

Research Article

Contributions of Scientific Production to Improve Nursing Practice in Compliance with Cardiopulmonary stop Intra-hospital

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Abstract

Cardiopulmonary arrest is a fault that requires immediate intervention. This integrative review aims to identify what scientific production has offered to nurses as a subsidy to make your activeness on the service to in-hospital cardiopulmonary arrest and devise an algorithm to guide nurses in guiding the team before a stop cardiopulmonary assisted in intensive care and in their decision making about defibrillation. For the selection of items we used the Medline, Lilacs, SciELO and BDNF and the sample of this review consisted of 10 articles. The results showed that there is a difference when comparing the national articles, which address more conceptual issues, international, which have a greater emphasis on the role of the nurse facing the cardiopulmonary resuscitation. It was proposed also an algorithm considering 6 steps of Basic Life Support, in order to guide the nurse in front of a cardiopulmonary arrest and in front of decision-making defibrillation in intensive care environment. Is finally stresses the importance of updating by the nurses as the new guidelines from the American Heart Association 2015 for service in cardiopulmonary arrest.

Keywords: Nursing, Heart Arrest, Cardiopulmonary Resuscitation

Introduction

Many are the lives lost every year in Brazil related to Cardiopulmonary Arrest (CPR), despite progress in recent years related to prevention and treatment, yet we do not have the exact scale of the problem by the lack of statistics on this subject [1].

Cardiac arrest is a serious breakdown or termination of electrical and mechanical activity of the heart, resulting in loss of consciousness almost instantaneous and requires action within seconds to minutes of collapse to prevent death and disability of the individual [2]. Every minute of delay in assistance may also decrease the survival time, increase the chances of irreversible sequelae [3]. Defined by the sudden cessation of efficient ventricular activity and breathing, cardiac arrest is divided into four modes: Asystole, ventricular fibrillation, pulseless ventricular tachycardia and pulseless electrical activity [4]. According to the stop mode, the service requires specific actions guided by guidelines established by scientific evidence that is reviewed regularly by a scientific event hosted by the American Heart Association (AHA).

Guidelines from the American Heart Association have been developed so that health professionals perform Cardiopulmonary Resuscitation (CPR) and can properly be based on science in order to

reduce death and disability [5]. The basic and advanced life support (BLS/ACLS) is essential to prevent the deterioration of the victim predominating maintenance of cerebral perfusion and coronary [5]. Therefore, nurses should be prepared technically to meet the challenge of sudden and severe event with awareness of the need for early diagnosis and effective intervention, whereas the prognosis is directly related to the speed and effectiveness of actions.

Among the actions emphasized by the guidelines, early defibrillation in a hospital environment has been consolidated as the most effective way to increase the chances of survival of a patient in cardiac arrest. Over the past 15 years, we have seen considerable improvements in the number of survivors both in-hospital environment, as outside the hospital. These improvements have been associated with better care in the handling of CPR, early defibrillation and optimization rapid response systems and cardiac arrest care [2].

The attendance of CPR is carried out in several stages ranging from the recognition of stop signs until the completion of more advanced maneuvers and requires team agility and speed in the adopted interventions to conduct reinstating oxygenation and perfusion of the core of the individual organs CPR. The application of basic life support is the basis to save lives after cardiac arrest. Fundamental aspects of the BLS in adults include immediate recognition of sudden cardiac arrest and activation of the emergency response system, early CPR and rapid defibrillation [2,5-7].

The effectiveness of CPR depends on the health front team performance to a PCR. The work of the team can contribute in the success rate of CPR and the positive prognosis for the patient when this priority task division, dynamism, mastery of skills and good communication between the group [2,5]. When considering that CPR should be performed by competent, qualified and able to perform such a task, there is the figure of the nurse, professional often responsible for recognizing the PCR start the SBV, making the decision on the appointment of early defibrillation and assisting in advanced life support [6-8].

Nurses should sole responsibility for planning assistance and guidance of the nursing staff, as well as meet, privately, to critically ill patients at risk of death, and take care of greater complexity, providing effective chest compression, adequate ventilation and indication of electric shock unsynchronized until the arrival of the doctor [9]. Thus, it is up to these professionals acquire skills that enable them to provide the necessary assistance [10]. In this sense, it is expected that nurses have knowledge and mastery of CPR maneuvers and commit to regular training programs for the implementation of resuscitation.

