



*University of Shendi*

*College of post graduate studies*

*MSc of critical care nursing*

*nurses' awareness regarding post cardiac arrest care in  
Elshaab teaching hospital between October 2017 and April  
2018*

*A thesis submitted in partial fulfillment of the requirement of  
the degree of MSc in critical care nursing science*

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# *Dedication*

*To my family and my father, my mother, my  
sisters, my brothers, my wife, my friends,  
teachers, for their continuous support and  
encouragement*

# *Acknowledgements*

*I would like to gratefully acknowledge the generosity of Dr safa mahamed mahmed nour to help me to complete this thesis.*

*I would like also to acknowledge the University of shandi and teachers for their help.*

*My acknowledgement goes to Alshaab teaching hospital and its nursing staff of critical care units.*

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### **List of abbreviation**

<b>abbreviation</b>	<b>Stand for</b>
ACU	Asthma care unit
CA	Cardiac arrest
CABs	Circulation air way breathing
CCU	Coronary care unit
ECG	Electrocardiogram
ED	Emergency department
ICCU	Intermediate coronary care unit
MAP	Mean arterial pressure
NON STMI	Non ST-elevation myocardial infraction
OHCA	Out hospital cardiac arrest
OHSU	Open heart surgery unit
PCI	Percutenous coronary intervention
PEEP	Positive end expiratory pressure
RCU	Respiratory care unit
RDS	Respiratory distress syndrome
ROSC	Return of spontaneous circulation
RCT	Randomized control trail
STEMI	ST-elevation myocardial infraction
TH	Therapeutic hypothermia
TTM	Targeted temperature management
VF	Ventricular fibrillation
VT	Ventricular tachycardia
WLST	Withdrawal of life-sustaining therapy

## **Abstract:**

**Back ground:** nursing care of patients following resuscitation from CA is complex and requires specialized institutions capable of providing advanced care therapies. Optimal management requires consideration of multiple processes simultaneously, In addition to circulation air way breathing (CABs) of advanced cardiac life support, neuroprotection with therapeutic hypothermia should be initiated in comatose patients. The presence of coronary artery occlusion as a cause of arrest should be determined through analysis of the 12-lead ECG and when present, treated expeditiously. Patients should be monitored closely in a critical care setting and neuroprognostication should be performed no earlier than 24 h in patients not undergoing therapeutic hypothermia and after 72 h in patients undergoing therapeutic hypothermia (TH), the aim of the research is to assess nurse's awareness regarding post cardiac arrest nursing care in Elshaap teaching hospital in between October 2017 and April 2018, the study setting including coronary care unit (CCU), and intermediate coronary care unit (ICCU), and open heart surgery unit (OHSU),the study was descriptive based study , the sample size is (n= 80) registrar nurse , the data was collected used questionnaire sheet and analyzed by using statistical package for social science(SPSS), The majority of the study population was female (72%) .

Nearly half of study population was in age group of 20-30 years old and two- thirds of the study group has bachelor degree and the most of the study group has 1-3 years of experience and also most of study populations (63.75%) have good knowledge regarding definition of cardiac arrest and

BSc holder nurses' have very good awareness regarding definition of cardiac arrest.

Most of works experience have incorrect answers (56.25%) regarding methods of therapeutic hypothermia and most of them have poor awareness regarding methods of induce therapeutic hypothermia post cardiac arrest, most of nurses' (57.5%) have correct answers regarding signs of return spontaneous circulation and the BSc nurses holder have very good awareness regarding signs of return spontaneous circulation and all of them have poor awareness regarding component of post cardiac arrest care Most of registrar nurses (81.25%) have very good awareness regarding air way management and ventilation and the BSc holder nurses have very good awareness most of nurses which have experience between 1-3 years are poor awareness and experience of 4-6 years have very good and experience of more than 6 years are good awareness regarding post cardiac arrest syndrome .

### **Conclusion:**

Most of study population are female and have good awareness regarding signs of return of spontaneous circulation and assessment of basic metabolic panel and air way management and ventilation and have poor awareness regarding component of post cardiac arrest nursing care and methods of therapeutic hypothermia,

## مستخلص البحث .

**المقدمة :-** العناية التمريضية للمرضى بعد الافاقة من توقف القلب المفاجئ عن العمل عملية معقدة تحتاج الى مؤسسة خاصة قادرة على تقديم عناية و خدمات طبية عالية و متقدمة , مع وضع الاعتبار بتقديم خدمات طبية متعددة بالاضافة الى معالجة الدورة الدموية والمجرى الهوائي للتنفس عن طريق الانعاش القلبي المتقدم , و توفير الحماية الاوعية الدماغية و العصبية و يجب ادخال المريض الى غرفة العناية الحرجة و تحديد السبب المباشر لتوقف القلب المفاجئ عن العمل من خلال الفحوصات الطبية الازمة مثل تخطيط القلب و الاشعة السينية و المقطعية و فحص الغازات في الدم , فحص السيولة , معدل السكر في الدم , فحص الاملاح في الدم مع الاخذ بالاعتبار في عمل تخفيض درجة الحرارة العلاجي لحماية الجهاز العصبي , وقد يحتاج المريض الى عمل قسطرة قلبية بدعامة او غير دعامة.

