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Knowledge and Attitude of Nurses towards the Prevention of Catheter Associated Urinary Tract Infection in ICU, S of A Public Hospital Lahore

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Original Research Article

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Abstract: Catheter Associated Urinary Tract Infection (CAUTI) is the most common healthcare associated infection arising as the complication at intensive care units accounting for 80% of all hospital acquired infections .Urinary tract infections (UTI) are the most commonly reported Health Associated Infections (HAIs) in the United States, accounting for 32% of all infections Weber, Sickbert-Bennett *et al.*, 2011. Although many preventive measures and guidelines to prevent CAUTI exist in different health care setting. The main purpose of this study was, to assess the knowledge and attitude of nurses towards the prevention of catheter associated urinary tract infection in the ICU's of the public hospitals Lahore. A cross sectional descriptive survey was performed to assess the knowledge and attitude among Nurses. A convenient sample of n=160 was used to collect the data. A structured adopted questionnaire from knowledge, attitude and practice of nurses towards the prevention of catheter associated urinary tract infection in selected referral hospitals in rwanda was used to collect data. The questionnaire consisted demographic variables, Knowledge and attitude of nurses about CAUTI among the nurses of the ICU at public hospitals Lahore. The findings reveals that majority of participants 48.75% were having moderate knowledge towards CAUTI prevention, having 48.13% poor knowledge and 3.13% having only good knowledge. However, attitude of nurses toward CAUTI prevention was 60% negative and 40% positive. The data was analyzed on SPSS version 21. Overall knowledge is satisfactory however negative attitude needs much attention.

Keywords: knowledge, attitude, questionnaire, demographic

INTRODUCTION

Healthcare associated infections (HCAI) or nosocomial infections constituting a major health problem worldwide; among them the major one is Catheter Associated Urinary Tract Infection (CAUTI) and it occurs after the admission of the patient in hospital due to the reason of other than that infection [1].

A urinary tract infection (UTI) is an infection involving any part of the urinary system, including urethra, bladder, ureters and kidney. As per National Healthcare Safety Network (NHSN) report among UTIs acquired in a hospital, approximately 75% are associated with urinary catheter [2]. On the other hand, catheter associated urinary tract infection is related to the presence of catheter in bladder for a long period of time and not present at the time of admission [3].

According to CDC in 2015 reports 75% cases of patients were presented with catheter associated urinary tract infections and major public health problem in terms of morbidity and financial cost [4]. Urinary catheters should be used only when absolutely necessary. If a catheter must be used, it should be removed as soon as possible rather than increasing risk of developing infection.

Previous study shows in acute care settings that most of the nurses have poor knowledge regarding CAUTI. Nurses even don't know when and why the patient should be catheterized. Even Fakih, in 2008 found out that most of the doctors and nurses are unknown with the indication of catheterization and no proper management to monitor the presence of unnecessary catheter. Most hospitals do not have strict guidelines for the prevention of CAUTI [5].

Nurses should have enough knowledge about insertion, maintenance, and removal or prevention of insertion. Through this she can save patients life and prevent from infection. Although catheter is used for therapeutic purposes, overuse has become common practice which increases the risk of infection [5].

In government hospitals of the patients have been seen with the same problem that urine bags were place on the patient's bed rather than hanging along the bed side railing. There is no proper maintenance of catheter like emptying the urine bag 2 hourly, hand hygiene, duration of catheter placed, to forget the catheter in place even after its indication [6].

Surprisingly it has been seen that urine bags are kept in patient's trouser pocket or in their beds which increase the risk of infection and blocking the drainage system. In general hospitals have commonly seen that patient's urine bags are on the floor and not emptying is done regularly [7].

Even Different authors revealed in their study that many nurses did not know that the urine collecting bag should be lower than the level of the bladder and it should be emptied regularly to allow continuous urine flow [8, 9].

It's observed in general settings all the patients were catheterized in ICUs even some of them were catheterized for long duration and they were not properly giving care to them. Nurses are responsible for catheter care and responsible for the utilization of standard care in the ICUs because the use of urinary catheterization in Intensive Care Unit (ICU) can range as high as 100% [10].

All ICUs should consider in improving care of patients a priority by utilizing standard care to prevent CAUTIs. Many studies have shown similar rates of CAUTI in the ICU and non ICU patients. This shows that ICU ratio 61% was greater than in the non-ICU 20% [11].

