

CONHECIMENTO DOS ENFERMEIROS SOBRE O NOVO PROTOCOLO DE RESSUSCITAÇÃO CARDIOPULMONAR

NURSES' KNOWLEDGE ON THE NEW CARDIOPULMONARY RESUSCITATION PROTOCOL

CONOCIMIENTO DE ENFERMEROS EN EL NUEVO PROTOCOLO DE REANIMACIÓN CARDIOPULMONAR

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RESUMO

Objetivo: Avaliar o conhecimento de enfermeiros sobre o atendimento à parada cardiorrespiratória (PCR), suporte básico e avançado de vida cardiovascular, tendo como base as novas diretrizes de Ressuscitação Cardiopulmonar (RCP) da American Heart Association (AHA) do ano de 2015. **Métodos:** Trata-se de um estudo descritivo de abordagem quantitativa, realizado no hospital escola de um município do interior de Minas Gerais, através da aplicação de um questionário fechado, elaborado pelas pesquisadoras. Os dados coletados foram processados pelo Statistical Package for the Social Sciences (SPSS) versão 20. **Resultados:** Participaram do estudo 19 enfermeiros. O número de acertos dos participantes no questionário oscilou entre 0 a 100%, com média de 4,2 e desvio padrão de 3,2. Foi classificado, como conhecimento satisfatório, o número de acertos superior e/ou igual a 70% e o conhecimento insatisfatório, o número inferior a 70%. Apenas 26,4% dos enfermeiros obtiveram conhecimento satisfatório. **Conclusão:** Constatou-se que enfermeiros não possuem conhecimento satisfatório sobre as mudanças propostas pelas novas diretrizes de RCP da AHA de 2015.

Descritores: Enfermagem; Parada cardíaca; Ressuscitação cardiopulmonar; Estudantes de enfermagem.

ABSTRACT:

Objective: To evaluate nurses' knowledge about cardiorespiratory arrest care (CRP), basic and advanced cardiovascular life support, based on the new American Heart Association (AHA) Cardiopulmonary Resuscitation (CPR) guidelines of 2015. **Methods:** This is a descriptive study of a quantitative approach, carried out at the school hospital of a municipality in the interior of Minas Gerais, through the application of a closed questionnaire prepared by the researchers. Statistical Package for the Social Sciences (SPSS) version 20 processed the collected data. **Results:** Nineteen nurses participated in the study. The number of correct answers of the participants in the questionnaire ranged from zero to 100%, with an average of 4.2 and a standard deviation of 3.2. This study classified that when the number of hits is higher and/or equal to 70%, there is satisfactory knowledge and the number less than 70%, unsatisfactory knowledge. Only 26.4% of the nurses had satisfactory knowledge. **Conclusion:** This study found that nurses do not have satisfactory knowledge about the changes proposed by the new AHA CPR guidelines of 2015.

Descriptors: Nursing; Cardiac arrest; Cardiopulmonary resuscitation; Nursing students.

RESUMEN:

Objetivo: Evaluar el conocimiento de los enfermeros acerca de la atención a la parada cardiorrespiratoria (PCR), soporte básico y vital cardiovascular avanzado, basado en las nuevas directrices para la resucitación cardiopulmonar (CPR) de la American Heart Association (AHA) en el año 2015. **Métodos:** Este es un estudio descriptivo de abordaje cuantitativo, realizado en el hospital escuela en una ciudad en Minas Gerais por la aplicación de un cuestionario cerrado preparado por las investigadoras. Los datos recogidos fueron procesados por el Paquete Estadístico para Ciencias Sociales (SPSS) versión 20. **Resultados:** En el estudio participaron 19 enfermeros. El número de respuestas correctas de los participantes en el cuestionario varió de 0 a 100%, con un promedio de 4,2 y la desviación estándar de 3,2. Se clasificó como conocimiento satisfactorio, el número de aciertos por encima y/o iguales de 70% y el conocimiento insatisfactorio, el número menos de 70%. Sólo el 26,4% de los enfermeros han obtenido un conocimiento satisfactorio. **Conclusión:** Se encontró que los enfermeros no tienen un conocimiento adecuado sobre los cambios propuestos por las nuevas directrices de RCP 2015 de la AHA.