**الاهداف :-** أجريت الدراسة بمستشفى الشعب التعليمي في الفترة من اكتوبر 2017 حتى ابريل 2018 لتقييم مدى وعي و معرفة تقنيين التمريض بالعناية التمريضية للمرضى بعد الافاقة من توقف القلب المفاجئ عن العمل في العناية المكثفة للقلب , والعناية الوسيطة للقلب , و عناية جراحة القلب المفتوح .

**الطريقة :-** دراسة وصفية جمعت المعلومات عن طريق الاستبانة و حللت باستخدام برنامج التحليل الاحصائي و كانت حجم العينة يساوي 80 عينة.

**النتيجة :-** معظم المشاركين في الدراسة كانوا اناث , اعمارهم بين 20-30 سنة , واكثر المشاركين من حملت البكلاريوس , خبراتهم العملية ما بين 1-3 سنة .

معظم المشاركين في البحث لديهم معرفة جيدة بتعريف توقف القلب المفاجئ عن العمل , و معدل وعي جيد معالجة المجرى الهوائي و التنفس , وكذلك في معالجة هبوط الدورة الدموية الحاد, و ليس لديهم وعي و معرفة كافية في طرق تخفيض درجة الحرارة العلاجي و مكونات معالجة المريض بعد الافاقة من السكتة القلبية

**الخلاصة :-** معظم تقني التمريض لديهم وعي و معرفة جيدة لعلامات واعراض الافاقة من توقف القلب المفاجئ عن العمل وليس لديهم وعي كافي في طرق عملية تخفيض درجة الحرارة العلاجي وايضا في مكونات معالجة المريض بعد الافاقة من توقف القلب المفاجئ و معظم تقني لتمريض يحتاجون لتدريب مستمر و عمل كورسات للانعاش القلبي المتقدم وطرق معالجة المريض بعد الافاقة من توقف القلب المفاجئ عن العمل.

# *Chapter one*

- *introduction*
- *literature review*
- *justification*
- *objectives*

## **Introduction and Relevant Publications:**

Patients who present to the emergency department (ED) with return of spontaneous circulation after cardiac arrest generally have poor outcomes

Cardiac arrest can occur following a myriad of clinical conditions. With advancement of medical science and improvements in Emergency Medical Services systems, the rate of return of spontaneous circulation for patients who suffer an out-of-hospital cardiac arrest (OHCA) continues to increase. Managing these patients is challenging and requires a structured approach including stabilization of cardiopulmonary status, early consideration of neuroprotective strategies, identifying and managing the etiology of arrest and initiating treatment to prevent recurrence<sup>(1)</sup>.

Following successful resuscitation from cardiac arrest, neurological impairment as well as other types of organ dysfunction still causes significant morbidity and mortality. The whole-body ischemia-reperfusion response that occurs during cardiac arrest and subsequent restoration of systemic circulation results in a series of pathophysiological processes that have been termed the post-cardiac arrest syndrome. The components of the post-cardiac arrest syndrome comprise post-cardiac arrest brain injury, post-cardiac arrest myocardial dysfunction, the systemic ischemia-reperfusion response and persistent precipitating pathology. Management of the post-cardiac arrest syndrome involves intensive care support with input from various other medical specialties in a coordinated fashion. Management of ventilation aims for normal carbon dioxide values and normoxia rather than hyperoxia. Management of the circulation commonly requires vasoactive support to overcome (often transient) myocardial dysfunction. Particular attention should be given to evidence of cardiac ischemia and referral for urgent

angiography and percutaneous coronary intervention, if appropriate, should be available to all. Optimizing neurological recovery will involve seizure control, management of hyperglycemia and therapeutic hypothermia. Prognostication following cardiac arrest remains difficult, but there are diagnostic tests that may be used with some degree of accuracy<sup>(2)</sup>, the treatment of cardiac arrest has made significant progress over the last 10–15 years. This period marks a significant turning point, because the treatment of out-of-hospital cardiac arrest (OHCA) had often been considered an exercise in futility, with no improvement in outcome for the previous 30 years. In recent years, several investigators have documented marked improvements in survival after OHCA, particularly in those cases with an initial shockable rhythm (ventricular fibrillation (VF) or pulseless ventricular tachycardia (pVT)<sup>(3)</sup>.

### **Literature review:**

Cardiac arrest (CA) is often the terminal event following progression of and decompensation from a wide range of pathophysiological events.

Following resuscitation, the airway should be assessed to ensure adequate oxygenation and ventilation in all patients. A safe airway should be established and comatose patients incubated (if not done prior to arrival).

Mechanical ventilator settings should be adjusted as needed based on ABG results. Patients who develop ARDS should be managed with low tidal volume ventilation with PEEP adjusted to keep plateau pressures  $\leq 30$  cm of H<sub>2</sub>O (4). Awake patients with appropriate respiratory effort and able to maintain their airway can be monitored without intubation.

Controlled use of supplemental oxygen to achieve SpO<sub>2</sub>  $\geq 94\%$  is recommended in the non-intubated patients post-resuscitation. Similarly, in patients who are intubated FIO<sub>2</sub> should be quickly titrated to maintain SpO<sub>2</sub>  $\geq 94\%$ . Higher PaO<sub>2</sub> levels may lead to adverse neurological outcomes (5), following successful resuscitation from cardiac arrest, neurological impairment as well as other types of organ dysfunction still causes significant morbidity and mortality. The whole-body ischemia-reperfusion response that occurs during cardiac arrest and subsequent restoration of systemic circulation results in a series of path physiological processes that have been termed the post-cardiac arrest syndrome. The components of the post-cardiac arrest syndrome comprise post-cardiac arrest brain injury, post-cardiac arrest myocardial dysfunction, the systemic ischemia-reperfusion response and persistent precipitating pathology. Management of the post-cardiac arrest syndrome involves intensive care support with input from various other medical specialties in a coordinated fashion. Management of ventilation aims for normal carbon dioxide values and normoxia rather than hyperoxia. Management of the

circulation commonly requires vasoactive support to overcome (often transient) myocardial dysfunction <sup>(6)</sup>.

