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The nurse's knowledge level on Cardiopulmonary Resuscitation in the Emergency Service of the National Hospital Sergio Bernales

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Resumen

El rol del enfermero en RCP, está dirigido al cese del paro cardiorrespiratorio participando en la reanimación y estabilización del paciente, para lograr la restauración de la circulación y respiración espontánea. El aprendizaje constante, a través de las capacitaciones, cursos, etc., han permitido el perfeccionamiento de las destrezas y habilidades de los enfermeros para así disminuir no solo la mortalidad, sino disminuir la morbilidad, secuelas y complicaciones, especialmente en las situaciones de riesgo de vida del paciente.
En este artículo se presenta el Nivel de conocimientos del enfermero(a) sobre la Reanimación Cardiopulmonar en el servicio de Emergencias del Hospital Nacional Sergio Bernales.

Palabras clave: Enfermera, Reanimación Cardiopulmonar, Emergencias, Conocimiento.

Abstract

The role of the nurse in CPR is aimed at the cessation of cardiorespiratory faliure by participating in the resuscitation and stabilization of the patient, to achieve the restoration of circulation and spontaneous breathing. Constant learning, through training, courses, etc., has allowed the improvement of the skills and abilities of nurses to reduce not only mortality, but to reduce morbidity, sequelae and complications, especially in risk situations of the patient's life. This article presents the nurse's knowledge level on Cardiopulmonary Resuscitation in the Emergency Service of the National Hospital Sergio Bernales.

Keywords: Nurse, Cardiopulmonary resuscitation, Emergencies, Knowledge.

1. Introduction

At present, several epidemiological studies reveal that cardiovascular diseases are on the rise and as a result of this, more cases of sudden death due to cardiorespiratory faliure are being established, constituting a health problem of the first magnitude worldwide, registering more than 135 million deaths due to cardiovascular causes (1). This is related to risk factors or lifestyles that the human being carries during the first stages of their life such as: smoking, hypertension, obesity, sedentary lifestyle and that can cause multiple consequences or aggravate their health in the future.

In Peru, heart disease is the second cause of death and more than four thousand people, from zero years, die every year due to myocardial infarction and the main risk factor is in individuals over 30 years. According to WHO, cardiovascular and cerebrovascular diseases represent a global public health problem; that is to say, they produce a negative impact on our societies both personally, family, work, economic and social.

Faced with this adverse situation, the nurse will assist the patient with the possible promptness and at the same time with the skills already acquired throughout his professional life, he will do it applying the adequate techniques of CPR (Cardio-Pulmonary Resuscitation), this being the most used in current medicine to resuscitate the patient with cardiac arrest.

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Health emergencies can occur both in the hospital environment and extrahospital environment; that is why the nursing staff must be trained to act with criteria and knowledge to provide continuous and timely care to the patient. However there is a huge gap between current knowledge of the quality of CPR at present and its optimal implementation that leads to avoidable deaths attributable to cardiac arrest (1).

Diez explains that the performance of health professionals in emergency situations is regulated by numerous ethical-legal regulations. The decisions taken in these circumstances must be reflexive, precise and quick; therefore, updated knowledge combined with practice and appropriate materials can prevent many deaths (2).
Caballero explains that "the experiences of some evaluators of these CPR events show that there are problems in the execution by the professionals involved in a cardio-respiratory faliure. In the vast majority of the cases evaluated, it has been found that the nursing staff in all service areas have the greatest lack of knowledge in the identification of arrhythmias, use of appropriate medications, doses, routes and use of the defibrillator, which can lead to death of the patient "(3).
In the emergency service of the Sergio Bernales Hospital, this research is carried out with the aim of contributing and making known the knowledge of the nursing staff about cardio-pulmonary resuscitation; considering the nursing action in the care, the techniques, maneuvers that it provides in the care field, since the role of nursing is decisive in these situations, and their knowledge in CPR will be part of their professional baggage, keeping in a continuous update.

According to the College of Nurses of Peru "The nurse, as a Health Science professional, participates in the provision of integral health services, in a scientific, technological and systematic way, in the processes of promotion, prevention , recovery and rehabilitation of health, through the care of the person, the family and the community, considering the social, cultural, economic, environmental and political context in which it operates, in order to contribute to raising the quality of life and achieve the well-being of the population"(4).

