Knowledge and Practice of Registered Nurses about Patient Safety after Cardiac Catheterization in Punjab Institute of Cardiology Hospital in Lahore, Pakistan

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Background: Cardiac Catheterization is a critical health status which requires standardized care policies, as well as it needs qualified and skilled health provider to obtain good outcome of management. This study aimed to assess the knowledge and practice of nurses regarding patient safety after cardiac catheterization.

Material: This cross-sectional study was conducted in Punjab Institute of cardiology located in Lahore, Pakistan from 01st December 2016 to 31st March, 2017. 171 female nurses through using convenient sampling technique were included in the study. Questionnaire with multiple choice was used to collect data. Likert scale for multiple choose questionnaires regarding knowledge and practice of the nurses were used. Collected data were analyzed using SPSS version 21.

Results: Out of 171 participants, all (N = 171) were female, most nurses had job experience of 2-5 years and 6-10 years, they were represented by 34.5% and 31.0% respectively. Mean of total knowledge was found good, when compared to mean of practice which was poor. This showed that nurses have good knowledge about post cardiac catheterization complication. It was found significant value of P < 0.0001 by applying correlation, that showed there was a good association between knowledge and practice (P < 0.05).

Conclusion: There was positive association between the knowledge and practice about patient’s safety after Cardiac Catheterization among Pakistanis registered nurses. Nurses those have proper knowledge and practice could help in rehabilitation of patients.

Keywords: Registered Nurses, Knowledge, Practices, Patient Safety, Cardiac Catheterization

Introduction

Cardiac Catheterization (CC) is that process which supposed as the golden standard for the diagnosis, evaluation, and treatment of cardiac diseases. Cardiac catheterization process is an extra valuable process for diagnosis and obtaining minute information about the structure and function of the cardiac chambers, valves and coronary arteries. This process also include studies of the right or left sides of the heart and coronary arteries (Mohammed, Said & Salah 2013; Ahmed, 2015).

Many patients suffer from preventable harm during health care in hospitals (Sheikh et al., 2015). Therefore, improving patient safety is at the forefront of policy and practice (Panesar et al., 2015). Moreover, it is responsibility of cardiac nurses to take care of post cardiac catheterize procedure patients with proper standard because it is very contagious to retain infectious diseases (Sutker, 2008). There are
ideas that most of the threats are relate to
patients safety and illness and arise from health
provider and organization system factor. 
Professional factors such as health care
professionals’ awareness and skillfulness
regarding patient safety have an influence on to
patient safety, particularly when health care
provider have a deficit level of safety knowledge
and skillfulness to deliver secure care for their
patients. Hence, the competencies of the cardiac
nurses is imperative, little negligence’s of
cardiac nurses, there is a chance of getting minor
and major complication such as hematoma,
cechymosis and oozing, cardiac perforation and
abrupt closure etc. Therefore, nurses are playing
an extremely important role in post cardiac
catheterization patients management (Ahmed,
2015). Moreover, nurses need to develop
and safe protocol of care for the
patients of post cardiac catheterization and
percutaneous coronary intervention that
protocols should be researched and be evidence
based. Hence, Patient outcomes can be improved
if there is a greater quantity or quality of nursing

Moreover nurses who work in patient care
after post cardiac catheterization procedure
should be educated and have vast knowledge
and skills to treat patients whose coming from
different cardiac catheterizations procedure that
require standard operating nursing care (Chen &
Crozier, 2014).

Nurses in the Cardiac Catheterization Lab (CCL)
play a vital part in providing quality care to
their patients. Through knowledge and current
evidence based practice, is the key to become an
effective and efficient nurse (Incardone, 2011).

CC staff and nurses whose caring for post
cardiac catheterization procedure patients should
be work together to reduce complications, when
possible, and treat these complications when they
occur. Careful nurses’ assessment and monitoring
are required to reach these goals. Nurses with
specialized in cardiac training must need to assess,
identify and manage the blood vessels (Ahmed,
2015). Given the importance of the discussed
issues, this study aimed to assess the knowledge
and practice of nurses regarding patient safety after
cardiac catheterization.

Methods and Material
This cross sectional study included 171
consecutive female registered nurses selected for
the period of 1st December, 2016 to 31st March
2017 from Punjab Institute of Cardiology (PIC),
Lahore, Pakistan.

Nurses who working in emergency ward, CCU
and cardiology ward of PIC Hospital were
included while medical doctors and paramedical
staff of PIC were excluded from study.

Data were collected using the structured
questionnaire which was comprised of three
sections. Section A was about socio demographic
data, section b was a structured knowledge
questionnaire which contained knowledge questions and section C was a structured practice
questionnaire which contained practice questions.
All questionnaires were attached to this manuscipt.

The questionnaire contains thirty one questions
were presented in a multiple choice response
format with a single correct answer.

A score of 1 was awarded for each correct
answer. Therefore, ≤ 40% correct responses were
considered as poor knowledge/ practice and > 40 
% correct responses were considered as good
knowledge/practice.

