A study to assess the knowledge and practices regarding use of intra-aortic balloon pump among staff nurses working in critical care unit in selected hospitals, Pimpri, Pune

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Abstract

Introduction: A Descriptive study to assess the knowledge and practices of staff nurses working in critical care units regarding use of Intra-aortic balloon pump, was conducted by Mrs. Sunita Dhananjay Thite in partial fulfillment of the requirement of the award of a degree Master of Science in Nursing at the College of Nursing, Dr. D.Y. Patil University Pimpri, Pune, Maharashtra.

Methods Research Approach: The Research Approach refers to the way in which the Investigator plans and constructs in research process. The researcher has adopted the quantitative approach. Result-it has been observed that above study showing there were the average knowledge and practices of staff nurses regarding use of Intra-aortic Balloon Pump in critical care unit. Since p-value corresponding to gender is small (less than 0.05), gender is the demographic variable which is found to have significant association with practices of staff nurses regarding Intra-Aortic Balloon Pump.

Conclusion: Nurse had average knowledge and practices on Intra-Aortic Balloon Pump, it is necessary to be aware of such measures. Without this knowledge, nursing practice and patient care are not of high standards.

Keywords: assess, knowledge and practices use of intra-aortic balloon pump, staff nurses

Introduction

A heart attack, or myocardial infarction, begins when a portion of the heart muscle suddenly loses its blood supply due to an obstruction of the coronary arteries. The obstruction is typically due to coronary arteriosclerosis. If the obstruction persists for more than a few minutes, the affected cardiac muscle tissue will begin to die this is known as a heart attack. Total circulation of heart is stopped at the time of cardiac arrest so we use advanced life support that is defibrillation and cardio version. 2

Critical care unit is a hospital facility for provision of intensive nursing and medical care of critically ill patients, characterized by high quality and quantity of continuous nursing and medical supervision and by use of sophisticated monitoring and resuscitative equipment’s. Critical care nursing is the field of nursing with a focus on the care of the critically ill or unstable patients. Intensive care nurses are required to be comfortable with a wide variety of technology and its uses in the critical care setting. They should be skilled in handling equipment’s such as hemodynamic and cardiac monitoring systems, mechanical ventilator therapy, Intra-Aortic Balloon Pumps, ventricular assist devices, continuous renal replacement equipment’ extracorporeal mechanical oxygenation circuits central venous catheters and many other advanced life support devices.

Research Methodology

Research Approach

The researcher has adopted the quantitative approach.

Research Design

The researcher has adopted a Non-experimental Descriptive research design
Setting of the study
The setting for this study was Ruby Hall Critical Care Unit for pilot study and Aditya Birla Memorial Hospital Pune for actual study.

Population
In this study the population comprised those nurses who work in a hospital.

Sample
The sample selected for the present study comprised the Staff nurses working in the critical care unit.

Sample Size
Sample size is 100

Sampling Technique
A Non-Probability Purposive Sampling Technique

Sampling Criteria
The following criteria were set for the selection of sample:

Inclusion Criteria
1. Nurses working in critical care unit.
2. Nurses who are registered nurses.

Exclusion Criteria
1. Nurses who were not willing to participate in this study.
2. Those who had critical care experience less than 6 month.

Development of Tool
The tool was developed after the review of literature on the relevant topic, discussion with experts and respected guide.

Description of the Tool
The Researcher prepared a Demographic Data, a Structured Questionnaire and Observation Checklist were the tool for study. The tool included three sections:

Section I: Participants Demographic Data.
The baseline Performa consisted 6 items like age, gender, education, marital status total years of clinical experience and any course done related intra-aortic balloon pump.

Section II: Questionnaire to assess the level of knowledge.
It contains questionnaire, which helps to assess the nurse’s level of knowledge. Questionnaire consists of 20 questions and 4 options. The questions include meaning of intra-aortic balloon pump (1 question) Indication OF Intra-aortic balloon pump (1 question) contraindication of intra-aortic balloon pump (2 question) Regarding procedure of intra-aortic balloon pump (3 question) Application of intra-aortic balloon pump (6 question) practice of intra-aortic balloon pump (3 question) complication of intra-aortic balloon pump (1 question) local complications (3 questions), types of local complications (1 question), Total mark is 20; each right answer carries 1 mark and wrong answer 0. Categories included in this section is excellent knowledge (16-20 marks), good knowledge (11-15 marks), average knowledge (06-10 marks) and poor knowledge (00-05 marks).

Section III: Observational Checklist.
It contained Observational Checklist to assess the practice of staff nurses regarding use of intra-aortic balloon pump working in critical care unit in selected hospitals. Checklist consisted of 23 practices. It consists of yes or no type questions. Each ‘yes’ answer carries 1 mark and no answer 0. Categories of this section is excellent practices (19-23 marks), good practices (13 -18 marks), average level of practices (07-12 marks) and poor practices (00-06 marks).