Once return of spontaneous circulation (ROSC) has been achieved, post-resuscitation management impacts significantly on the ultimate neurological outcome. European guidelines for the management of post cardiac arrest patients were published in 2015 and describe the interventions that will optimize outcome <sup>(7)</sup>. Those patients who achieve ROSC and have ST-elevation (STE) on their ECG will require urgent coronary catheterization because most of these will benefit from percutaneous coronary intervention (PCI) to restore coronary perfusion <sup>(8)</sup>. The immediate management of those without an obvious non-cardiac cause and without STE is controversial. Some experts advocate urgent coronary catheterization in all such patients <sup>(9)</sup>. Current European guidance is that these patients should also be discussed with interventional cardiologists and consider for urgent coronary catheterization <sup>(7)</sup>. Cerebral auto regulation is disturbed in 35% of post-cardiac arrest patients and is particularly associated with pre-arrest hypertension <sup>(10)</sup>. The optimal target mean arterial pressure (MAP) post cardiac arrest is likely to vary between patients, but to avoid secondary brain ischemia it has been suggested that the optimal MAP is likely to be in the range 85–105 mmHg, which is somewhat higher than the 65–70 mmHg that is widely used <sup>(11)</sup>. Until recently, in the immediate period after ROSC (certainly pre hospital and often in the emergency department) it has been common practice to ventilate the lungs of comatose post-cardiac arrest patients with 100% oxygen. This not unreasonably reflected concerns about harm from hypoxemia and lack of awareness of harm from high concentration oxygen. <sup>(12)</sup>. In a randomized controlled trial (RCT) the use of routine supplemental oxygen among patients with STE myocardial infarction (but

not cardiac arrest), resulted in an increase in size of myocardial infarction compared with patients given oxygen only if hypoxemic<sup>(13)</sup>. A RCT of oxygen titrated to 90–94% versus 98–100% as soon as possible after ROSC and continued until ICU admission (EXACT phase 3 trial) will inform the optimal oxygenation strategy after ROSC<sup>(14)</sup>. European guidelines recommend the use of a protective lung ventilation strategy in post-cardiac arrest patients, but this was based mainly on data extrapolated from patients with acute respiratory distress syndrome<sup>(7)</sup>.

Mild hypothermia has been shown to improve neurological outcome from OHCA presenting with a shockable rhythm, but the two prospective studies documenting this are now considered to be of moderate to low quality<sup>(15)</sup>. The targeted temperature management (TTM) study showed no difference in neurological outcome between all-rhythm OHCA patients with ROSC who had their temperature controlled for 24 h at 33°C versus 36°C<sup>(16)</sup>. Temperature control for comatose survivors of OHCA is still important, but within the range of 32–34°C there is no consensus on the optimal target temperature<sup>(17)</sup>. The commonest mode of death in post cardiac arrest patients who are admitted to ICU but do not survive is withdrawal of life-sustaining therapy (WLST) following determination of a poor neurological prognosis. We now recognize that in many cases these WLST decisions have been premature and that prognostic tests previously thought to be reliable are associated with unacceptably high false positive rates<sup>(18)</sup>. European guidelines for prognostication in comatose post-cardiac arrest patients advocate a multimodal approach that is delayed until at least 3 days after cardiac arrest<sup>(19)</sup>. Cardiac arrest patients commonly experience hyperglycemia and require close monitoring of glucose levels<sup>(20)</sup>. Some studies have also noted a substantial increase in the incidence of hyperglycemia following

hypothermia therapy <sup>(19)</sup>. Unless hypoglycemia is the cause of arrest, post-arrest patients usually demonstrate hyperglycemia. Hyperglycemia is detrimental <sup>(22)</sup> and impairs neurological recovery <sup>(23)</sup> Optimal blood glucose range in patients post-CA remains unknown but strict normoglycemia is not required <sup>(24)</sup> Strict blood sugar control with intensive insulin therapy targeting values lower than 110 mg/dl can lead to hypoglycemia which has been associated with increased mortality<sup>(25)</sup>. Thus, moderate glycemic control (144–180 mg/dl) is preferred and insulin therapy should be targeted to this goal <sup>(26)</sup>

## **Justification**

Post cardiac arrest nursing care is very important aspect in critical nursing care practice and also it is my point of interest, according to the author best knowledge there is no studies about nurses' awareness regarding post cardiac arrest nursing care in Sudan because no published studies was conducted in Sudan

## **Objectives**

### **1. General objective:**

To assess nurses' awareness regarding post cardiac arrest nursing care in Elshaab teaching hospital.

### **2. Specific objectives:**

- ❖ To assess nurses' awareness regarding air way management and ventilation post cardiac arrest.
- ❖ To study nurses' knowledge regarding circulation and hemodynamic management post cardiac arrest.
- ❖ To study nurses' awareness regarding targeted temperature management
- ❖ To assess nurses' awareness regarding post cardiac arrest syndrome
- ❖ To identify nurses' awareness regarding neurological recovery
- ❖ To identify nurses' knowledge regarding basic metabolic status.

