td>Initiating BLS and assisting in advanced support.</td>
</tr>
<tr>
<td>GRACA, 2008</td>
<td>The nursing team is required to have ample theoretical and practical knowledge, which needs to be articulated with a specific depth, so that a harmless performance can occur, without idiopathic diseases. Seek improvement through continuing education.</td>
<td>Not specified</td>
<td>Not specified</td>
</tr>
</tbody>
</table>

(To be continued)
<table>
<thead>
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<th>Author/Year</th>
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<th>Surveillance</th>
<th>Nursing care in CRA</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIYADAHIRA, 2008</td>
<td>Be responsible for the teaching-learning process of lay people in the service of CRA with the use of Automatic External Defibrillator (AED).</td>
<td>Not specified</td>
<td>Nurses and nursing technicians must be able to perform the BLS and operate the AED. Initiating CPR with a 30:02 compression and ventilation pattern for adults, regardless of the number of first responders in the scene. Inspecting the chest for the presence of implantable pacemaker or ICD (implantable cardioverter/defibrillator).</td>
</tr>
<tr>
<td>COSTA, 2008</td>
<td>Not specified</td>
<td>Not specified</td>
<td></td>
</tr>
<tr>
<td>TORRES, 2008</td>
<td>Not specified</td>
<td>Not specified</td>
<td>When death is inevitable and ALS is questioned, decisions should be widely discussed between the health team and the family.</td>
</tr>
<tr>
<td>LIMA, 2009</td>
<td>Not specified</td>
<td>Not specified</td>
<td>Demanding the service team. Contributing effectively to CPR maneuvers. Preparing instruments for intubation, aspiration, cardiac monitoring and defibrillation, assisting the medical team in performing the procedures. The nursing professional is not authorized to perform early defibrillation with a conventional defibrillator in the absence of a physician.</td>
</tr>
<tr>
<td>STORM, 2014</td>
<td>Not specified</td>
<td>Not specified</td>
<td>The use of therapeutic hypothermia between 32ºC and 34ºC maintains a reliable target range.</td>
</tr>
<tr>
<td>GRISANTE, 2013</td>
<td>Not specified</td>
<td>Not specified</td>
<td>Responsibility and commitment of professionals to encourage and create conditions to record the information inherent and indispensable to the care process, as well as to carry out this registration in the medical records.</td>
</tr>
<tr>
<td>SILVA, 2013</td>
<td>Early diagnosis and effective intervention, considering that the patient’s prognosis is directly related to the speed and effectiveness of the actions.</td>
<td>Not specified</td>
<td>Leader during the CPR with the purpose of directing, coordinating and assigning tasks to each participant in the service.</td>
</tr>
<tr>
<td>PONCIO, 2016</td>
<td>Not specified</td>
<td>Not specified</td>
<td>A precordial percussion fist may be attempted in cases where other materials or medications are being prepared and still unavailable for use. The precordial punch may be helpful in the treatment of asystole.</td>
</tr>
<tr>
<td>GIANATTO-OLIVEIRA, 2014</td>
<td>Not specified</td>
<td>Not specified</td>
<td>Demanding rapid onset of CPR and early defibrillation, which are associated with better neurological prognosis.</td>
</tr>
<tr>
<td>THOMAZ, 2013</td>
<td>Not specified</td>
<td>Not specified</td>
<td>The use of the laryngeal mask presented favorable results for the control of the airway in patients undergoing a CRA event.</td>
</tr>
<tr>
<td>FRANCO, 2012</td>
<td>Not specified</td>
<td>Not specified</td>
<td>The use of mild to moderate hypothermia (32ºC - 34ºC) is appropriately indicated for comatose patients after recovery to CRA and who initially had shocking rhythms - non-pulse Ventricular Fibrillation/Ventricular Tachycardia.</td>
</tr>
<tr>
<td>GONÇALES, 2012</td>
<td>The implementation of the rapid response team might have brought a significant reduction in the number of cardiorespiratory arrest.</td>
<td>Not specified</td>
<td>Not specified</td>
</tr>
</tbody>
</table>