Descriptores: Enfermería; Paro cardíaco; Resucitación cardiopulmonar; Estudiantes de enfermería.

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Como citar este artigo:

Diaz FBBS, Novais MEF, Alves KR, et al. Nurses' knowledge on the new cardiopulmonary resuscitation protocol. 2017;7:e1822. [Access ____]; Available in: _____. <https://doi.org/10.19175/recom.v7i0.1822>

INTRODUCTION

The cardiopulmonary arrest (CPA) is the sudden and unexpected cessation of the systemic circulation, useful ventricular activity and ventilation of an individual. It is considered one of the biggest emergencies that a health professional can come across along his/her practice, demanding fast and effective conduct to reverse the condition and for a better prognosis of the victim⁽¹⁾.

In the last century, the CPA was synonymous with death due to poor knowledge in this type of service, and no more than 2% of the victims survived. Currently, this survival index comes to exceed 70% if the help is precocious and efficient⁽²⁾. Studies indicate that survival after a CPA ranges from 2 to 49% and that these values are directly related to the initial heart rate and the early onset of cardiopulmonary resuscitation (CPR). In addition, survival can double or triple if resuscitation maneuvers are performed with quality^(1,3).

The actions taken during the initial minutes of an emergency are crucial to the victim's survival⁽¹⁾. The basic life support (BLS) consists of the initial care to the patient victim of CPA and consists in identifying the CPA, the call of the service team, start of chest compressions (C), opening of the airways (A), ventilation (B) and early defibrillation⁽⁴⁻⁵⁾.

The advanced cardiovascular life support (ACLS) corresponds to secondary care, known as secondary ABCD, in which the professional carries out procedures such as obtaining a definitive airway for proper ventilation, access to infusion of vasoactive and/or antiarrhythmic medications and the differential CPA - 5Hs (hypovolemia, hypoxia, H+/acidose, hypo/hyperkalemia, hypothermia) and 5Ts (coronary thrombosis, pulmonary thrombosis, tension in the thorax, cardiac tamponade and toxins/intoxication)⁽⁶⁾.

The BLS defines the primary sequence of actions to save lives and, even though an advanced support is appropriate and effective, if the basic support actions are not carried out properly, the possibility of survival for a victim of cardiac arrest will be extremely low⁽¹⁾.

Since 1974, the American Heart Association (AHA) has published Guidelines about the CPR, which, since 2000, have been updated every five years. The latest update took place in 2015, in partnership with the International Liaison Committee on Resuscitation (ILCOR), in which

they pointed out the changes necessary for improving the care to CPA⁽⁵⁾.

Nursing professionals are usually the first ones that identify the patients who are in CPA, since they directly assist the patient. Therefore, they are responsible for updating their knowledge, with international guidelines and well-developed skills for providing a CPR with quality^(3,5,7). In addition, the nurse, as the nursing team leader, needs to be able to make decisions quickly and establish the priorities of this assistance in order to systemize and organize it, for a better performance of his/her team and for the patient's greater safety⁽⁸⁾.

Studies have shown that nursing professionals have insufficient knowledge about the CPR^(3,7,9). The AHA notes that a dedicated team with experience, expertise, training and qualification, plays better their skills and minimize the errors in this type of care⁽¹⁰⁾.

Therefore, this study aimed to evaluate the knowledge of nurses on the CPR in adults, basic and advanced cardiovascular life support, based the new AHA CPR guidelines of 2015.

METHOD

This study is part of the extension and research project entitled 'First aid: educating the community and health workers of the municipality of Viçosa-MG and region'. This was a cross-sectional, descriptive study, with quantitative character, held in a medium-sized teaching hospital of Minas Gerais from April to May 2016.

Data collection occurred through the application of a questionnaire prepared by the researchers, containing two parts. The first one consisted of socio-demographic variables and the second, of 10 closed multiple-choice questions, with only one correct option.

The questions evaluated the knowledge on: recognition of the patient in CPA, the professional approach immediately after its recognition, the CAB algorithm (Compressions, Airways opening and Breathing/ventilation), the depth and frequency of chest compressions to be performed during the CPR, the shockable heart rhythms in a CPR, the care with the defibrillation during CPR, the quantity and quality of breaths per minute, which should be carried out in this kind of service after inserting the definite airway, the medicines used in the ACLS and the recognition of differential diagnosis during and after the CPR.