# *Chapter two*

## ➤ **Methodology**

## **Methodology**

### **Study design:**

Descriptive study, hospital – based study

### **Study area:**

This study was conducted in Elshaab teaching hospital which was established in 1964 in Khartoum state in Sudan.

Elshaab teaching hospital is located in the Khartoum state, is consist of coronary cardiac care unit (CCU).intermediate cardiac care unit (ICCU). Cardiac catheterization laboratory unit respiratory intensive care unit (RICU).Asthma intensive care unit (ACU).open heart surgery unit (OHSU), theoretic intensive care unit (TICU) and wards

### **Study setting:**

Study setting includes coronary care unit (CCU) which consists of nine beds for cardiovascular diseases admission, and intermediate coronary care unit (ICCU) which consist of twelfth beds for cardiovascular diseases admission, and open heart surgery unit (OHSU) which consist of six beds for open heart surgery admission.

### **Study period:**

Between October 2017 and April 2018

### **Study population:**

Registrar nurses' working in Elshaab teaching hospital in coronary care unit (CCU).intermediate coronary care unit (ICCU), open heart surgery unit (OHSU).

### **Inclusion criteria:**

All registrar nurses working in CCU.ICCU.OHSU, with more than one year experience and agreed to be part in this study.

### **Exclusion criteria:**

- 1) UN registrar nurses' working in CCU.ICCU.OHSU.
- 2) Registrar nurses less than one year experience in CCU.ICCU.OHSU.
- 3) Registrar nurses who don't agree to be involved in the study.

### **Sample size:**

The total numbers of registrar nurses' in coronary care unit (CCU) and intermediate coronary care unit(ICCU), open heart surgery (OHSU), ,are less than 100 registrar nurses' so the totally covered are 80 nurses the sample size are 80 registrar nurses'.

### **Sample technique:**

Simple random sample.

### **Data collection tools:**

Data was collected by using questionnaire including personal data about the nurses involve in the study including qualification and work experience as well as nursing questions to assess awareness regarding post cardiac arrest care in Elshaab teaching hospital, the tool used to analyzed questionnaires are **rating scales as following:**

**Full four right answers consider very good awareness**

**Three right answers consider good awareness**

**One to two right answers consider poor awareness.**

**Data analysis:**

Data was analyzed by using statistical package for social sciences (SPSS) by professional statestionar.

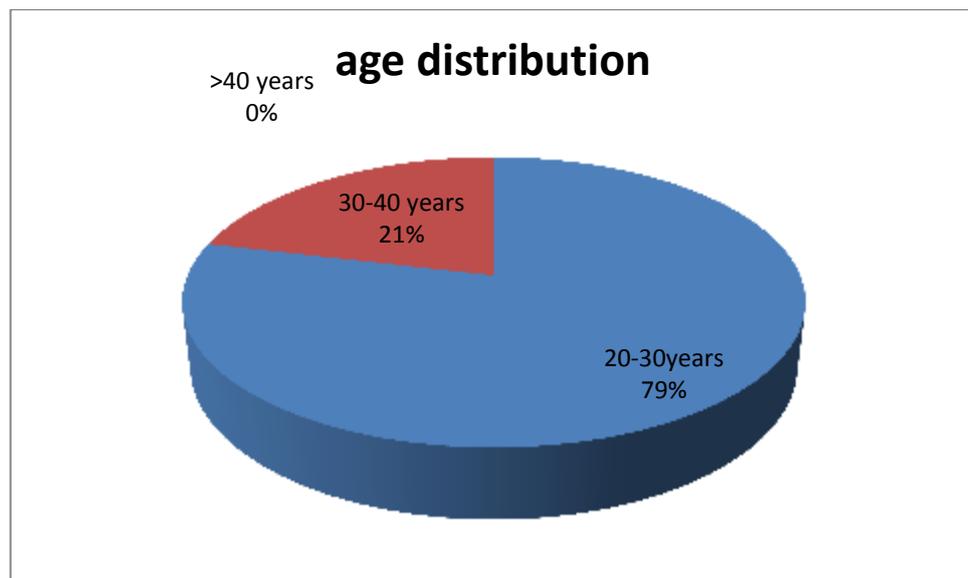
**Ethical consideration:**

Ethical consideration was approval from Shendi University and the Permission was taken from elshaab teaching hospital administration and also verbal consent was taken from the nurses