Cardiopulmonary Resuscitation (CPR) is a set of actions whose main objective is to provide oxygen to the brain and heart until more advanced and definitive medical treatment (advanced cardiac support) can restore normal cardiac and respiratory functions avoiding damage to central nervous system. In a respiratory faliure, the percentage of survival is high if adequate control of the airways and ventilatory support is initiated. Regarding cardiac arrest, the highest incidence of successes (5). Then the CPR is given in the first minutes and defibrillation before five minutes after the stoppage occurred.
Basic CPR Sequence:
a. Guarantee the safety of the rescuer and the victim and assess the state of conscience: The rescuer must ensure their safety and that of the victim, avoiding risk situations. Check the response capacity of the victim, take it by the shoulders and with a strong voice ask "Are you ok?". If the person does not respond, he is unconscious. If the victim responds but is injured or needs medical help, call the Local Emergency Medical Service and place the victim in a recovery position. If a cervical lesion is suspected, mobilize the victim only if absolutely necessary. If a rescuer finds an unconscious adult, he or she must immediately activate the EMAS (Emergency Medical Assistance Service), request an AED (automatic external defibrillator) and start the CPR. The emergency numbers in our country are: Number of Firefighters 116, Police Central 105, Urgent Medical Care System 117. If you are alone, evaluate the possibility of leaving the victim to get prompt help. (6) The person calling the SMEL must give the following information:

- Place of emergency (office or room number, or intersection of streets or roads, if possible) with reference.
- Telephone number from which the call is being made.
- What happened: heart attack, car accident, etc
- Number of people who need help.
- State of the victim.

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- What help is being provided to the victim ("CPR is being practiced" or "we are using a AED").
- To ensure that the SMEL staff has no further questions, the rescuer witness must be the last to hang up the telephone. (7)

b. Position of the patient: It must be lying on its back on a flat and hard surface, if it is face down, the rescuer should rotate it, in such a way that the head, shoulders and trunk move in block as a single unit. The patient should be lying down with the arms on the sides of the body, position to perform CPR.

c. Check pulse and initiate chest compressions "C": Health professionals will check the pulse in the carotid artery, in a time not longer than 10 seconds, if there is no pulse, initiate chest compressions. The verification of the pulse is made in the carotid artery, this pulse persists even when the hypotension makes other peripheral pulses disappear. The carotid artery is located in the channel formed by the trachea and the lateral muscles of the neck.

Chest compressions are rhythmic and serial applications of pressure on the center of the chest that create a blood flow due to increased intrathoracic pressure and direct compression of the heart. Chest compressions generate blood flow to the brain and heart, increasing the chances of early defibrillation being successful.

Should consider:

- Compress the chest "fast and hard" at a rate of at least 100 per minute.
- Depth of compressions of at least 5 cm, in adults.
- Allow full return of the chest during the decompression phase.
- Minimize interruptions during chest compressions.
- When restarting the compressions, place the hands without delay "in the center of the chest, between the nipples of the victim" (7).

Chest compression technique:

- Nurse kneeling at the height of the thorax of the victim.
- Place the heel of one hand in the center of the chest (between the nipples).
- Place the heel of your other hand on top of the first one.
- Cross the fingers and ensure that they are not compressed on the ribs, the upper part of the abdomen or the distal part of the sternum (xiphoid appendages).
- Stand vertically on the victim's chest keeping the arms straight with the elbows extended, start the compressions by pushing down.
- Depress the chest at least 5 cm. in the normal adult, at a rate of more than 100 per minute. Release the pressure completely and allow the thorax to return to its normal position after each compression.
- After 30 compressions give 2 support breaths of 1 second each. Combine chest compressions with support ventilations (30: 2) for 5 cycles.

d. Airway Management "A":

In unconscious victims, muscles that support the tongue relax and allow the tongue to fall, this is the most common cause of airway obstruction in the unconscious victim.

d.1 Extension of the head and elevation of the chin (Front maneuver - chin)

Place a hand on the forehead of the victim, keeping the thumb and forefinger free to pinch the nostrils if it is going to give breathing. Place the fingers of the other hand under the bony part of the jaw, then tilt the head and raise the chin to open the airways. This maneuver allows to shorten the tongue and permeabilize the airway, if foreign bodies are observed they should be removed, only if it is possible to visualize them otherwise we can make the foreign body enter more and obstruct the airway. If it can not be seen, give blows to the back or perform a Heimlich maneuver, in order to permeabilize the airway and restore respiration in the user.

d.2 Maneuver elevation of the mandible or mandibular traction:

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It is the safest step to open the airway when cervical injury is suspected. Hold the head without moving or rotating it. The displacement of the jaw forward can also be achieved by grasping the angles of the jaw, rising with both hands, one on each side and moving it forward. The rescuer's elbows can rest on the surface where the patient is lying. Technique recommended only for health professionals because it is difficult to perform.

e. Ventilation

Breathing "B": The 2010 International Guidelines have eliminated the sequence of the SLF from the RCP (see, listen and feel). After 30 compressions in a row, the resuscitator permeabilizes the airway and gives 2 support breaths. Support breathing: The rescuer located at the height of the head will apply the two breaths or support vents.