The inclusion criterion of this study was being a nurse of the aforementioned hospital. Exclusion criteria were being away from work due to vacation, medical leave or any other reason during the application of the questionnaire.

The total number of nurses working in this hospital corresponds to 23. The nurses of the following sectors participated in this study: hospital coordination, services for hospital infection control, urgency and emergency, medical clinic, surgical clinic, surgery, intensive care center, transfusion agency and psychiatric clinic, totaling 19 nurses (82.6% of the total). Of the four professionals who did not participate in the survey, two were on vacation, one on medical leave and one did not have time available for the application of the questionnaire.

The study was conducted according to the ethical aspects set out in resolution number 466/2012 of the Ministry of Health/National Health Council, after approval of the project by the Human Beings Research Ethics Committee of the Universidade Federal de Viçosa (UFV) in 2014, protocol number 870,833 and after the participants' agreement, with their signature of the Informed Consent Form (ICF).

Data were analyzed by descriptive statistics using the Statistical Package for the Social Sciences (SPSS) version 20, establishing the mean

and standard deviation of the studied population. We considered as satisfactory knowledge when the number of right answers of the participants was higher than and/or equal to 70% in the questionnaire applied and as unsatisfactory knowledge, when the number was less than 70%.

RESULTS AND DISCUSSION

The study had the participation of 19 nurses, representing 82.6% of the total population, with predominance of women (68.4%), age group from 25 to 30 years (42.1%), training time from one to five years (52.6%), professional experience in the research site from one to five years (52.6%), without other employment (57.9%) and with weekly workload of 40 hours (47.4%). Most of the nurses have already done some training in CPR (63.2%) and, among these nurses, 47.4% had held a year before and 15.8%, more than a year. Knowledge about basic and advanced life support was classified as good (63.2%) by the participants, according to the Likert scale (excellent, very good, good, regular, bad).

Figure 1 shows the percentages of right answers of the participants in the multiple-choice question.

Figure 1-Percentage of right answers of the participants in each question.

Question	Theme	RightAnswers	Percentage
01	ArrestRecognition	9	47.4%
02	Number and depth of the compressions	10	52.6%
03	Priority of care in patient in CPA	7	36.8%
04	Shockablerhythms	10	52.6
05	Ventilationduring CPR	8	42.1%
06	DifferentialDiagnosis	5	26.3%
07	What to do after defibrillation	5	26.3%
08	CAB Algorithmof BLS	12	63.2%
09	Relation of compressions per ventilation in the BLS and in the SCLS	8	42.1%
10	Medication	6	31.6%

Source: Prepared by the authors based on the research data collection, 2016.

The following figure (Figure 2) represents the number of participants and their respective

number of correct answers in the questionnaire:

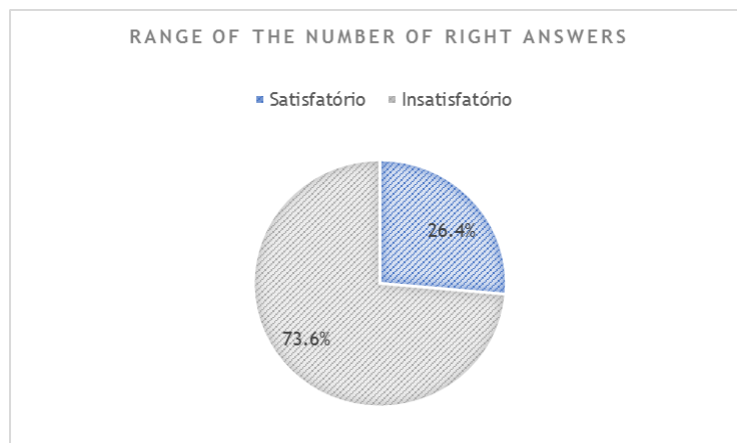
Figure 2- Number of participants and amount of right answers



Source: Prepared by the authors based on the research data collection, 2016.

The number of right answers of the participants in the questionnaire ranged from zero to 100%, and only 26.4% obtained satisfactory knowledge (Figure3).