Statistical Analysis
Data were analyzed by using Statistical
Package for the Social Sciences (SPSS) version
21.0. Frequencies and percentages analysis were
given for qualitative variables. Correlation of the
knowledge and practice of the studied nurses
were analyzed by using Spearman correlation
coefficient. Level of significance was taken as
≤ 5%.

Results
All the studied nurses were women. According to qualification distribution, the
present study showed that most of the nurses
were B.sc nursing diploma (48.5%), and the rest
were post RN BSc (22.8%) and also specialized in
CCU (28.7%). The majority of theme (41%, N
= 71) were in age range between 26 and 30 years
old. Figure 1 shows the frequency rate of other
age groups. The distribution of the studied
nurses in terms of job experience is shown in
Figure 2. As this Figure shows, the most
participants (35%, N = 59) had job experience
between 2 and 5 years. According Figure 3, the
most participants were unmarried (33%, 64).
Discussion

Nursing care is important in patients' survival and prevents the patients from post cardiac catheterization complications. Thus, the competence of nurses due to their knowledge and practice regarding patient care after cardiac catheterization is very crucial. The current study assessed the nurse's knowledge and practice regarding patient's safety after cardiac catheterization.

The findings regarding age groups and job experiences of the studied nurses of this study revealed that most of nurses were in age group of 26-30 years and with less than 5 years' experience. This finding indicated that most of the nurses were juniors. The advantages of nurses in young age group are being hyperactive which is always required in such crucial/vital wards. This justification discussed in previous study (Arathy, 2011). According to findings regarding the marital status distribution, was also in the line of both previous findings regarding age group and job experience. Furthermore, this study indicated that most of nurses working in the PIC, were highly educated and qualified that is a kind of benefit for CC wards.

In current study, the studied nurse's knowledge about post cardiac catheterization complication was assessed. The results showed the most nurses had good knowledge about post cardiac catheterization complication. Similar study that was done in Al-Najaf city to determine the nurses knowledge found that nurses had good knowledge about cardiac patient care (Nahla Shaaban, 2015). Nurses' knowledge was good and sufficient about cardiac catheterization procedure. In consistent to the present study, a study conducted in cardiac unit
to determine the nurses knowledge about pacemaker implantation showed the similar results (Hadi, 2016). This study conducted to determine the nurses' knowledge about caring patient who had intra-aortic balloon pump. However, previous research reported unsatisfactory nurses knowledge regarding caring of patients with cardiac procedure (Rushdy et al., 2015). In current study nurses have a good knowledge about patient care after cardiac catheterization procedure.

Furthermore, the present study showed, the nurses' practice regarding patient care after cardiac catheterization was poor. A similar study conducted in Cairo university hospitals to determine the nurses' practice about patient caring regarding connected intra-aortic balloon pump was very unsatisfactory (Rushdy et al., 2015). In current study nurses had good practice about some post procedural items like explain post procedure care, removal of sheath, apply firm pressure over catheter site, assess stability for pain, assess skin color or temperature and instruct the patient for self-management at home. A study conducted in Sulaimani city and found that nurses had good practice about post cardiac procedure (Aziz, 2014).

Current study assessed the knowledge and practice performance of nurses about post cardiac catheterization complication and different post cardiac catheterization care procedure provided by the cardiac nurses. The overall outcome has shown that, there was a variation between knowledge and practice in some procedures. Overall knowledge about post cardiac catheterization complication was better as compared to practice, but practice was found good and near to knowledge only among some post procedure items like explain post procedure care, removal of sheath, apply firm pressure over catheter site, assess stability for pain, assess skin color or temperature and instruct the patient for self-management at home but the overall practice was poor. In current study it was found that nurses had good knowledge and poor practice.

Out of 28 standard items of knowledge and practice which were assessed, only 2 items were significant that is the qualification of nurses through crosstab with knowledge and also the correlation between knowledge and practice was significant. A similar study conducted in Egypt and reported similar findings of insignificant relationships between age, job experience and other variables (Nahla Shaaban, 2015). In current study there was no significant correlation existed between gender, age, job experience and marital status. There were negative correlation between practice and years of experience.

Moreover, there was a significant relationship between knowledge and practice, knowledge and qualification. This result showed that qualification has great effect on the nurse's knowledge and nurses and can develop their knowledge through the experience.

**Questionnaire to assess the Knowledge and Practices among Registered Nurses about Patient Safety after Cardiac Catheterization in Punjab Institute of Cardiology Hospital**

**Section-A Socio Demographic Data**

For each question please circle one answer that best reflects the extent to which you agree.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Designation</th>
<th>1- Male</th>
<th>2- Female</th>
<th>Marital Status</th>
<th>1- Married</th>
<th>2- Unmarried</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Group</td>
<td></td>
<td></td>
<td></td>
<td>Qualification</td>
<td>1- General Nursing Diploma + Midwifery</td>
<td>2- BSN/Post RN</td>
</tr>
<tr>
<td>1- 20-25 years</td>
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<td></td>
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<tr>
<td>2- 26-30 years</td>
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<tr>
<td>3- 31-35 years</td>
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<tr>
<td>4- 36-40 years</td>
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<tr>
<td>Job Experience</td>
<td></td>
<td></td>
<td></td>
<td>Years Of Experience in cardiac unit</td>
<td>1- &lt; 1Year</td>
<td>2- 1-5Year</td>
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<tr>
<td>1- &lt; 1 Year</td>
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<td></td>
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<tr>
<td>2- 1-5 years</td>
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<tr>
<td>3- 6-10 years</td>
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<td>4- Above 10 years</td>
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</tbody>
</table>