Steps for the technique: "Mouth to mouth": - It is the fast and effective way to supply oxygen to the victim, avoiding neurological damage in the patient, and in many cases being irreversible.

Technique: "mouth to mouth"

It is the maneuver most universally used to supply a poor or absent breathing

• Position the patient in line and face up.
• Check that there is no breathing or that it is very poor.
• Ensure that the head is extended and the chin is elevated if there is no trauma, if there is trauma keep the head aligned, the cervical spine immobilized and the jaw elevated.
• Close the nose (pinch its soft parts with the first and second finger of the hand that is placed on the forehead and that also maintains the extension of the head).
• Open the mouth discreetly without losing position, take a deep breath, place the lips around the mouth of the victim and ensure there is no air leak.
• Introduce the air in the airways smoothly (one second of duration for adults) observing the elevation of the chest.
• Without losing the position of the victim, separate the lips from the mouth and note the descent of the thorax with the air outlet.
• The amount of air to be insufflated depends on the age, consistency of the individual, resistance of the airways, previous illnesses, etc. in the adult, 500-600 ml of air is recommended.

Defibrillation

Epidemiologically, Ventricular Fibrillation (VF) is the most common cause in adults of sudden cardiac death or sudden cardiac arrest and, from the prognostic point of view, is the least serious, as long as defibrillation is carried out in the first minutes of treatment. The event occurred, allowing effective and safe resuscitation rates in patients with Ventricular Fibrillation (VF), which can reach 90% success. Defibrillation is the only effective treatment to end Ventricular Fibrillation (VF), it consists of the release of electrical current (through a device called a defibrillator), which ends with severe arrhythmia, obtaining the immediate resumption of normal heart rhythm. . The survival rate for Ventricular Fibrillation (VF) or Pulseless Ventricular Tachycardia (PLVT), decreases by 7 to 10%, for each minute that passes without defibrillation.

The Early Defibrillation (ED) is the discharge administered in the community before 5 minutes, after the SMEL receives the call; and in health institutions before 3 minutes after the stoppage occurred, with the health teams having to administer defibrillation. Defibrillation is an important component of the Survival Chain.

Automatic external defibrillator (AED)

An Automatic External Defibrillator (AED) is a device capable of determining, on its own, the presence of Ventricular Fibrillation (VF). It gives indications to the operator of steps to follow, controls the contact of the electrodes, analyzes the heart rate, and if it determines the presence of Ventricular Fibrillation (FV), it charges the required energy and gives the indication of pressing a button for the discharge. It does not load if the rhythm is not Ventricular Fibrillation. The steps to follow are:

• Turn on the AED and place the electrode patches on the patient's bare chest. If there is more than one rescuer, continue CPR while the AED is activated.

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• It must be completely isolated from any contact to earth, or metallic elements, to avoid causing burns at the contact site. Remove: chains, watches, rings, etc. before defibrillating
• Follow the visual and auditory instructions issued by the AED. Observe that no one touches the victim while the AED is analyzing the rhythm.
• When the defibrillator detects the VF or PLVT, ensure that nobody touches the victim and press the download button. After the discharge, continue immediately with the CPR sequence.
• When the defibrillator does not detect VF or PLVT, just continue with the PCR sequence
Discharge dose
• Using a single-phase manual defibrillator: 360 joules (initial dose and the following ones).
• Using a biphasic manual defibrillator, the ideal initial dose is 150 to 200 joules (truncated exponential biphasic wave) or 120 joules for the rectilinear biphasic wave.
• If the biphasic waveform of the defibrillator is unknown, use a standard dose of 200 joules. (1)

2. Methodology

The research design is non-experimental cross-sectional. The population is made up of 34 nursing graduates (18 female and 16 male) who work in the Emergency Service of the Sergio Bernales National Hospital. A survey was applied to the nursing staff that works in the emergency service during the month of October 2016.