Figure 3-Satisfactory and unsatisfactory knowledge of the participants on the CPA care



Source: Prepared by the authors based on the research data collection, 2016.

The surveyed population showed normal distribution in the kurtosis and asymmetry graph and in the Kolmogorov-Smirnov test ($p > 0.05$), with an average of 4.2 right answers in the questionnaire and standard deviation of 3.2.

When comparing the average of right answers of the participants that attended previous capacitation in CPR with those that did not, in the T test, the group that attended some training obtained highest average of right

answers, representing a statistically significant result with $p < 0.005$.

Health professionals shall have skill not only to recognize quickly the signs that a victim of CPA demonstrates, but also to perform the maneuvers of CPR as soon as possible. Such actions increase considerably the probability of success and reversal of the CPA, reducing mortality and morbidity^(2,3,8,11).

For the recognition of a CRA, the first thing to do is to evaluate the responsiveness of the victim, and then observe the presence of respiratory movements and central pulse, simultaneously⁽⁵⁾. After evaluating these parameters, the person can perform the intervention quickly and provide the best chance of survival for the victim. When the intervention is carried out quickly and correctly, the survival rate is 75%, if the intervention occurs in the first four minutes; of 15%, if it occurs between four and 12 minutes, and only 5%, if it occurs after 15 minutes^(1,3).

In this study, we found that only 45% of the nurses could identify the CRA. Other studies also showed a limitation in the nurses' knowledge and agility, while attending a CRA^(3,12). Research conducted with 73 nurses from 16 units of seven municipalities of the metropolitan region of Campinas pointed out that more than 60% of the participants were unable to correctly detect a CRA⁽⁷⁾. On the other hand, some researches showed a high percentage of right answers, with regard to this approach, respectively, of 98% and 82%^(7,13). Thus, there is no consensus among the studies regarding the results found.

After identifying the CRA, the CPR begins with the realization of chest compressions, which are essential to generate sufficient blood flow to carry oxygen to organs and tissues. When the chest compression is performed properly, with correct depth and frequency, the chance of survival of the victim increases substantially⁽⁵⁾. In the present study, 50% of health professionals have knowledge on how to perform CPR maneuver correctly.

A study conducted with nurses of an urgency and emergency service in the metropolitan region of Campinas showed that 60% of nursing professionals did not perform this maneuver properly⁽⁸⁾. In another study, most of the nurses, 68.7%, demonstrated knowledge on the chest compression technique⁽³⁾.

A survey carried out with the purpose of analyzing the knowledge of nursing staff on the recognition of a CRA and the CPR (AHA guidelines of 2010) revealed that only 20.6% of the participants performed chest compressions appropriately⁽⁹⁾. Mistakes at this stage of care can significantly compromise the quality of CPR, because the emphasis of the care to the adult patient in CRA is to perform effective chest compressions, fast (100 to 120 compressions per

minute) and strong (with depth of 5 to 6 cm chest)^(5,9).

In addition to recognizing a CRA and conducting properly the CPR maneuver, the team needs to recognize the heart rhythms so that, in shockable rhythm, defibrillation can occur early⁽⁵⁾.

In Brazil, the medical professional is the only one responsible implementing this procedure. However, nurses shall early monitor the patient and distinguish shockable rhythms - ventricular fibrillation (VF) and ventricular tachycardia (VT)- from non-shockable ones, like asystole and pulseless electrical activity (PEA), so that the defibrillation can occur more quickly. This procedure increases the chances of the patient's survival^(2,7).

This study showed that 50% of the nurses could identify shockable rhythms of the CRA, corroborating other literature, whose index of right answers was 60%⁸. In another research, only 25% of the interviewed nurses correctly identified these rhythms⁽³⁾.

Continuing this study, the next step is the ACLS. The secondary CRA approach emphasizes the need to provide an advanced airway. Once the patient is with the advanced airway, compressions and breaths should not be carried out synchronized (30 compressions 2 two ventilations), but simultaneously, that is, 100 to 120 compressions per minute and 1 ventilation every 6 seconds, resulting in 10 breaths per minute⁽⁶⁾.

