



INCIDENCE, PREVENTION AND MANAGEMENT OF CATHETER ASSOCIATED URINARY TRACT INFECTION

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ABSTRACT

Catheter associated urinary tract infection attributed to the use of an indwelling urinary catheter is one of the most common infection acquired by patients in health care facilities. As biofilm ultimately developed on all devices, the major determinant for the development of bacteriuria is the duration of catheterization. E.coli remains the frequent cause. Among the diagnostic tests, Urinalysis is useful for excluding bacteriuria. A retrospective as well as prospective study on 50 patients suffering with CAUTIs at 2 hospitals was conducted. Statistical analysis of the study showed that antibiotics are the effective in the treatment of CAUTIs. **Objectives:** To study the incidence, management and prevention of catheter associated urinary tract

infection and to explore opportunities for pharmacist intervention in the management of CAUTIs. **Method:** A prospective as well as retrospective study design was adopted using convenient sampling technique, during the period of June 2017- August 2017. A data collection form was designed and data was collected by observing patients suffering with CAUTIs in urology unit of hospital, face to face interview with them and their care providers. Collected data was analyzed and represented in the form of tables and graphs. **Results:** The study showed that most of the CAUTIs are caused by the increased duration of catheterization. There were 62% male and 36% of females were found suffering with CAUTIs. 40% of antibiotics, 40% of analgesics and 20% of PPIs were prescribed to patients and they were compliant to their medications. Physician checked their patients regularly and

pharmacist had no role in the treatment guidance of patients. **Conclusion:** It was concluded that most of CAUTIs were caused by increased duration of catheterization.

KEYWORD: Urinary Catheter, Antibiotics, Bacteriuria, Urinary Tract infection, Catheter associated urinary tract infection.

INTRODUCTION

A Urinary tract infection attributed to the use of an indwelling urinary catheter is one of the most common infections acquired by patients in health care facilities. Catheter-acquired urinary infection is the source for about 20% of episodes of health-care acquired bacteremia in acute care facilities and over 50% in long term care facilities. 70–80% of these infections are attributable to use of an indwelling urethral catheter. For people with impaired bladder function and for whom the method is feasible, clean intermittent self-catheterization is the optimal procedure. For those who require an indwelling catheter, whether short- or long-term, the self-retaining Foley catheter is invariably used, despite the fact that this catheter can cause bacterial colonization, recurrent and chronic infections, bladder stones and septicemia.^[1] Symptoms includes abnormal urine color (cloudy urine), Blood in the urine, foul or strong urine odor, frequent and strong urge to urinate, Pressure, pain, or spasms in your back or the lower part of your belly, leakage of urine around the catheter.^[3]

Diagnosis of catheter associated urinary tract infection includes microbiological and clinical diagnosis. Microbiological diagnosis involves collecting of urine specimens for culture directly from the catheter or tubing, to maintain a closed drainage system. Clinical diagnosis is made on the basis of medical signs and patient reported symptoms.^[1] Management of catheter associated urinary tract infection vary with the severity of infection, if infection is more severe, patient may need to receive antibiotics through an intravenous line. If he is treating himself at home, advice him to drink 2 - 3 quarts of fluid a day. Advice him to avoid fluids that irritate his bladder, such as alcohol, citrus juices, and drinks that contain caffeine. If patient have an indwelling catheter, he must do these things to help prevent infection such as clean around the catheter opening every day, clean the catheter with soap and water every day, clean rectal area thoroughly after every bowel movement, keep drainage bag lower than bladder. This prevents the urine in the bag from going back into your bladder, empty the drainage bag at least once every 8 hours, or whenever it is full.^[3] Purpose of this study is to evaluate the incidence, management and prevention of CAUTIs.

MATERIALS AND METHOD

A prospective as well as retrospective study was conducted at Sir Ganga Ram hospital and Services hospital using convenient sampling technique, during the period of June 2017-August 2017. A data collection form was designed and data was collected by face to face interview from patients and their care providers in different wards of hospitals. Data collected was subjected to statistical analysis and represented in the form of graphs and tables.

Exclusion and Inclusion Criteria

Male and female of age 20-80 years suffering from CAUTIs were included in this research study while pregnant women, children and other UTIs patients were excluded.