3. Results

The Survey of the study was applied to the entire population conformed by 34 nurses of the emergency service of the National Hospital Sergio Bernales.

Table 1. General information of survey

Sex	**Amount**	**%**
Male	16	47.1
Female	18	52.9
Total	34	100
Age		
Young Adult (18 – 29 años)	10	29.4
Mature Adult (30 – 59 años)	23	67.6
Elderly (> 60 años)	1	2.9
Total	34	100

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Work experience time

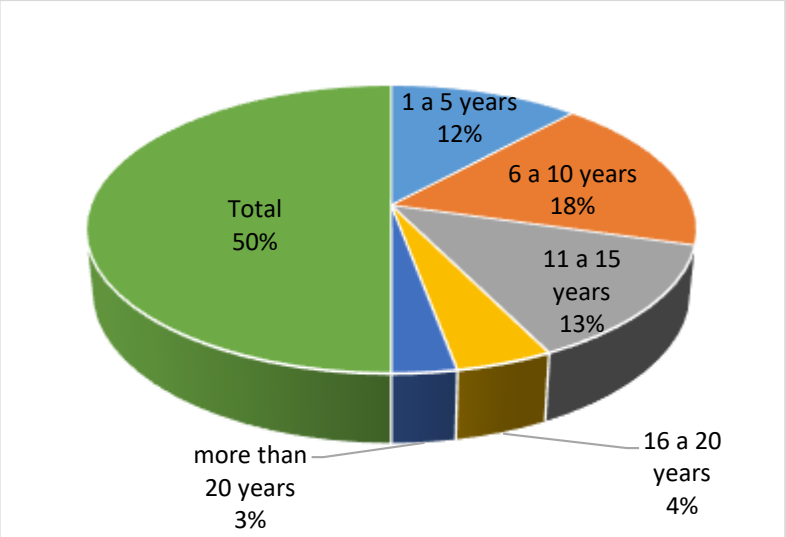

Figure 1. Work experience time

It is shown that 18% of the population has work experience time of 6 to 10 years, with 13% from 11 to 15 years, with 12% from 1 to 5 years, with 4% from 16 to 20 years, with 3% more than 20 years.

Training on CPR in the last 2 years

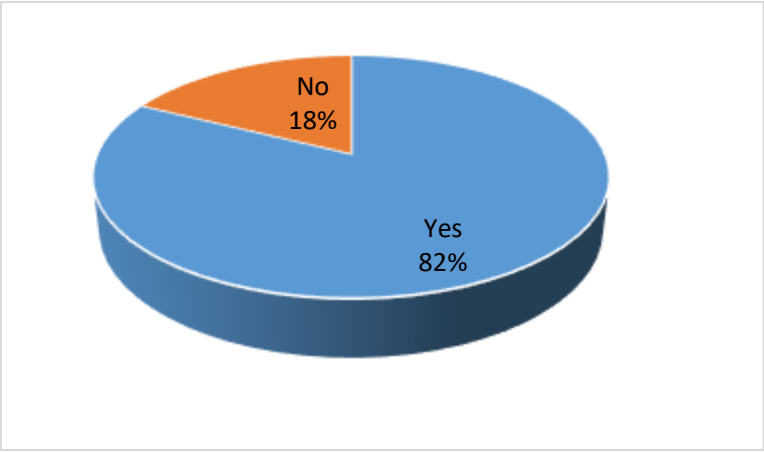

Figure 2. Training in CPR in the last 2 years

From 34 nursing graduates, 82% had training in cardiopulmonary resuscitation in the last 2 years and 18% did not have training in the last 2 years in terms of cardiopulmonary resuscitation.

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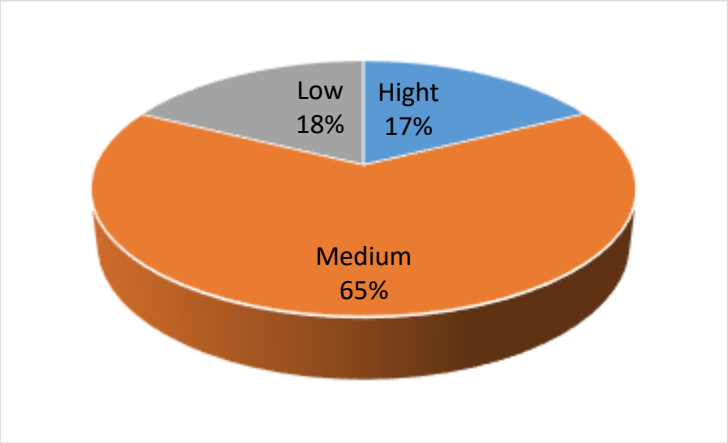

Figure 3. The nurse's knowledge level about cardiopulmonary resuscitation

Of the 34 nursing graduated, 17% have a high level of knowledge about cardiopulmonary resuscitation, 65% have a medium level and 18% have a low level of knowledge about CPR.