The participants of the current study showed scant knowledge about the number of breaths and compressions performed after intubation of the patient, as in other studies^(7,14). One of these mentioned studies was conducted with professionals in an Intensive Care Unit (ICU) and, surprisingly, even with a predominant number of patients already intubated in the area, only 15% of the participants could answer correctly the relation between ventilation and compression after intubation⁽⁷⁾.

We also highlight, in the ACLS, the definition of the differential diagnosis of CRA and the treatment of its cause. The main causes of CRA are known as 5Hh and 5Tt⁽⁶⁾. It is extremely important to identify these causes quickly to treat them accurately, in order to reverse the CRA⁽¹⁴⁾. In the survey, knowledge about the possible causes of the CRA were low (25%), which is different from another study, which obtained a result far superior (70.8%)⁽¹⁵⁾.

Every five years, the AHA brings new recommendations about CPR and one of the 2015 Protocol updates was the withdrawal of vasopressin of ACLS, since its use combined with epinephrine provides no advantage in comparison to the use of the standard dose of epinephrine in the CRA. So, to simplify the attendance, vasopressin was removed from the ACLS algorithm⁽⁶⁾. The knowledge of participants about this change was low, only 40% knew this update.

AHA guidelines have been prepared to adjust the health professionals' service to a CRA, where they can perform CPR adequately, based on science and, consequently, generate greater survival of the assisted victims. Nevertheless, the knowledge and update of nursing staff about such guidelines are of paramount importance for the success of the service, since, in most cases, the nursing staff is the one that has to face situations of CRA, requiring theoretical and practical knowledge in order to achieve a proper and high-quality service^(3,7,16).

It is essential to provide permanent education to the teams that answer the urgencies, as it provides a combination of theory with practice, requiring an update, due to constant changes in assistance protocols. This update aims to promote a safe, organized and standardized assistance, contributing to reduction of iatrogenesis^(9,14,17).

A study conducted to determine whether the patients seen by nurses trained in ACLS would have different survival rates than those attended by nurses without training showed that this professional training is strongly associated with the increased patient's survival⁽¹⁸⁾. Another similar study also demonstrated that the presence of at least one team member trained in ACLS increases patient's survival in the short and long term after resuscitation⁽¹⁹⁾.

Thus, it is very important to perform periodic training in CPR in order to empower teams to the fast, safe and effective care, according to the recommendations of international guidelines. The nurse, as the leader of the nursing team, is responsible for training the team⁽³⁾.

Therefore, the nurses in this study have a deficit in the theoretical knowledge, evidenced by the low level of right answers, mostly about recognition in CRA, how to perform CPR and maneuvers on the differential diagnosis. These data are not different from other two studies:

one held at an urgency and emergency hospital of Rio Branco (Acre) and the other, at a public hospital of Minas Gerais, which also demonstrated deficiency in knowledge of these professionals about CPR guidelines^(13,15).

FINAL CONSIDERATIONS

The frequent updates on healthcare knowledge require from professionals to be always training and qualifying in order to provide a service of excellence to the patient. This study showed that the nurses' knowledge about the care of a CRA is unsatisfactory, which may influence the quality of the provided assistance and the survival of the patient in this situation.

Therefore, there is need to perform periodic trainings for this audience, in order to update their knowledge and practices related to the BLS and ACLS, according to recommendations of the AHA.

Nonetheless, this study has not evaluated the practical skills of nurses while attending a CRA. The data collection of this study took place in May and April 2016 and the new AHA guidelines were published in October 2015, resulting in seven months for the professional to update him/herself. We have not assessed whether the time elapsed between the publication of the guidelines and the application of the questionnaire would present some impact in the participants' knowledge, since they would have a greater time to build capacity.

Another question that emerged from this study was how the process of formation of nurses has occurred with regard to the teaching of the CRA. Does the formation of these professionals affect their knowledge and search for update about the subject? Further studies need to be conducted to answer such questions.

It is of the utmost importance that the nurses, who are leaders of their teams, are up to date and trained to execute the new CPR Protocol (2015), so that they will be able to provide a safe, fast and effective service to patients in CRA.

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Note: Original article derived from the Course Conclusion Work. Viçosa, Minas Gerais: Department of Medicine and Nursing, Universidade Federal de Viçosa; 2016.

Received in: 23/02/2017

Approved in: 06/11/2017

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