For all the complexity that involves patient care victim of CPR, it is necessary to continuously conducting training, emphasizing that this training should follow protocol or guideline that meets current scientific evidence regarding the most effective and efficient action to meet the resuscitation maneuvers.

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Given the above, this study aimed to:

- Identify the scientific production has offered to nurses as a subsidy to make your activeness on the service to in-hospital cardiopulmonary arrest.
- Develop an algorithm to guide the nurse to guide the team in front of a cardiopulmonary arrest and their decision-making about the defibrillator in an assisted cardiopulmonary arrest in intensive care.

Method

For this study we chose the integrative review because it is a method that allows the synthesis of published studies to obtain new findings from a subject of interest [11]. The review process was developed through the following methodological steps: Theme selection and terms to search; defining the search databases; establishing sampling criteria; identification of the search results; application of data logging instrument; analysis, interpretation and presentation of results. The question formulated to guide the study was: "What contributions produced articles on cardiopulmonary resuscitation have offered to improve nursing practice guided by the current guideline?".

The literature search included a step in the databases: Latin American and Caribbean Literature on Health Sciences (LILACS), the International Literature on Health Sciences (MEDLINE); Scientific data Electronic Library Online (SciELO) and Database Resource Specializing in the Nursing area in Brazil (BDENF). The terms used were: cardiopulmonary resuscitation, cardiopulmonary arrest, cardiopulmonary arrest, cardiopulmonary resuscitation, care to cardiopulmonary arrest, care to cardiac arrest and defibrillation combined separately with the nurse terms and nursing, using the Boolean "and", the search carried out in Portuguese, Spanish and English.

Of the 24 articles found, 2 were excluded appear in more than one base, 2 for addressing cardiopulmonary arrest in a newborn or child, 3 to have the issue related to non-hospital care, 4 because they were published before 2010 and 3 for presenting concurrently 2 or more of the foregoing reasons. A sample of 10 items, therefore, was selected from the following criteria: national and international scientific article, published from 2010, available for online indexed search in Medline, Lilacs, SciELO and BDENF, and thematic area of interest the study approach to adult care in hospital.

Justified the choice of the publication period from 2010 by the fact that this refers to the important change of guideline for the care of cardiopulmonary arrest, sustained by the current guideline issued in 2015. Data collection was conducted from September 2015 to January 2016, through a guiding instrument with information such as title, author, year of publication, published periodical, objective, methodology of the study approach and contribution to nursing practice about theme. Data were gathered in tables in which the contribution of elements for the practice of nursing and nurse's performance served as inspiration for the development of an algorithm to improve nursing practice and guide nurses in their decision making about defibrillation.

Results and Discussion

Regarding the first objective of this review, which is to identify what the scientific production has offered to nurse as a subsidy to make your activeness on the service to in-hospital cardiac arrest, it is observed a difference in approach when comparing the National articles [12-15], International [16-21]. The national articles address more conceptual issues, such as the need for staff training in relation to the recognition of cardiac arrest and CPR maneuvers [12-15], the instrument of development to guide the nurse in attendance to PCR [11] or the evaluation of nursing records on CPR [13,14]. In contrast, international have a more focused approach to the role of Nurse front CPR

maneuvers, including early defibrillation [16], chest compressions [17] and intubation [18], as well as safety issue among health professionals [8] and the CPR specific groups [20,21].

On the recognition of CPR and need CPR maneuvers, it is necessary the knowledge of the American Heart Association Guidelines for PCR and Service Emergency Cardiovascular (ACE), which was developed for professionals who perform resuscitation can focus on recommendations major [2]. It is recommended by the guidelines updated in 2015 the survival chain in patients who have a cardiac arrest in the intra-hospital environment (IHCPR) differ from outpatient. Patients who have an IHCPR depend on an adequate monitoring system to avoid arrest and to occur; patients depend on the harmonious interaction of the various departments and services of the institution and a multidisciplinary team of professionals [8].

The elements of the survival chain structure in-hospital environment include surveillance and prevention, recognition and activation of the emergency medical service, high quality immediate CPR, rapid defibrillation, advanced life support and post-cardiac arrest care [8].