Nurse of knowledge of the nurse on identification of cardiac stop and activation of the local emergency system (LES) in the emergency service of the Sergio Bernales National Hospital.

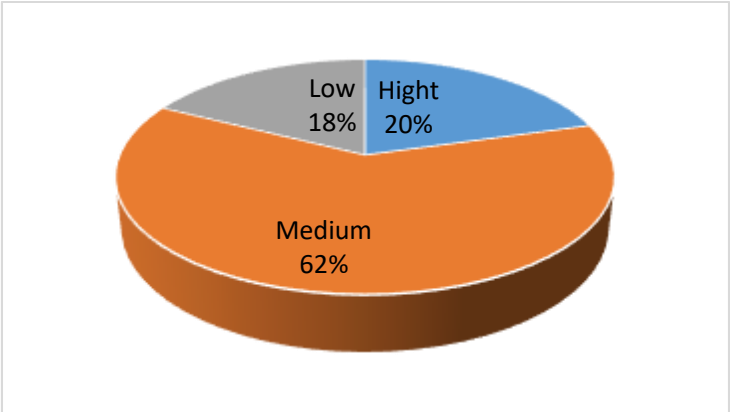

Figure 4. nurse's knowledge level about identification of the cardiac stop and activation of the local emergency system

It shows that 62% have an average level of knowledge, 20% have a high level of knowledge and 18% have a low level of knowledge.

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Nurse's knowledge level on the application of thoracic compressions in the emergency service of the Sergio Bernales National Hospital.

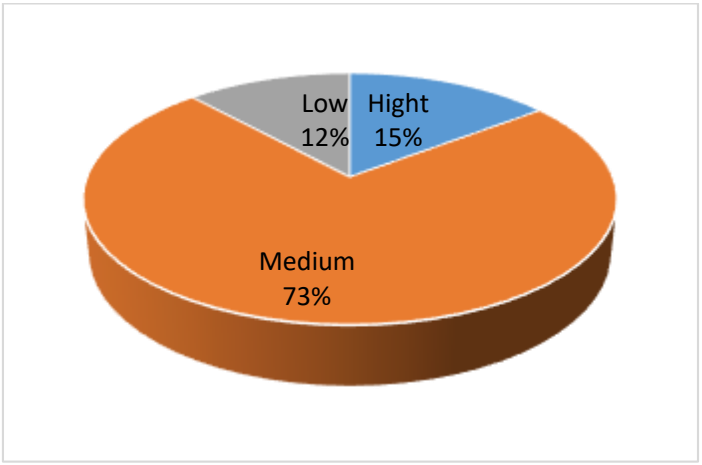

Figure 5. Nurse's knowledge level on the application of thoracic compressions

It shows that 73% have an average level of knowledge, 15% have a high level of knowledge and 12% have a low level of knowledge.

Nurse's knowledge level on the management of the airway in the emergency service of the Sergio Bernales National.

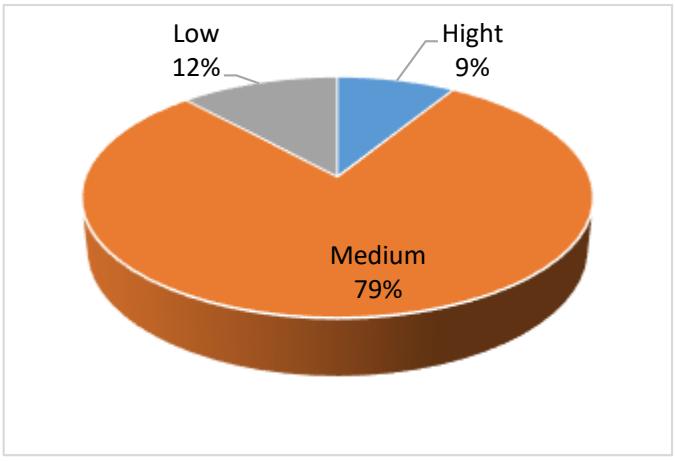

Figure 6. Nurse's knowledge level about airway handling

It shows that 79% have an average level of knowledge, 12% have a low level of knowledge and 9% have a high level of knowledge.