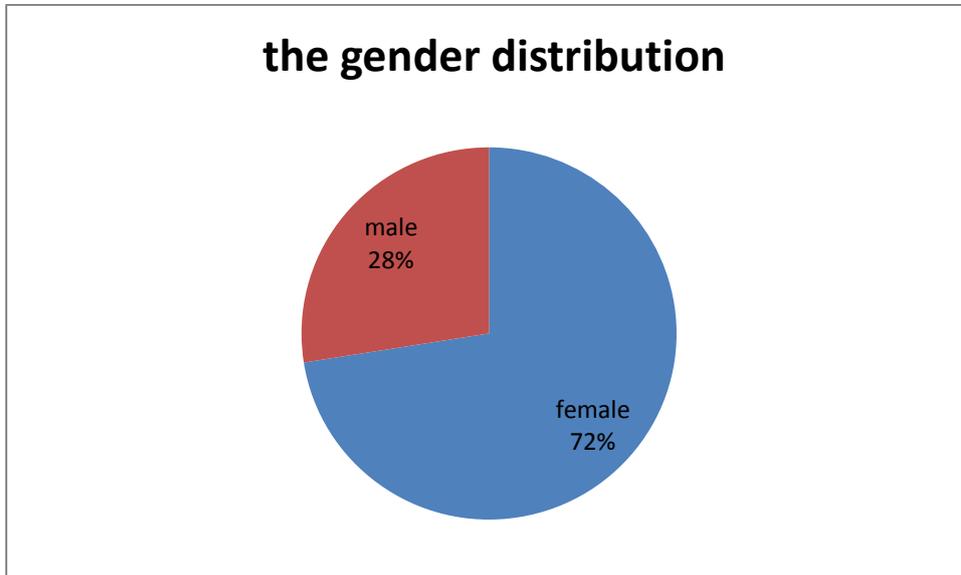
# *Chapter three*

➤ *RESULTS*

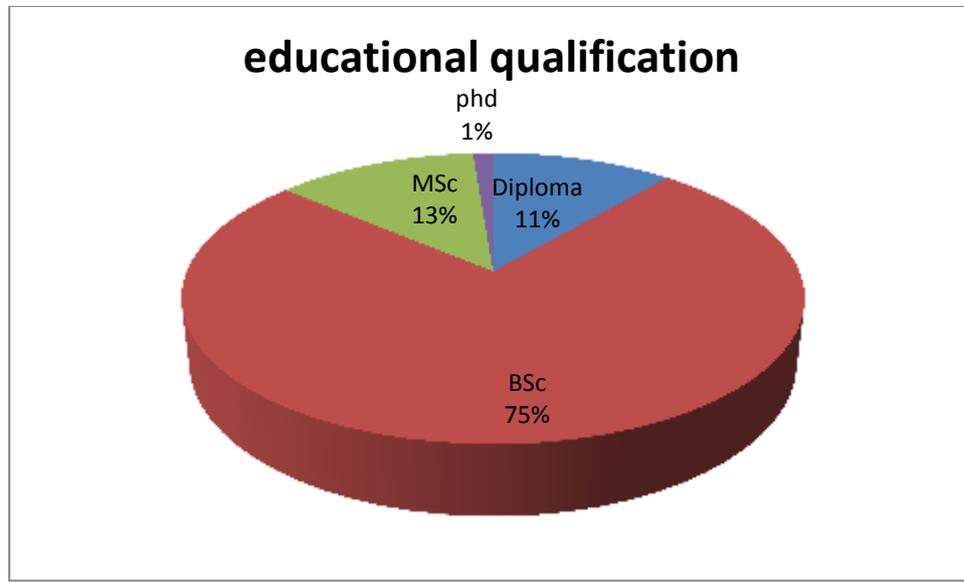
## Results:



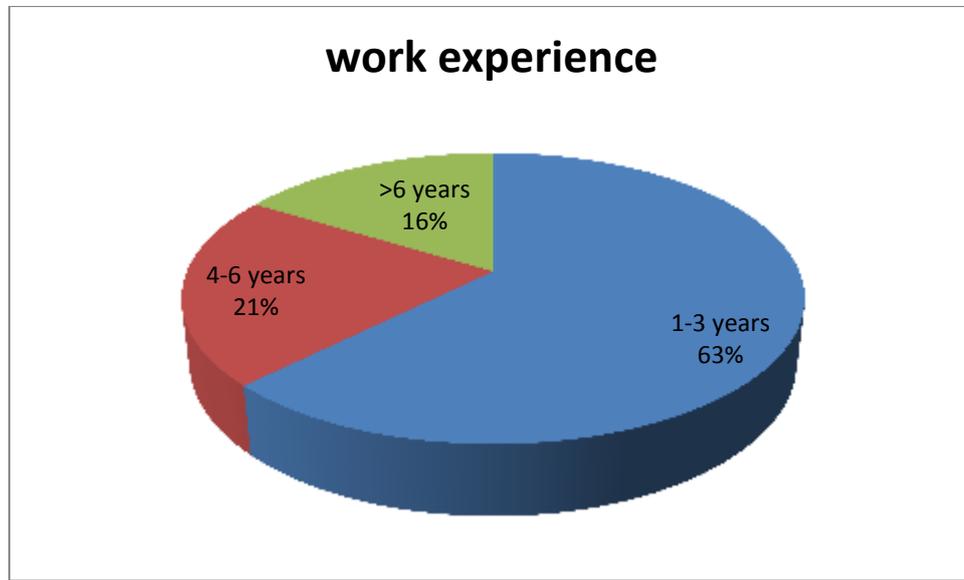
**Figure (1):** show the age distribution among study population (n=80)



**Figure (2):** show the gender distribution among study population (n=80)



**Figure (3):** show the educational qualification among study population (n=80)



**Figure (4):** show the work experience among study population (n=80)

**Table (1):** show nurses' knowledge regarding definition of cardiac arrest

<b>Level of awareness</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Very good</b>	<b>51</b>	<b>63.75%</b>
<b>Good</b>	<b>24</b>	<b>30%</b>
<b>Poor</b>	<b>5</b>	<b>6.25%</b>
<b>Total</b>	<b>80</b>	<b>100%</b>