(To be continued)
DISCUSSION

In several selected articles, the broad theoretical and practical knowledge of CPR techniques is a priority and responsibility of nursing and all health professionals, since everyone can pass through these emergencies and must be prepared.8 The strategies of continuing education as implementation of the team response should be encouraged and maintained to ensure a harmless performance, avoiding recklessness, malpractice, and negligence.9,11,15-16

The nurses’ way of acting influences the speed, decision-making process and level of care by the other team members. Ask for a key during the CPR in order to direct, coordinate and assign tasks to each participant in the service.6 The nursing professional is a fundamental member of the multi-professional team, as it is directly responsible for care. In addition to caring, nursing is responsible for the teaching-learning process of lay people in the care of CRA with the use of the Automatic External Defibrillator (AED).17

In a cross-sectional study, it was pointed out that it is the nursing team that provides the most time to care for patients. With this, the members of this team are directly responsible for the prevention and surveillance of the patients and in the first service in the CRA, and must have the updated technical knowledge, following the updated protocols and the practical skills developed to contribute in a more effective way in the CPR maneuvers.18

Some studies have defined nursing as paramount in detecting the signs of deterioration, including vital signs, that patients present before an ARC, knowing the heart rhythm through monitoring; is responsible for requesting help and emergency cart with defibrillator; initiating the BLS maneuvers, assisting in the ALS and early defibrillation;9,19-20 to register in CRA protocols, having responsibility and must record the inherent and indispensable information performed to the patient.

Knowing the contents of the emergency cart and the disposal of the materials. The nurse enters as a fundamental part of the distribution of the functions of the other members of the team, sharing security to the team, then aiming to act in an objective and synchronized manner.3,10,21

Two studies have brought nursing care to newborns. They have shown that, if the pulse rate is <60 beats per minute with signs of systemic poor perfusion, chest compressions should be initiated.22 Oxygen administration coupled with pulse oximetry may help to reach normal levels of blood oxygen more rapidly during neonatal resuscitation in the delivery room.23

It has been shown in only one case report study that the wrist precordial percussion can be attempted in cases where other materials or medications are being prepared and still unavailable for use. The precordial punch may be useful in the treatment of asystole.24

In a systematic review, the use of the laryngeal mask presented favorable results for the control of the airway in patients with CRA.25

After a CPR event, studies show that the patient’s prognosis can be improved by using therapeutic hypothermia from 32°C to 34°C as a reliable target temperature and reduction of the inspired fraction of oxygen, with the lowest value to obtain an arterial oxygen saturation of 94% and optimization of cerebral perfusion.8,26-27-28

When death is inevitable and ALS is questioned, decisions should be widely discussed between the health team and the family. The non-resuscitation decision must be well-founded, widely discussed and taken in advance, prior to clinical deterioration.29

The nursing team should be careful when assessing the implementation of procedures and techniques that complement medical therapeutics, always based on guidelines for nursing care, thus ensuring the continuity of a humanized and integrated work. Furthermore, they are also...
responsible for the dialogue, orientation and the welcoming of family members, who are subject to suffering.3

CONCLUSIONS

It is concluded that nursing is fundamental to the multi-professional team, as it is directly responsible for care. Of a complete team, at least 70% is composed of nursing professionals. The nurse as the team leader, their attitudes and behaviors will influence the development during the CPR of the rest of the team.

In nursing care, the patient should be fully and intensively cared for in the surveillance of signs of injury, such as taking therapies to prevent CRA, preparing materials to optimize time. During CRA, nursing controls the flow of medication, access, time, compression and oxygenation. At the end of the CPR successfully, the work of the team only grows; the hemodynamic maintenance of the patient with vasopressor drug use, oxygen therapy, thermal control and assessment/surveillance for a possible new CRA, they all are nursing care.

The nurse plays an important role by distributing functions to other members of the team and by sharing security. The nursing technicians become the providers that are most directly connected to care, acting in an objective and synchronized way along with the patient.

REFERENCES


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