The developing countries have a rate of 9.9 to 35 infections per 1000 catheter days. Studies suggest that 17 to 69% of CAUTIs can be prevented and can be reduce prevalence rates by good utilization of standard CDC guidelines [12]. This is because most infections occur during patient care especially by nurses who are responsible for the use of the standard care.

Nurses are the most influential team member when it comes to preventing CAUTIs. It is the duty of the nurses to know about catheterization and its complications and management of patients with catheterization throughout a patient stay. Nurses are the primary managers of all the routine care and problem solving associated with patients who have indwelling urinary catheters. Although many studies have been conducted on this aspect of patient care but the prevalence rate of CAUTI still remains high.

There is a lack of knowledge of nurses who can't just figure out this issue. Enhancing nursing knowledge is important because it's based on the utilization of nursing practices within the hospitals. This promotes quality care which is safe and helpful in the prevention of CAUTI [13].

Nurse stay with the patient for long time so she is also the advocate of the patients. If nurse feels that patient have no need of indwelling urinary catheter, she can talk with the patient doctor.It is better to perform periurethral routine hygiene during daily bathing or showering [12]. Literature supports that some pathogens are contracted normally from perianal flora in UTI, as the use of a urinary catheter will allow pathogens to enter in [14].

In Pakistan, Saleem [15] found out in a study of 119 nurses that infection control practices of nurses need to be improved with increasing year in the hospital. There is a need for improvement in the perception and knowledge of infection control measures among nurses for both self and patient's protection.

Despite of all efforts, programs, policies and standards in health care settings, there is still an alarming CAUTI cases among hospitals. The clinical diagnosis CAUTI's symptoms are fever, malaise, nausea and vomiting, pain in urination and lethargy with no cause [16]. Literature supports that in health care setting especially in ICU, Patient has many tubes and invasive lines, may be difficult to determine which source of infection is this. To know the source of infection swab screening is necessary, after this evaluate the signs of CAUTI if cannot be related to other infections [17].

CDC reports in 2013 that 99,000 deaths occur each year related to HCAI, which is very high as compared to AIDS, breast Cancer and Car accidents related deaths combined [18] and exceed of 40 billion dollars in health care cost.

Literature supports that CAUTI is a preventable type of infections by simple measures like handy washing [19]. Overall level of knowledge on the infection control in the use of urethral Catheters is very low. According to CDC in 2013 reported that latex catheter and Teflon coated materials have adverse effects. Silicon is much preferable because there is a reducing risk of encrustination (hard, crust).

Urinary cauterization is a procedure that must be done under aseptic technique by qualified nurses otherwise it can cause CAUTI. The best way of CAUTIs prevention is to avoid catheterization. Unfortunately, attention focused on different issues to reduce CAUTI. For minimizing the risk of CAUTI simple procedures should be follow like maintaining a

closed catheter system, maintain urine flow and minimize the duration of catheterization [20].

AIMS OF THE STUDY

The purpose of this study is to assess the knowledge and attitude of nurses toward the prevention of Catheter associated urinary Tract infections (CAUTI) in ICUs of public hospital.

SIGNIFICANCE OF THE STUDY

CAUTI effects the individual patient and whole health care system badly. Nurses are on the first priority for the care of patient .This study helps to play a role in education for nursing curriculum especially clinical learning activities to enhance professional competency. Concerning management and administration, it is hoped that study will develop to inform the development of evidence base guidelines and protocols for the prevention of CAUTI. After the study, result will help to contribute to nursing educational needs, practices and further contributing to increase the quality of care in ICU patients for the prevention of CAUTI.

METHODS

SETTING

The setting for this research was medical, surgical, central ICU of Mayo Hospital in Lahore.

RESEARCH DESIGN

A cross-sectional descriptive study design was used to assess the knowledge and attitude of nurses toward the prevention of Catheter associated urinary tract infections. A cross-sectional is that study that collects information from a population at specific time of period [21].

POPULATION

Data was collect from all diplomas, BSN of ICUs department who were working in ICUs of Mayo Hospital Lahore.

SAMPLING

For recruiting the study participants, a convenient non probability sampling methods was applied.

RESEARCH INSTRUMENT

SPSS version 21 is statistical computer software for data analysis. The data will be analysis on SPSS version 21. Cross sectional descriptive study was done on frequencies, proportion tables, charts, graphs and tables.