Validity
Validity refers to the degree to which an instrument measures what it is supposed to be measuring [78]. Content validity is concerned with the sampling adequacy of the content area being measured. Content validity is of special relevance to individuals designing a test to measure knowledge in a specific content area. The content validity of an instrument is based on judgment. Experts in the content area may be called on to analyze the items [78]. The tool for validity was sent to 23 experts from different specialties i.e. Medical-Surgical Nursing, Medicine department, Statistics, Sociology, lay person, Medicine Department, The validity was established by 23 experts. They were requested to give their opinion on the appropriateness and relevance of the items in the tool. As a whole the suggestions and comments of experts included content corrections. The tool was found to be valid. The necessary modifications have been done as per the expert's advice.

In Section A-There were a few deductions in the choices and addition of an item had given in the demographic data. E.g. In qualification it was advised to remove ANM. Nursing as option for choice.
E.g. advised to add question on any specific course done on critical care unit.
In Section B -Modification in the choices given and same questions were added according to the experts’ advice.
E.g. Change in options of question number 5, 15 and 20.
E.g. modify the question no: 9, 13, 16, and 19.
E.g. remove question no: 2 and add new question no: 1
In Section C -Added practice according to the experts’ advice.
E.g. modify the sequence of practices.
E.g. add more practices on management (added practice no: 21, 11, 15, and 13).
All suggestions given by the experts were taken in consideration and correction has been done as per that make relevant tool.

Reliability
The reliability of an instrument that yields Quantitative Data is a major concern for assessing its quality and adequacy. Essentially the reliability of an instrument is the degree of consistency with which it measures the attribute it is supposed to be measuring. The reliability of a measuring tool can be assessed in several different ways [78].
Reliability was assessed using test re-test method for knowledge section and inter-rated method of reliability for practice section.
The test re-test reliability was used for Structured Questionnaire. The Researcher administered the same Structured Questionnaire test to 10 staff nurses working in critical care unit hospital on two occasions with an interval of 30 minutes and then compared the scores obtained. The comparison procedure was performed objectively by
computing a reliability coefficient, which is numerical index of the magnitude of the test’s reliability. The Inter-rated reliability was used for Observation Checklist. To assess the degree to which observation checklist scores were consistent, the researcher used two different observers to observe and measures practices of 10 staff nurses independently, at the same time and then compared the scores obtained. The comparison procedure was performed objectively by computing a Cohen’s Kappa, which is numerical index of the magnitude of the test’s reliability. For knowledge section, reliability was assessed using Test-retest method. Pearson’s correlation coefficient was found to be 0.98. For practice section, Inter-rater method of reliability was used. Cohen’s Kappa was found to be 0.85.Hence the tool is reliable.

**Pilot Study**
A pilot study is a small-scale version or trial run of the major study. The function of the study is to obtain information and assess the feasibility of the study for improving and to decide the plan for data analysis [78]. The pilot study was conducted between 1ST September 7th September 2016 on 10 selected nurses of critical care unit to assess the feasibility of the study and to decide the plan for data analysis. Prior permission was taken to collect the Samples from nursing superintendent in Ruby Hall clinic Pune. The Investigator approached the subjects, informed them regarding the objectives of the study and obtained consent after assuring the subjects about the confidentiality of the data.

The data was collected through a Questionnaire and Observation Checklist. The study was found to be feasible.

**Procedure for data collection**
The final study was conducted from 10th September to 30th September 2016. Samples were collected from Aditya Birla Hospital. Permission was taken from the medical Superintendent and also from the Head of the departments of critical care unit of Aditya Birla Hospital & Jahangir Hospital Actual data collection was done on 100 staff nurses meeting the criteria for the study. The following schedule was followed for data collection:

The Researcher explained to the nursing in charges, nursing educators of different units and staff nurses about the research study statement and objectives to be conducted in Aditya Birla Hospital and Prior to data collection consent was taken from the samples, and they were assured that their identity would not be revealed in any case. 100 Staff nurses in different selected duty schedule and who were willing to participate in the data were selected. Each question was given 1 minute. Total time taken per respondent for questionnaire was 20 min and for Observation Checklist to observe practices total time given per respondent was 8 hours. In a day, an average of 3-4 staff nurses were taken as sample and data were collected.

**Section II**
An Analysis of Data Related To Knowledge Regarding Intra-Aortic Balloon Pump among Staff Nurses Working In Critical Care Unit

<p>| Table 1 : Knowledge regarding Intra-Aortic Balloon Pump among staff nurses working in critical care unit n=100 |</p>
<table>
<thead>
<tr>
<th>Sr. no</th>
<th>Knowledge</th>
<th>Frequency (f)</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Poor (score 0-6)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>Average (score 7-13)</td>
<td>39</td>
<td>39</td>
</tr>
<tr>
<td>3</td>
<td>Good (score 14-20)</td>
<td>61</td>
<td>61</td>
</tr>
</tbody>
</table>

61% of the staff nurses had good knowledge (score 14-20) and 39% of them had average knowledge (score 7-13).

