

SUDDEN DEATH FROM CARDIAC ARREST: THE USE OF A DEFIBRILLATOR AND BASIC LIFE SUPPORT

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Abstract: Purpose of the study: Know the importance of the AED related to sudden death from cardiac arrest and the ways in which it can prevent this event. **Methodology:** Qualitative research, through literature review, cross-sectional design, carried out between March and April 2022, through the selection of articles, books and annals, made from the keywords: Automatic External Defibrillator; Sudden death; Cardiopulmonary arrest; Basic support of life. **Results and discussions:** The bibliographical study indicated priority for the use of the AED in extra-hospital spaces, the maintenance of the equipment and the training of health professionals about the device. **Conclusion:** It is believed that the availability of the defibrillator in public environments can positively influence the decrease in the number of cases of sudden death due to cardiac arrest, being essential the training of the population by qualified professionals, expanding the emergency care network for cardiopulmonary arrest in non-hospital environment by laypeople.

Keywords: Automated External Defibrillator; Sudden death; Cardiorespiratory arrest; Basic support of life.

INTRODUCTION

The myocardium has the function of pumping blood throughout the body, and at some point there may be a change in its functioning, resulting in the collapse of this muscle, this event being characterized as CRP (cardiorespiratory arrest), a condition in which a fight against the time, because the longer the duration proportionally will be the complications (GUIMARÃES et.al, 2018)

In this sense, cardiopulmonary resuscitation (CPR) maneuvers associated with the use of an external defibrillator (AED) together with notions of basic life support are decisive factors that may or may not increase the patient's survival, with an estimate of 26 %

when this first service is carried out effectively and 4% when the assistance is ineffective (SILVA et al (2021).

When a patient goes into cardiorespiratory arrest, this does not always occur in a hospital environment, which raises the question: "Can the availability of AEDs in public environments influence the incidence of sudden cardiac death?" This guiding question leads us to deepen the subject, with the objective of analyzing the importance of the use of the AED correlated to basic life support, in the occurrence of sudden death as a result of cardiac arrest.

From the study and understanding of the functioning of the heart, basic life support, defibrillation and the possible ways in which the AED can prevent cardiorespiratory arrest, it is possible to emphasize the importance of empowering and training citizens, pointing to the social role when witnessing life-threatening situations.

CONCEPT OF THE AED (Automated External Defibrillator)

According to OLIVEIRA et. al, 2018 cardiorespiratory arrest (CPA) is the complete stop of the heart muscle and consequently the interruption of breathing, its reversal will depend on the quality and agility of the care provided

Studies show that unexpected extra-hospital cardiorespiratory arrests have brought major health problems, and the AED is a fundamental resource to recover the functioning of the heart, since the AED (automatic external defibrator) is an easy-to-use equipment in which it is not necessary to interpretation of electrocardiographic results being recommended for the entire population with training in handling the equipment (FERREIRA et al, 2021 Apud WEISFELDT; POLLACK, 2017; DELGADO et al, 2018; POLLACK et al, 2018).

The automated external defibrillator is equipment that can reverse ventricular fibrillation and pulseless ventricular tachycardia (PIVATI et.al.2019)

IMPORTANCE OF PROVIDING A DEFIBRILLATOR IN PUBLIC AND PRIVATE ENVIRONMENTS

Defibrillation was a procedure reserved for health professionals trained in Advanced Life Support, currently with the availability of AEDs presented in simple handling versions, it can be used by lay people or professionals who have training in Basic Life Support. Its importance associated with the best survival rate in out-of-hospital CPA is emphasized, although the vast majority of the population still does not have access (FERNANDES et.al, 2021)

It is worth mentioning that, although it is not yet mandatory in places such as private companies, schools and residential condominiums, the presence of an AED in these places is also recommended and desirable, considering that in Brazil, 200 thousand people die per year due to cardiac arrhythmias outside the hospital environment, according to data from the Brazilian Society of Cardiac Arrhythmias - SOBRAC (GARCIA et.al 2021).