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Nurse's knowledge level on ventilation in the emergency service of the Sergio Bernales National Hospital.

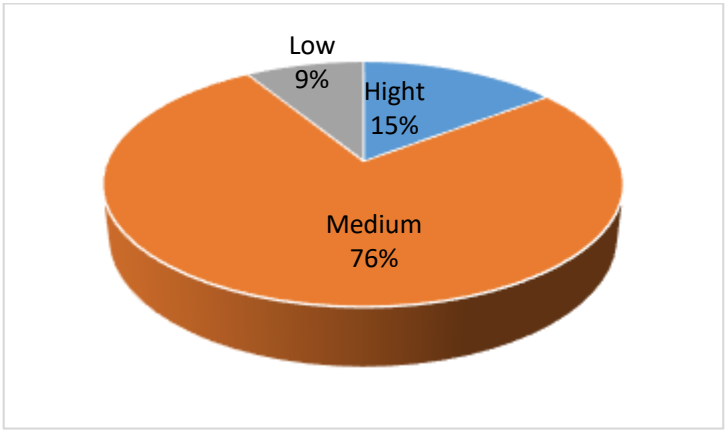

Figure 7. Level of nurse's knowledge about ventilation

It shows that 76% have a medium level of knowledge, 15% have a high level of knowledge and 9% have a low level of knowledge.

Nurse's knowledge level on early defibrillation in the emergency service of the Sergio Bernales National Hospital.

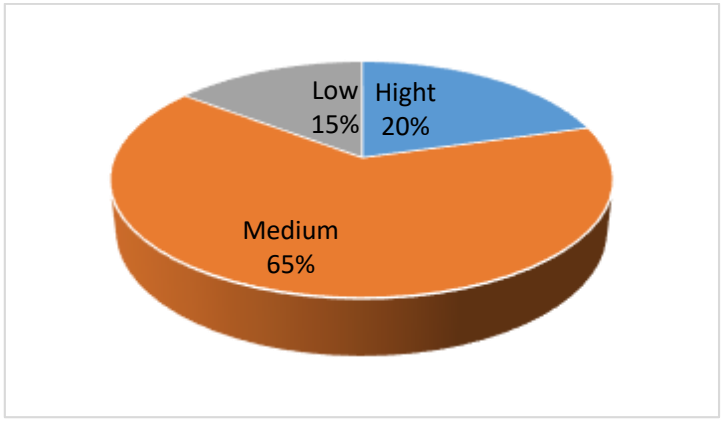

Figure 8. Nurse's knowledge level about early defibrillation

It shows that 65% have a medium level of knowledge, 20% have a high level of knowledge and 15% have a low level of knowledge.

4. Conclusions

- The nurse's knowledge level about cardiopulmonary resuscitation, such as the identification of cardiorespiratory faliure and activation of the local emergency medical system, chest compressions, airway management, ventilation and early defibrillation, is of medium level .

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- The nurse's knowledge level on the identification of cardiorespiratory faliure and activation of the local emergency medical system, the highest percentage has average knowledge. The nurse knows the signs of cardiorespiratory faliure, knows the definition of cardiopulmonary resuscitation and the sequence of C-A-B in CPR. On the other hand the aspects that little know are the sequence of the extrahospital survival chain and the importance of the activation of the emergency medical system
- The nurse's knowledge level on chest compressions, the highest percentage has average knowledge. They know the application location of cardiac massage, the compression-ventilation ratio and the frequency. On the other hand the aspects that little know are the depth of the compressions.
- The nurse's knowledge level about airway management, the highest percentage has average knowledge. The nursing staff knows the main cause of obstruction in a victim of cardiorespiratory faliure. On the other hand the aspects that little know are the technique of opening the airway in a person who has suffered cervical trauma and the technique of opening the airway in a person who does not have cervical trauma.
- The nurse's knowledge level about basic cardiopulmonary resuscitation regarding ventilation, the highest percentage has average knowledge. The nurse knows the technique of application of the ventilations. On the other hand the aspects that little know are the duration of each ventilation and the relation of the compressions-ventilations making use of an advanced device in basic CPR.
- The nurse's knowledge level about early defibrillation, the highest percentage has average knowledge. The nursing staff knows the technique of defibrillation. On the other hand, the aspects that little is known are the loading dose in defibrillation and the clinical cases of defibrillation application.

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