Considering also the algorithm based on the guidelines updated in 2015 [8], Resuscitation systems should establish ongoing evaluation and improvement of service systems, reaffirming the Guidelines 2010 [12]. Thus, the resuscitation program in hospitals to monitor CPR, the level of support offered and the outcome of the CPR, thus obtaining a continuous improvement in resuscitation, as recommended. Therefore, it is necessary to include systematic evaluation and feedback, benchmarking and analysis [8].

Another study compared the effectiveness of compressions with the use of audio-visual feedback device and standard cardiac compression, seeking discusses chest compressions as the most important actions to be performed during the service to a cardiopulmonary arrest [18]. Allusive contribution to nursing, some review articles [12-15,21] stressed the importance of updating and/or training of nurses on the patient care in CPR. Changes in the 2010 guidelines and updated in 2015 to simplify the compliance front of CPR and emphasizes the need to apply a high-quality CPR, requiring knowledge and update the recommendations by professionals, especially those Nurses who is who, most of the time, recognizes that the patient is in CPR.

Two of the articles presented a discussion of nurses' attitudes toward compliance with CPR and responsibility throughout the context of this service, seeking to reflect on actions of an entire health team and especially on the patient's life [19,21]. Emphasize the first decisions as the most important in the whole process of care and the success of the maneuvers as a result of the attitudes and behavior of all the nursing staff under the direction of nurses.

The BLS is a set of well-defined procedures and standardized methodologies that aims to recognize when there is imminent risk of life, knowing how and when to ask for help and know start immediately, maneuvers that contribute to preserve oxygenation and circulation, plus the reestablishment of normal cardiac and respiratory function [22].

Among the key issues and changes in the update of the AHA Guidelines 2015 recommendations for health professionals as the BLS and CPR quality are [8]: Simultaneous execution of breath evaluation and pulse before asking for support to staff [8]; Emphasis on chest compressions with ventilation application in all adult patients in CPR, either cardiac or non-cardiac causes [8]; use the automated external defibrillator (AED) as soon as possible, starting CPR while the AED is obtained [5,8]; applying chest compressions to a minimum frequency of 100 to 120/min and a depth of at least 2 inches (5 cm) [8]; allow the total return of the chest wall [5,8]; Minimize interruptions in chest compressions [5-8]; use feedback to optimize the performance of the CPR [8]; deliver 1 breath every 6 seconds (10 breaths per minute), while continuing chest compressions are applied [8].

One of the selected articles discusses exactly the issue related to the need to carry out the role of nurses in early defibrillation. The author's state that despite the extension of the training and authorization of nurses to perform early defibrillation (Advocated by the American Heart Association), this practice has not been widely adopted in hospitals. Inadequate knowledge, lack of skill retention, insufficient organizational support and passive culture of some nurses are barriers to transition to defibrillation conducted by nurses [16].

Below, we present an algorithm (Figure 1) drawn from the results and discussion of this study, to guide the nurse in guiding the team on an assisted CPR, thus achieving the ultimate objective. It is noteworthy that the algorithm was based on the BLS since the intra-hospital nursing professionals are generally the first to witness a cardiac arrest and they are those who frequently call the service team [23].

Are presented, therefore, 6 steps to meet the BLS in intensive care environment following certain guidelines as "SPSSIA" (Suspect CPR -Confirm CPR-Start compressions-Start ventilation-Indicate shock-Apply shock) according to the guideline updated AHA in 2015 [8].

Immediately start maneuvers SBV and defibrillate within 5 min after the PCR can increase the victim's survival by 75% [24]. Defibrillation corresponds to the passage of an electric current through the myocardium with magnitude that allows the reestablishment of a coordinated electrical activity and, when early, is crucial to the success of CPR [25].

Among the key issues and changes made to the 2015 recommendations of the update of the AHA Guidelines for the Advanced Support cardiac life are [8]: Vasopressin was removed from the CPR algorithm in adults not offer any advantage to the use of standard epinephrine dose [8]; Low carbon dioxide content at the end of exhalation (ETCO₂) in intubated patients, after 20 minutes, is associated with a low likelihood

of resuscitation and, together with other factors, can help determine when to end the CPR (8); extracorporeal CPR may be considered in certain patients who have not responded to conventional CPR [8]; Not recommended for routine use of lidocaine after CPR for lack of adequate evidence to support using [8]; One can consider the use of β -blockers after a CPR to be associated with improved outcomes when not used [8].

