

Urinary Catheter Care Approach for Urinary Tract Infection among Nurses in Tertiary Care Hospital

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Introduction

Urinary tract infections (UTIs) are the most common infection in hospital setting, the period of hospital-derived waste that affects individuals today. A significant number of seventy-five percent of urinary tract infections acquired in the hospital are associated with the use of a permanent bladder catheter (IDC), considering that there are about 15-25% chance of an inpatient requiring catheter insertion during your stay [1].

Hospitalized patient especially in intensive care unit patient need frequently urinary catheterization which based on chronic illness and, prolonged illness period, the frequent catheterization increase the risk of urinary tract infection. These infections have the impact on the patient that the stay in intensive care unit 3-7 days 96 % patient contract bacterial flora colonization, in other words these infection can be preventable and can be control by using infection control actions. These actions considered a key point in improving the safety for admitted patient [1].

Although not all catheters related urinary tract infections can be prevented, the infection can be minimized by promoting good catheter hygiene. Good catheter care starts with the insertion of the catheter, take steps to avoid the introduction of microorganisms into the bladder. Catheters should insert aseptically with sterile equipment. Gloves should be worn, patient should be draped and make sterile surface and clean the area with an antiseptic solution to reduce the infection and applied jell to reduce the urethral trauma, the tip should be lubricated and the smallest possible catheter size should be used. After insertion, the distal end of the catheter should be attached to the thigh in women and in the abdomen in men to minimize catheter movement and thereafter urethral traction [2].

Urinary tract infections account for 32% of all infections associated with medical care and is the most common nosocomial infection in Intensive care units. Urinary catheters are routinely used in ICUs, usually for frequent and accurate monitoring of urinary expenditure once inserted; catheters tend to remain in place after appropriate indications for final use. Urinary infections in critically ill patients are associated with longer length of stay and mortality [3].

It is important to set up a sterile field to prepare for cleaning the opening of the urethra with sterile water using a “one-handed” technique. This means that one hand is dirty and touches appropriate areas of the patient, while the other hand only has contact with the sterile field. Thereafter, local anesthetic gel (delivered in syringe form) is carefully inserted into the opening of the urethra. At this point, before inserting the catheter, the first set of sterile gloves is discarded and a new set of sterile gloves is put on while handling the catheter [4].

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Research problem

Hospital-acquired infections are preventable harm that occurs to patients while in the hospital. Catheter-associated urinary tract infection (CAUTI) is a preventable hospital-acquired infection that continues to plague hospitals nationwide. The Centers for Disease Control and Prevention estimates that there are more than 13,000 CAUTI related deaths in the United States annually [5]. In addition to the harm caused to patients by CAUTIs, the estimated \$500 million yearly cost for CAUTI treatment has created a fiscal burden on healthcare systems [5]. Decreasing the rate of CAUTI by decreasing overall number of catheters is the goal of this performance improvement project.

Significant of the Study

According to CDC, seventy-five (75) percent of UTIs are attributed to the use of a urinary catheter, and ninety-five (95) percent of these occurred in ICUs. There will be considerable number of clinical guidelines and studies; however, hospital-acquired catheter-associated urinary tract infections (CAUTI) occurrence is still rising. It needs to be re-evaluated to determine other incidences of CAUTI and develop a model to decide high-risk patient.

Aims of the Study

The study aims to evaluate the impact of utilizing urinary catheter care bundle among intensive care patients in reducing the catheter associated infection incidence.

Literature Review

Urinary tract infections (UTI) are common hospital acquired infection that are usually occur due to indwelling urinary tract catheter. Studies show that a significant number of urinary tract infections (UTI) occur mostly due to the presence of urinary catheter which is almost seventy five percent in the hospital admitted patients [6]. Catheter associated urinary tract infection (CAUTI) are usually occur due to the colonization of bacteria in the bladder. These bacteria are transferred to the bladder due to the catheter and there they become adhered and cause mucosal infection [7]. Hence there are more chances of a bacterial infection to someone having urinary catheter. These cases of urinary tract infections occur mostly 2-4 days after the insertion of the catheter. In these cases only 10-30 % of the individuals are suffering from CAUTI having short term insertion of the catheter [8].

Nurses play a significant role in the prevention of catheter associated urinary tract infections as they are considered for the care of the catheter. There are globally accepted protocols to avoid from the catheter associated infections. Some of the hospitals have tried these protocols and are successful while other are still struggling with the higher rate of the infections despite of the adherence to that protocols [9]. There are globally accepted CAUTI care bundle to avoid such infections of the catheter. These care bundles can prevent the person from urinary tract infections [10].

CDC bundle for prevention of catheter associated urinary tract infections in 2009, suggested that urinary tract catheter should only be inserted for the appropriate purposes to avoid the infections. Similarly they suggested that there should be minimum use and duration of the catheter in order to avoid infections in the most prone ones such as elderly persons, women and immune-compromised patients. CAUTI can cause life threatening situations in the patients by creating fatal urinary tract infections, nonbacterial urethra inflammation, urethral strictures mechanical trauma and impaired mobility. Appropriate nursing care of the catheter is the only key to minimize these infections; as there are standard protocols while inserting the catheter and then maintaining it through proper nursing care. There should be evidence based bundle care in inserting and caring of the catheter in order to prevent infections. Moreover minimizing the length of the stay of the catheter and avoiding cross infection is the way to minimize these infections [9].

Research Design

A quasi-experimental design will be utilized for this study to

evaluate the impact of utilizing urinary catheter care bundle on minimizing catheter-associated Urinary Tract Infection (CAUTI) among Intensive Care Patients. The study will be conducted from January 2020-june 2020.

Study Setting

This study will be conducted in the public tertiary hospitals in Lahore, Pakistan.

Sample Size:

Epidemiological information system (EPI) will be utilized to calculate the sample size of the study, Total number of 150 sample will be collected for fulfillment of our work.

Exclusion criteria

Exclusion from the study will be the patients who:

- Underwent perennial, gynecological, and urological surgeries.
- Admitted with enlargement of prostate hyperplasia.

Inclusion criteria

The inclusion criteria for patients will be included in the study are:

- All patients admitted to ICU that requires insertion of urinary catheter
- The patient should be 20 years of age and above.
- Free from any signs of urinary system infection.

Ethical Consideration

The study will be approved by the research and ethics committees of the university and the participating hospitals. The research team explained the aims of the study. Nurses were informed that participation was voluntary. After that, written consent was obtained from nurses who agreed to participate in the current study.

Statistical Analysis

Upon completion of data collection each sheet will be manually score. Then data sheet will be coded and listed into numbers for calculation. Data will be validated by using SPSS (version 25) software computer packed (special package for social science).

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