DATA GATHERING PROCEDURE

In this study well adopted questionnaire was used with closed ended question as per likert scale. This questionnaire was prepared based on 2009 CDC guidelines for prevention of catheter-associated urinary tract infections published by Healthcare Infection Control Practices Advisory Committee (HICPAC). This questionnaire consists of many questions which based on knowledge and attitude of nurses toward prevention of CAUTI. Feedback of the particpants regarding attitude of nurses will be calculated by 5 point lekert scale. 3= strongly disagree, 2=disagree, 3= neutral, 4= agree and 5= strongly agree.

METHODS USED TO ANALYZE DATA

SPSS version 21 is statistical computer software for data analysis. The data will be analysis on SPSS version 21. Cross sectional descriptive study was done on frequencies, proportion tables, charts, graphs and tables.

STUDY TIMELINE

The data was collected from February, 2018 to May, 2018.

ETHICAL CONSIDERATION

Ethical principle was performed during research study. Permission was taken from the Ethical committee of National Hospital Lahore. I was take permission from the MS of Mayo hospital. Give complete information to the participant related to research. It makes sure that no harm will be given to the participant. Study was beneficial. All nurses was have open opportunity to participate in research. No one was be forced to participate in research. Informed consent will be signed by nurses. Before signing consent nurses will be informed about purpose, methodology, risk and benefits of investigation

The information or data was remained to the first researcher. This study will help the nurse manager to improve the quality of nursing care and to prevent HCAI infections. In an organization this will make the patient perception positive.

RESULTS

PROFILE OF THE RESPONDENTS

Table-1 show the demographic information of the participants which show that data consisted of male 0% Female 100, age of the patients 18-25 years was 64.4 % participant's s, 26-35 years was 32.5% participants, 36-50 was 3.1% participants. Education level of the participants General nursing were 69.4%, BSN/PRN were 28.8% participant and MSN 1.9% participant are married 22.% was participants and are single were 77.5%.

Table-1: Demographic frequency

Variables	Category	Percent
Gender	Male	0
	Female	100
Age	18-25	64.4
	26-35	32.5
	36-50	3.1
Education	General Nursing	69.4
	BSN/PRN	28.8
	MSN	3.1
Marital status	Married	22.2
	single	77.5

Questions	Correct	Incorrect
	n%	n%
Among the following what is an inappropriate indication for indwelling urinary catheterization?	71(44.4%)	88(55.0%)
Which is an appropriate indication of urinary catheterization among the following?	72(45.0%)	88(55.0%)
Read the following carefully and select the proper technique used for indwelling urinary catheter Insertion?	116(72.5%)	44(27.5%)
Based on CDC 2009 Guidelines for prevention of Catheter associated urinary tract infection, operative patients who have been catheterized, it is advised to remove the catheter as soon as possible post operatively, preferably with in …….	87(54.4%)	73(45.6%)
As a nurse in critical care unit, you find that the indwelling urinary catheter is obstructed during your patient assessment, what are you going to do?	76(47.5%)	84(52.5%)
One of the following is not a nursing action to prevent infections from urinary catheter?	52(32.5%)	108(67.5%)

The above show the score of the participants about variable, 44.4% participants were correct about among the following what is an inappropriate indication for indwelling urinary catheterization? 55.0% participants were incorrect. The score of the participant show about which is an appropriate indication of urinary catheterization among the following? 45.0% participants were correct, 55.0% participants were incorrect. In another variable 54.4% participants were correct about Based on CDC 2009 Guidelines for prevention of Catheter associated urinary tract infection, operative patients who have been catheterized, it is advised to remove the catheter as soon as possible post operatively, and preferably with in 45.6% participants were incorrect. The score of the participants show about as a nurse in critical care unit, you find that the indwelling urinary catheter is obstructed during your patient assessment, what are you going to do? 47.5% participants were correct, 52.5% participants were incorrect.