<p>| Table 3: Practices regarding Intra-Aortic Balloon Pump among staff nurses working in critical care unit n=100 |</p>
<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Practices</th>
<th>Frequency (f)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Poor (score 0-7)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>Average (score 8-15)</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td>3</td>
<td>Good (score 16-23)</td>
<td>58</td>
<td>58</td>
</tr>
</tbody>
</table>

58% of the staff nurses had good practices (score 16-23) and 42% of them had average practices (score 16-23).

**Section III**
Analysis of Data Related To Practices Regarding Intra-Aortic Balloon Pump among Staff Nurses Working In Critical Care Unit

![Fig 8: Pie diagram showing Knowledge regarding Intra-Aortic Balloon Pump among staff nurses working in critical care unit](image)

![Fig 9: pie diagram showing Practices regarding Intra-Aortic Balloon Pump among staff nurses working in critical care unit](image)
Section IV
Analysis of Data Related To Association between Knowledge and Practices Regarding Intra-Aortic Balloon Pump With Selected Demographic Variable

Association of knowledge and practices regarding Intra-Aortic Balloon Pump with selected demographic variable was assessed using Fisher’s exact test. The summary of Fisher’s exact test is tabulated below:

<table>
<thead>
<tr>
<th>Demographic variable</th>
<th>Knowledge Average</th>
<th>Knowledge Good</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>14</td>
<td>31</td>
<td>0.156</td>
</tr>
<tr>
<td>Female</td>
<td>25</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-35 years</td>
<td>28</td>
<td>39</td>
<td>0.515</td>
</tr>
<tr>
<td>36-45 years</td>
<td>11</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GNM</td>
<td>23</td>
<td>25</td>
<td>0.230</td>
</tr>
<tr>
<td>B.sc</td>
<td>8</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>M.sc</td>
<td>8</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>8</td>
<td>25</td>
<td>0.049</td>
</tr>
<tr>
<td>Unmarried</td>
<td>31</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>Years of experience</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-10 years</td>
<td>28</td>
<td>42</td>
<td>0.825</td>
</tr>
<tr>
<td>10-15 years</td>
<td>11</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>Any special course</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical care unit</td>
<td>8</td>
<td>16</td>
<td>0.700</td>
</tr>
<tr>
<td>Basic life support</td>
<td>24</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>Advanced cardiovascular life support</td>
<td>7</td>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>

Table 4: Fisher’s exact test for association between knowledge score regarding Intra-Aortic Balloon Pump with selected demographic variable n=100

Since p-value corresponding to marital status is small (less than 0.05), marital status is the demographic variable which is found to have significant association with knowledge of staff nurses regarding Intra-Aortic Balloon Pump.

Conclusion
Nurse had good knowledge and practices on Intra-Aortic Balloon Pump, it is necessary to be aware of such measures. Without this knowledge, nursing practice and patient care are not of high standards.

From the present study it can be concluded that staff nurses working in critical care unit of Aditya Birla hospital, Chinchwad, included in the study have good knowledge and practices regarding use of Intra-Aortic Balloon Pump. There is significant association of the Demographic variable ‘gender’ with practices of staff nurses regarding Intra-Aortic Balloon Pump.

This chapter provided a summary of the study, a presentation of the main findings, limitations of the study as well as recommendations for nursing practice, education and research. This study was successful in achieving its aims and objectives as well as in using the research process appropriately. The researcher plans to publish the study in an accredited nursing journal.

Limitations of the study
The following were identified as limitations to the study:

The items that referred to observe the practices of staff nurses related to management of use of local complications of intra-aortic balloon pump, only assed how often various complications occurs on patients which was under care of particular nurse included in study.

Despite the final data collection instrument been considered valid by a group of critical care nursing experts, there is a possible lack of reliability as measured by the Cronbach’s alpha coefficient which would require refinement and additional testing of the instrument before further use.

Recommendation of the study
A similar study may be replicated on large samples; thereby findings can be generalized for a large population.

A comparative study may be conducted among staff nurses working in critical care unit.

An Experimental Study may be conducted for assessing the effectiveness of protocol and interventions on use of intra-aortic balloon pump.

A health teaching may be planned for staff nurses regarding use of intra-aortic balloon pump.

There is also a need for motivate innovate nursing practices in nursing education and nursing services.

Conclusion
Nurse had good knowledge and practices on Intra-Aortic Balloon Pump, it is necessary to be aware of such measures. Without this knowledge, nursing practice and patient care are not of high standards.

From the present study it can be concluded that staff nurses working in critical care unit of Aditya Birla hospital, Chinchwad, included in the study have good knowledge and practices regarding use of Intra-Aortic Balloon Pump. There is significant association of the Demographic variable ‘gender’ with practices of staff nurses regarding Intra-Aortic Balloon Pump.

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Acknowledgement
“Trust is the Lord with all your heart, and lean not on your own understanding, in all you ways acknowledge Him, and He shall direct your paths.” First and foremost, praise and thanks to God, Almighty, for His showers of blessings throughout my research work to complete the research successfully. I would like to express my deep and sincere gratitude to Dr. Mrs. Khurshid Jamadar, Principal, Dr. D. Y. Patil College of Nursing, for continuous guidance and support for the study. I would like extend my profound gratitude and deep regard to my Research Coordinator, Mrs.
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