In addition, even when the AED is available in public places, several obstacles can contribute to delays in its use, such as, for example, the lack of adequate signage to facilitate the location of the equipment or the fact that it is kept under restriction (GARCIA et al..al 2021)

Due to the urgency of reversing the condition and, consequently, quick help, the new AHA guidelines and the International Liaison Committee on Resuscitation (ILCOR) consider defibrillation as a Basic Life Support procedure. For a better organization and performance, the “Survival

Chain” was created, which includes the recognition of CRA and activation of the emergency/urgency service, early CPR with an emphasis on chest compressions, immediate defibrillation, care for advanced support and post-CPA care, with instructions for health professionals and lay people, since the latter are the ones who most commonly witness the scene (SILVEIRA et.al, 2018)

LEGISLATION THAT AUTHORIZES THE AVAILABILITY OF THE DEFIBRILLATOR

According to normative opinion n° 002/2017- COFEN regulates the use of the AED by the nursing team, based on the report n° 26/2016 and administrative process n° 821/2016: the AED (automated external defibrillator) is used when the patient has arrhythmias or fibrillation ventricular arrhythmia, and arrhythmia is a process in which the myocardial rhythm manifests itself abnormally, that is, too fast, slow or in a disorderly way, and the use of the defibrillator is recommended within a maximum of 5 minutes to ensure the patient’s survival.

Bill n°736/2015 obliges places of great concentration of people to provide cardiac defibrillator, also other bills oblige the AED: Bill n°10. 626/2018 mandatory AED in gyms; Bill No. 1662/2019, DEA and professional trained in basic life support, Bill No. 11. 201/2018 availability of the AED and training of all crew members in basic life support on vessels with a capacity equal to or greater than eighty passengers (PL 736/2015).

IMPORTANCE AND BENEFIT OF THIS EQUIPMENT IN PUBLIC AND PRIVATE ENVIRONMENTS

The use of the AED by lay people in episodes that occur outside the hospital can save lives according to the time between CRA and defibrillation and in cases of acute

myocardial infarction or emergency of acute arrhythmia, every second is extremely important (CAVALHEIRO et.al, 2020).

Sometimes waiting for assistance may not be enough to maintain life, so first aid practices must start as soon as possible together with the aid of the defibrillator. According to CARVALHO et.al, 2021 based on the cardiopulmonary resuscitation and emergency cardiovascular care guideline of the Brazilian Society of Cardiology (SBC), it is estimated that 9,589 deaths occur per week due to CPA and annually this number easily reaches 350,000 deaths for the same reason. It is also estimated that every 2 to 3 minutes a new CRA takes place, about 73% of the victims are unable to reach the hospital service. (CARVALHO et.al, 2021).

These deaths happen by waiting for specialized help, which takes an average of 18 minutes, with this situation several Brazilian municipalities approved the regulation of the use of the defibrillator, indicating the mandatory use of this resource in stadiums, sports venues, schools and spaces with circulation above 1,500 people per day. But it is not enough to just have the equipment and not be trained to use it, so it is important to offer free courses to the population for training in basic life support and the use of the automated external defibrillator (RIBEIRO et.al, 2020).

METHODOLOGY

This is a qualitative study, of the literature review type, with the objective of translating and expressing the meaning of phenomena in the social world; it is about reducing the distance between indicator and indicated, between theory and data, between context and action (LEONARDO,1994)

This study was carried out over a period of time, being cross-sectional, with materials collected in magazines, books, papers

published in conference proceedings. This survey was carried out from March to April 2022, in databases such as: Google Scholar and Google Schrooler, using the keywords: Automatic External Defibrillator; Sudden death; Cardiopulmonary arrest; Basic suport of life.

RESULTS AND DISCUSSIONS

In this study, based on the bibliographical survey, some categories of content emerged with greater frequency and depth, namely: Concept of defibrillation, need for use and functions of the automated external defibrillator (AED); The provision of mandatory maintenance of the AED; Mandatory availability of cardiac defibrillators in places with large concentrations of people throughout the national territory; The use of the equipment by lay people in extra-hospital environments to save lives if used according to the time of Cardiorespiratory Arrest and defibrillation

The bibliographic survey pointed out several articles that were relevant for deepening the categories related to the concepts and functions of the AED, the current legislation, and the importance of extra-hospital use, being well emphasized in the articles explained in the description above. They prioritize the use of the automated external defibrillator (AED) in extra-hospital and public spaces, which aims to help along with basic life support, in places with a large concentration of people, such as: airport, bus stations, shopping centers and others. One of them emphasizes the need for equipment maintenance and the use of training for health professionals when developing actions related to the AED. On the other hand, the concept itself of the term “defibrillation” and the functions of the automated external defibrillator.

FINAL CONSIDERATIONS

It is believed that the availability of defibrillators in public environments can positively influence the decrease in the number of cases of sudden death due to cardiac arrest. Thus, basic life support can also significantly influence the occurrence of sudden death, which is possible through the training of the population by qualified professionals, expanding the network of first emergency care for cardiorespiratory arrest in a non-hospital environment by laypeople.

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