Statement	SD		DA		N		A		SA	
	N	%	N	%	n	%	N	%	N	%
The use of gloves and gown, during any manipulation of the catheter or collecting bag decrease the incidence of CAUTI.	69	30.3	50	21.9	36	15.8	57	25.0	16	7.0
Education about basic catheter care helps to prevent CAUTI	10	4.4	38	16.7	46	20.2	65	28.5	69	30.3
CAUTI is not a very serious disease.	16	7.0	51	22.4	58	25.4	73	32.2	30	13.2

The next score about the use of gloves and gown, during any manipulation of the catheter or collecting bag decrease the incidence of CAUTI. Participant were 3.8% participants were strongly disagree, 1.3% participants were disagree, 20.0% participants were uncertain, 32.5%participants were agree, 42.5% participants were strongly agree. Education about basic catheter care helps to prevent CAUTI participant were 3.1% participants were strongly disagree,6.9% participants were disagree, 12.5% participants were uncertain,33.1%participants were agree,44.4% participants were strongly agree. The response of the participants about maintaining a closed drainage system prevents CAUTI 6.6 % participants were strongly disagree, 14.9 % were disagree, 21.55% were neutral, 39.9% were strongly

agree and 17.1% agree. Another variable show the score of the participant about Catheter should be removed whenever it is convenient for healthcare provider (HCP) 6.1 % were strongly disagree, 15.4% were disagree, 24.1%were neutral, 33.3 % were strongly agree and 21.1%agree. Another variable Catheter can be inserted for nursing staff convenience. Show the score of the participants which is 8.3% were strongly disagree, 14.5% were disagree, 20.2%were neutral, 32.0% were strongly agree and 25.9 %agree.

DISCUSSION

The above table number show the score of the participants about variables, 44.4% participants were correct about among the following what is an inappropriate indication for indwelling urinary catheterization? 55.0% participants were incorrect. The score of the participant show about which is an appropriate indication of urinary catheterization among the following? 45.0% participants were correct, 55.0% participants were incorrect. In another variable 54.4% participants were correct about Based on CDC 2009 Guidelines for prevention of Catheter associated urinary tract infection, operative patients who have been catheterized, it is advised to remove the catheter as soon as possible post operatively, and preferably with in 45.6% participants were incorrect. The score of the participants show about as a nurse in critical care unit, you find that the indwelling urinary catheter is obstructed during your patient assessment, what are you going to do? 47.5% participants were correct, 52.5% participants were incorrect. The next score about The use of gloves and gown, during any manipulation of the catheter or collecting bag decrease the incidence of CAUTI. Participant were 3.8% participants were strongly disagree, 1.3% participants were disagree, 20.0% participants were uncertain, 32.5%participants were agree, 42.5% participants were strongly agree. In Pakistan, Salem [15] found out in a study of 119 nurses that infection control practices of nurses need to be improved with increasing year in the hospital. There is a need for improvement in the perception and knowledge of infection control measures among nurses for both self and patient's protection. Education about basic catheter care helps to prevent CAUTI participant were 3.1% participants were strongly disagree, 6.9% participants were disagree, 12.5% participants were uncertain, 33.1% participants were agree, 44.4% participants were strongly agree. The response of the participants about maintaining a closed drainage system prevents CAUTI 6.6 % participants were strongly disagree, 14.9 % were disagree, 21.55% were neutral, 39.9% were strongly agree and 17.1% agree. Another variable show the score of the participant about Catheter should be removed whenever it is convenient for healthcare provider (HCP) 6.1 % were strongly disagree, 15.4% were disagree, 24.1%were neutral, 33.3 % were strongly agree and 21.1%agree. The developing countries have a rate of 9.9 to 35 infections per 1000 catheter days. Studies suggest that 17 to 69% of CAUTIs can be prevented and can be reduce prevalence rates by good utilization of standard CDC guidelines [12]. This is because most infections occur during patient care especially by nurses who are responsible for the use of the standard care.

The findings reveals that majority of participants 48.75% were having moderate knowledge towards CAUTI prevention, having 48.13% poor knowledge and 3.13% having only good knowledge. However, attitude of nurses toward CAUTI prevention was 60% negative and 40% positive.

LIMITATIONS

- Less sample size 160 due to which, the findings cannot be generalized.
- Time was too short, to see any prospective events or detailed associations of awareness and practices
- Convenient sampling technique was used which may have some biasness

CONCLUSION

The study was conducted in Mayo hospital Lahore among 160 nurses. In this research knowledge and attitude of nurses studied towards CAUTI prevention. It is concluded that most of the participants have moderate knowledge as well as have negative attitude towards CAUTI and needs further focus and support to improve nursing care quality. Many nurses agreed to take active part to enhance their knowledge to improve quality care.

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