**Section-B Structured Knowledge Questionnaire.**
NOTE: Encircle the most appropriate answer.

1. What are the local complications occurring in patients after cardiac catheterization? Mark all that apply.
   - Hematoma □
   - AV fistula □
   - Thrombus formation □
   - Stroke □
   - Renal failure □
   - AORTIC dissection □

2. How will you detect pseudo aneurysm after cardiac catheterization?
   - Pain at the puncture site □
   - Severe bleeding from the puncture site □
   - Pulsatile swelling and bruit □
   - Fever □

3. When should you check the serum creatine level of patients after cardiac catheterization?
   - Immediately after the procedure □
   - One day after the procedure □
   - One week after the procedure □
   - No need to check □

4. What is the complication of delayed sheath removal?
   - Bleeding □
   - Thrombus formation □
   - Air embolism □
   - Tachypnea □

5. Development of contrast-induced nephropathy occurs
   - One week after the procedure □
   - 5 days after the procedure □
   - One the day of procedure □

6. Who is at risk for developing renal failure after cardiac catheterization?
   - Young adult □
   - Hypertensive patients □
   - Elderly □
   - Dyslipidemia □

7. What is the sign of thrombus formation after cardiac catheterization?
   - Absence of distal pulse □
   - Pain at the puncture site □
   - Swelling at the puncture site □

8. How should the patient’s affected extremity to be kept immobilized after cardiac catheterization?
   - 1-3 hour □
   - 2-4-6 hours □
   - 4- above 8 hours □

9. Who is at risk for developing pulmonary edema after cardiac catheterization?
   - LV failure □
   - RV failure □
   - AORTIC Regurgitation □
   - Pulmonary AV fistula □

10. When you detect a hematoma at the puncture site after cardiac catheterization, you should not.
    - Elevate the bruised extremity □
    - Apply ice □
    - Lower the bruised limb □

Answer Key: 1, 3, 2, 3, 3, 1, 3, 1: Coded into Correct and Incorrect.

Section-C Structured Practice Questionnaire.

<table>
<thead>
<tr>
<th>S. No</th>
<th>Items</th>
<th>Always</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Explain the post procedure care</td>
<td></td>
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<tr>
<td>2</td>
<td>Remove the sheath</td>
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<tr>
<td>3</td>
<td>Observe the catheter site insertion for bleeding or hematoma</td>
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<td>4</td>
<td>Assess the skin color or temperature</td>
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<td>5</td>
<td>Assess the vital sign for (15-30) minutes for (2) hours initially and less frequently</td>
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<td>6</td>
<td>Assess for stability of pain</td>
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<td>7</td>
<td>Monitor the patient by ECG</td>
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<td>8</td>
<td>Places the patient in a supine position a padded table in the room</td>
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<td>9</td>
<td>Encourage patient to increased fluid intake</td>
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<td>10</td>
<td>Observe for signs of hypersensitivity to the contrast and other sign</td>
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<td>11</td>
<td>Check the patient output</td>
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<tr>
<td>12</td>
<td>Observe the extremity in which catheter inserted straight for 4-6 hours after procedure</td>
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<td>13</td>
<td>Immobilizes the arm on arm board, if the antecubital vessels are used</td>
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<tr>
<td>14</td>
<td>Instruct the patient to cough it there is a chest discomfort</td>
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<tr>
<td>15</td>
<td>Pressure dressing over the insertion site when catheters withdraw</td>
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<tr>
<td>16</td>
<td>Applies firm pressure over the site, if any bleeding occur</td>
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<tr>
<td>17</td>
<td>Monitor intake output after 24 hours following the procedure</td>
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<tr>
<td>18</td>
<td>Instruct the patient for self-management at home, before discharge</td>
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</table>
Conclusion
This study found the knowledge of registered nurses' knowledge regarding cardiac catheterized patients' casing is good. However, the study revealed that the nurses' practice was not satisfactory. There was a significant association between knowledge and practice regarding patients' care of these patients among registered nurses' of Lahore, Pakistan. However, these results should be confirmed in more future researches.

Conflict of Interest
There is no conflict of interest for this article.

Acknowledgement
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Authors' contribution
MF, MA, HS, AG, SHA; Study Importation, Data collection and analysis, Writing the first draft of the Paper.
MF, MA, HS, AG, SHA; Study design and data analysis, editing and confirming the final draft of the paper.
MF, MA, HS, AG, SHA; Study design, confirming the final draft of the paper.

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No Declared

References