**Table (2):** show nurses' knowledge regarding return of spontaneous circulation

<b>Level of awareness</b>	<b>frequency</b>	<b>Percentage</b>
<b>Very good</b>	<b>46</b>	<b>57.5%</b>
<b>Good</b>	<b>24</b>	<b>30%</b>
<b>Poor</b>	<b>10</b>	<b>12.25%</b>
<b>Total</b>	<b>80</b>	<b>100%</b>

**Table (3):** show the nurses' knowledge regarding component of post cardiac arrest nursing care

<b>Level of awareness</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Very good</b>	<b>18</b>	<b>22.5%</b>
<b>Good</b>	<b>20</b>	<b>25%</b>
<b>Poor</b>	<b>42</b>	<b>52.5%</b>
<b>Total</b>	<b>80</b>	<b>100%</b>

**Table (4):** show nurses' knowledge regarding air way management and ventilation

<b>Level of awareness</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Very good</b>	<b>65</b>	<b>81,25%</b>
<b>Good</b>	<b>10</b>	<b>12.5%</b>
<b>Poor</b>	<b>5</b>	<b>6.25%</b>
<b>Total</b>	<b>80</b>	<b>100%</b>

**Table (5):** show the nurses' knowledge regarding hemodynamic stabilization

<b>Level of awareness</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Very good</b>	<b>54</b>	<b>67.5%</b>
<b>Good</b>	<b>20</b>	<b>25%</b>
<b>Poor</b>	<b>6</b>	<b>7.5%</b>
<b>Total</b>	<b>80</b>	<b>100%</b>

**Table (6):** show the nurses' knowledge regarding methods of therapeutic hypothermia

<b>Level of awareness</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Very good</b>	<b>17</b>	<b>21.25%</b>
<b>Good</b>	<b>18</b>	<b>22.5%</b>
<b>Poor</b>	<b>45</b>	<b>56.25%</b>
<b>Total</b>	<b>80</b>	<b>100%</b>

**Table (7):** show the nurses' knowledge regarding assessment of basic metabolic panel

<b>Level of awareness</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Very good</b>	<b>64</b>	<b>80%</b>
<b>Good</b>	<b>11</b>	<b>13.75%</b>
<b>Poor</b>	<b>5</b>	<b>6.25%</b>
<b>Total</b>	<b>80</b>	<b>100%</b>

**Table (8):** show the nurses' knowledge regarding post cardiac arrest syndrome

<b>Level of awareness</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Very good</b>	<b>51</b>	<b>63.75%</b>
<b>Good</b>	<b>20</b>	<b>25%</b>
<b>Poor</b>	<b>9</b>	<b>11.25%</b>
<b>Total</b>	<b>80</b>	<b>100%</b>

**Table (9):** show correlation between knowledge and educational qualification:

<b>Knowledge</b>	<b>Very good</b>	<b>Good</b>	<b>Poor</b>	<b>Total</b>	<b>p-value</b>
<b>Definition of cardiac arrest</b>	<b>22</b>	<b>29</b>	<b>29</b>	<b>80</b>	<b>0.28</b>
<b>Signs of return spontaneous circulation</b>	<b>27</b>	<b>19</b>	<b>34</b>	<b>80</b>	<b>0.24</b>
<b>Component of post cardiac arrest care</b>	<b>13</b>	<b>25</b>	<b>42</b>	<b>80</b>	<b>0.16</b>
<b>Methods of therapeutic hypothermia</b>	<b>20</b>	<b>15</b>	<b>45</b>	<b>80</b>	<b>0.19</b>
<b>Hemodynamic stabilization</b>	<b>18</b>	<b>36</b>	<b>26</b>	<b>80</b>	<b>0.23</b>
<b>Air way management and ventilation</b>	<b>53</b>	<b>12</b>	<b>15</b>	<b>80</b>	<b>0.15</b>

**Table (10):** show correlation between knowledge and work experience;

<b>Knowledge</b>	<b>Very good</b>	<b>Good</b>	<b>Poor</b>	<b>Total</b>	<b>p-value</b>
<b>Signs of return of spontaneous circulation</b>	<b>27</b>	<b>19</b>	<b>34</b>	<b>80</b>	<b>3.09</b>
<b>Component of post cardiac arrest care</b>	<b>13</b>	<b>25</b>	<b>42</b>	<b>80</b>	<b>2.11</b>
<b>Methods of therapeutic hypothermia</b>	<b>20</b>	<b>15</b>	<b>45</b>	<b>80</b>	<b>2.44</b>
<b>Air way management and ventilation</b>	<b>53</b>	<b>12</b>	<b>15</b>	<b>80</b>	<b>1.95</b>

## **Results:**

This study was conducted in Elshaab teaching hospital in coronary care unit (CCU) and intermediate coronary care unit (ICCU) and open heart surgery unit (OHSU) and respiratory intensive care unit (RICU) to assess nurses' awareness regarding post cardiac arrest nursing care by sample size (n=80)

### **Figure (1): Age distribution among study population (n=80)**

Sixty-three of nurses' (79%) their ages between 20-30 years old and seventeen of nurses (21%) their ages between 30-40 years old

### **Figure (2): Gender distribution among study population (n=80)**

Fifty- eight of nurses' (72%) represent females, while twenty-two nurses' (28%) represent males

### **Figure (3): Educational qualification distribution among study population (n=80)**

Nine of nurses' (11%) are diploma holder and sixty of nurses' (75%) are bachelor holder and ten of nurses' (13%) are master degree holder and one of nurse (1.25%) phd holder.