Before all the discussion, there is agreement between the review articles that increasingly detailed updates and studies on cardiac arrest and CPR maneuvers, including the BLS and ALS, tend to have more effective results, with better quality and increased survival of victims of cardiac arrest, particularly CPR IH.

Conclusion

We conclude this integrative review, stressing the importance of updating by the nurses as the new guidelines from the American Heart Association 2015 for service in CPR. In the search for scientific publications available to improve nursing practice in the care of intra-hospital cardiac arrest, gaps was observed regarding domestic production in relation to the subject, as international publications address more specifically the maneuvers that are used in CPR by these professionals, reflecting our reality.

Based on the results of this review, it is understood to be necessary to intensify efforts so that nurses are in fact active in serving the CPR in-hospital environment, not being restricted only trigger help from the staff, especially medical, and apply the electric shock and all the survival chain in BLS. To complete the proposed algorithm, we think is an objective way to guide nurses in front of a cardiopulmonary arrest and in front of decision-making defibrillation in an assisted CPR in intensive care and in a practical way to apply high-quality CPR maneuvers in accordance with the new updates/recommendations of the Guidelines in 2015.

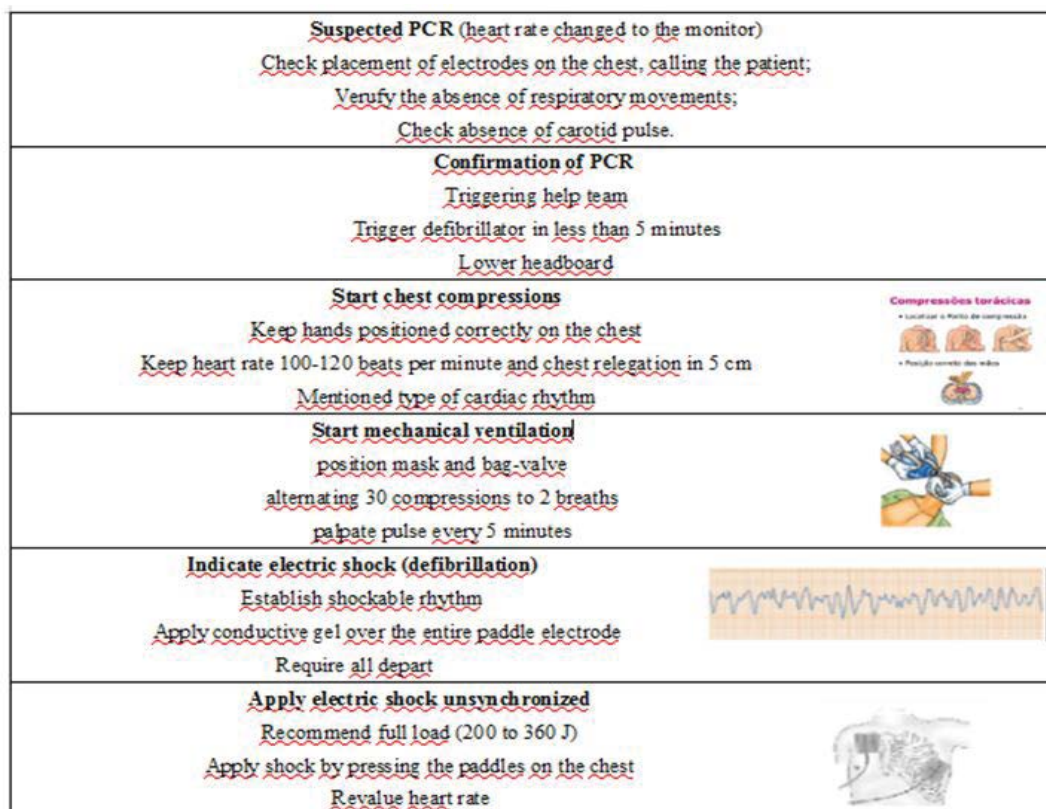


Figure 1. Algorithm for compliance with PCR and decision making regarding early defibrillation in intensive care-SBV.

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