### **Figure (4): Work experience among study population (n=80)**

Fifty of nurses (63%) have working experience of 1-3 years and seventeen (21%) of study population working experience of 4-6 years and thirteen (16%) have experience of more than 6 years

### **Table (1): knowledge regarding definition of cardiac arrest:**

Fifty –one (63.75%) of study population have correct answers and twenty-nine (36.25%) have incorrect answers regarding definition of cardiac arrest

**Table (2): knowledge regarding signs of return spontaneous circulation:**

Forty-six (57.5%) of study population have correct answers and twenty – four (30%) have good knowledge and ten (12.5) have incorrect answers regarding signs of return of spontaneous circulation.

**Table (3): knowledge regarding component of post cardiac arrest care:**

Forty-two (52.5%) of study population have incorrect answers regarding component of post cardiac arrest care and only thirty-eight (47.5%) have correct answers

**Table (4): knowledge regarding air way management and ventilation:**

Sixty-five (81.5%) of study population have correct answers and fifteen (18.75%) have incorrect answers regarding air way management and ventilation

**Table (5): knowledge about hemodynamic stabilization:**

Fifty-four (67.5%) of study population have correct answers and twenty-six (32.5%) have incorrect answers regarding air way management and ventilation.

**Table (6): knowledge about methods of therapeutic hypothermia**

Forty-five (56.25%) of study population have incorrect answers and only thirty-five (43.75%) have correct answers regarding methods of therapeutic hypothermia post cardiac arrest care.

**Table (7): nurse's knowledge regarding assessment of basic metabolic panel:**

Sixty-four (80%) of study population have correct answers and only five (6.25%) of nurses' have incorrect answers regarding assessment of metabolic panel

**Table (8): nurse's knowledge regarding post cardiac arrest syndrome:**

Fifty-one (63.75%) of study population have correct answers and twenty-nine (36.25%) have incorrect answers regarding awareness of post cardiac arrest syndrome

**Table (9): show correlation between knowledge and educational qualification:**

In association between knowledge and educational qualification thirty-six (45%) of nurses have good knowledge regarding hemodynamic stabilization, also fifty-three (66.25%) of nurses have very good knowledge regarding knowledge of air way management and ventilation, and forty-five (56.25%) of nurses have poor knowledge regarding knowledge of methods of therapeutic hypothermia.

**Table (10): show correlation between knowledge and work experience:**

Only twenty-seven (33.75%) of nurses' have very good experience regarding signs of return of spontaneous circulation, and forty-two (52.5%) of nurses have poor experience regarding component of post cardiac arrest care.

# *Chapter four*

➤ *DISCUSSION*

## **Discussion:**

The majority of the study population was female (72.5%) figure- 1, this result is same to the result of study done by **Bindhu Vausedvan** in India show result of (71.1) of study population was female in assessment of level of knowledge of the basic life support among medical and nursing students (27).

Nearly half of study population was in age group of 20-30 years old (figure 2) and two- thirds of the study group has bachelor degree (figure 1) and the most of the study group has 1-3 years of experience (figure-4)

Most of study populations (63.75%) have correct answers about definition of cardiac arrest and BSc holder nurses have very good awareness regarding definition of cardiac arrest (table-1).

most of nurses' (57.5%) have correct answers about signs of return of spontaneous circulation and the BSc nurses holder have very good awareness regarding signs of return of spontaneous circulation (table-2).

Most of nurses' have incorrect answers (52.5%) regarding component of post cardiac arrest care and all of them have poor awareness regarding component of post cardiac arrest care (table-3).

Most of registrar nurses' (81.25%) have very good awareness regarding air way management and ventilation post cardiac arrest and the Bsc holder nurses have very good awareness (table-4).

Most of nurses have incorrect answers about methods of therapeutic hypothermia (56.25%) and all of them have poor awareness regarding methods of induce therapeutic hypothermia post cardiac arrest (table-6).

Most of nurses' sixty-four (80 %) have very good awareness regarding assessment of basic metabolic panel post cardiac arrest (table7).

most of nurses' which have experience between 1-3 years are poor awareness and experience of 4-6 years have very good and experience of more than 6 years are good awareness regarding post cardiac arrest syndrome (table-8)

The correlation between educational qualification and hemodynamic stabilization is good because fifty four (67.5%) of nurses' have correct answer regarding hemodynamic stabilization, and also good knowledge between air way management and ventilation because (66.25%) of nurses' have good knowledge and the correlation between educational qualification and methods of therapeutic hypothermia is poor because thirty five (43.75%) of nurses' un knowledgeable this results explain lack of knowledge and needs improving of educational level by educational programs and courses table (9)

The correlation between experience and return of spontaneous circulation is very good because forty six (57.5%) of nurses are knowledgeable regarding return of spontaneous circulation (ROSC) that indicate to good continuous courses training in advance life support, the association between experience and component of post cardiac arrest nursing care is poor because forty tow (52.5%) of nurses' un knowledgeable regarding component post cardiac arrest nursing care table (10) this results explain need of those nurses to continuous practice programs and training .

## **Conclusion:**

- ❖ The majority of the study population was female (72.5%).
- ❖ Nearly half of study population was in age group of 20-30 years old and two-thirds of the study group has bachelor degree and the most of the study group has 1-3 years of experience
- ❖ Most of nurses' (81.25%) have very good awareness regarding air way management and ventilation post cardiac arrest and the BSc holder nurses' have very good awareness.
- ❖ Most of nurses have incorrect answers about methods of therapeutic hypothermia (56.25%) and all of them have poor awareness regarding methods of induce therapeutic hypothermia post cardiac arrest.
- ❖ Most of nurses' have incorrect answers (52.5%) regarding component of post cardiac arrest care and all of them have poor awareness regarding component of post cardiac arrest care.
- ❖ most of nurses' which have experience between 1-3 years are poor awareness and experience of 4-6 years have very good and experience of more than 6 years are good awareness regarding post cardiac arrest syndrome.

## **Recommendations:**

**According to the study finding the author recommended the following:**

- ❖ Continuous assessment of the nurses' awareness in critical care area.
- ❖ Frequent training courses' regarding post cardiac arrest care standard protocol.
- ❖ Raising the awareness of nurses about the newest guidelines.
- ❖ Senior supervision of the junior staff in critical care area.
- ❖ Further researches to be performed regarding post cardiac arrest care.

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***Annexes:***

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

University of shendi

College of post graduate studies

Master of critical care nursing

### Questionnaire

Nurses awareness regarding post cardiac arrest care

Please put (√) in the right answer and (×) in the wrong answer

#### Section (1)

**Demographic data:**

- 1) Serial number ( )
- 2) Age : 20-30years ( )    30-40 years ( )    >40 years ( )
- 3) Gender :    male ( )                      female ( )
- 4) Educational level :  
    Diploma ( )    BSC ( )    MSC ( )    PHD ( )
- 5) Work of experience :  
  
    1-3 years ( )    4 -6 years ( )    > 6 year ( )

#### Section (2)

- 1) Cardiac arrest is :
  - A. Stop pumping of the heart    ( )
  - B. Stop spontaneous breathing    ( )
  - C. May occur due to arrhythmia ( )
  - D. Loss of consciousness            ( )

- 2) Causes of cardiac arrest are:
- A. Arrhythmia ( )
  - B. electrolyte imbalance ( )
  - C. hypoxia ( )
  - D. toxins ( )
- 3) signs of cardiac arrest :
- A. unresponsive ( )
  - B. No pulse palpated within 10 seconds ( )
  - C. No spontaneous breathing ( )
  - D. sudden collapse ( )
- 4) Signs of return spontaneous circulation include
- A. Palpable pulse ( )
  - B. Spontaneous breathing ( )
  - C. Spontaneous coughing ( )
  - D. Spontaneous movement ( )
- 5) the component of care provided to patient post cardiac arrest are:
- A. assessment of airway, breathing ,circulation, disability, exposure ( )
  - B. Doing investigation ( )
  - C. Applying therapeutic hypothermia ( )
  - D. Urgent PCI ( )
- 6) Airway management and ventilation include:
- A. Positioning ( )
  - B. Ambubag ( )
  - C. frequent suction ( )
  - D. Advance airway(intubation) ( )

**7) Post cardiac arrest circulation care include**

- A. 12-lead ECG** ( )
- B. Reliable intravenous access** ( )
- C. Aim of systolic blood pressure >100 mmhg** ( )
- D. Consider vasopressor / inotrope to maintain SBP** ( )

**8) Hemodynamic stabilization by :**

- A. IV fluids** ( )
- B. Using vasopressor drug** ( )
- C. Inotropic agent support** ( )
- D. sedation and analgesia** ( )

**9) the goals of hemodynamic monitoring is to:**

- A. Map >65mmhg** ( )
- B. Oxygen saturation > 94%** ( )
- C. Pulse rate 72-100 b/m** ( )
- D. Temp 32-36c** ( )

**10) Hemodynamic treatment guided by :**

- A. Blood pressure** ( )
- B. Heart rate** ( )
- C. Urine output** ( )
- D. Central venous pressure and oxygen saturation** ( )

**11) 12- lead ECG post cardiac arrest done for purposes :**

- A. ST-segment changes** ( )
- B. tachyarrhythmia** ( )
- C. bradyarrhythmia** ( )
- D. conduction defect** ( )

- 12) chest x-ray post cardiac arrest can identify :
- A. pulmonary edema ( )
  - B. pneumonia ( )
  - C. haemothorax ( )
  - D. position Of ETT ( )
- 13) Post cardiac arrest syndrome include
- A. Brain injury ( )
  - B. Myocardial dysfunction ( )
  - C. Systemic ischemia ( )
  - D. Persistent precipitating pathology ( )
- 14) Method of inducing and therapeutic hypothermia include:
- A. Simple ice packs ( )
  - B. Cooling blankets or pads ( )
  - C. Water or air circulating blanket ( )
  - D. Water circulating gel-coated pads ( )
- 15) Complication of therapeutic hypothermia include:
- A. Shivering ( )
  - B. Increase susceptibility to infection ( )
  - C. Bradycardia ( )
  - D. Hyperglycemia ( )
- 16) Optimizing neurological recovery post cardiac arrest by:
- A. Sedation ( )
  - B. Glucose control ( )
  - C. Body temperature control ( )
  - D. Control of seizure ( )

**17) A basic metabolic panel assessment post cardiac arrest include**

- A. ABG** ( )
- B. Serum lactate** ( )
- C. Serum electrolytes** ( )
- D. Random blood sugar** ( )