Ethical Considerations

The study was conducted after obtaining ethical approval from the institute of Lahore College For Women University. The institute provided ethical approval after accessing informed verbal consent submitted with all components of the research protocol. The verbal consent of questionnaire was asked before data filling. The participant for the study were asked whether they were willing or unwilling after hearing about the consent of the study and this was confirmed by their response shown as yes or No. Data collection was carried out after the confirmation of the willingness of the participant. The data was recorded anonymously in order to ensure confidentiality and privacy of the participant.

RESULTS

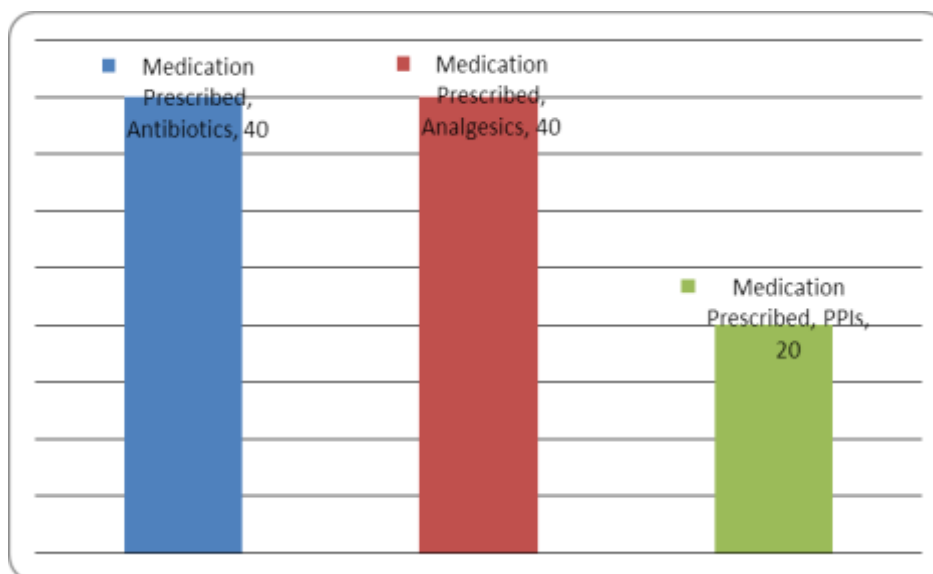
Etiology of CAUTIs in patients suffering with CAUTIs was determined by visiting Sir Ganga Ram hospital and Services hospital, Lahore. The percentage of male(64%) suffering with CAUTIs was significantly higher than female(36%). Patients having age between 20-40 years, 40-60 years and 60-80 years were 36%, 58% and 6% respectively. The signs and symptoms e.g burning sensation, fever, nausea/vomiting, frequent urination and pain in bladder were 20%, 5%, 5%, 30% and 40% respectively. Patients were prescribed 40% antibiotics, 40% analgesics and 20% PPIs. About 90% of patients were compliant to their medications. Majority of the patients (about 90%) had no knowledge and 10% of patients had knowledge about CAUTIs. As family history of disease has strong impact on upcoming generation but our study showed that about 90% of patients had no family history of CAUTIs. 90% of patients were satisfied with their treatment. Data showed that 80% of patients had blood in urine while 20% of patient had no blood in urine. Doctors checked them on daily basis while pharmacist had no role in the prevention of CAUTIs of patients.

Table 1: Patient demographics, family history, Patient knowledge about CAUTIs, Patient's satisfaction about treatment.

Parameters	Variables	Frequency N=50	Percentage
sex	Male	32	64%
	Female	18	36%
Age	20-40 years	18	36%
	40-60 years	29	58%
	60-80 years	3	6%
Family history	Yes	5	10%
	No	45	90%
Patient Knowledge about CAUTIs	Yes	5	10%
	No	45	90%
Patient's satisfaction about treatment	Yes	45	90%
	No	5	10%

Table 2: Current Medications, patient's compliance, Doctor's inspection.

Parameters	Variables	Frequency	Percentage
Current Medications	Antibiotics	20	40%
	Analgesics	20	40%
	PPIs	10	20%
Patient 's Compliance	Yes	45	90%
	No	5	10%
Doctor 's inspection	Daily	50	100%
	Weekly	0	0%
	Monthly	0	0%

**Figure 1: Current Medication.**

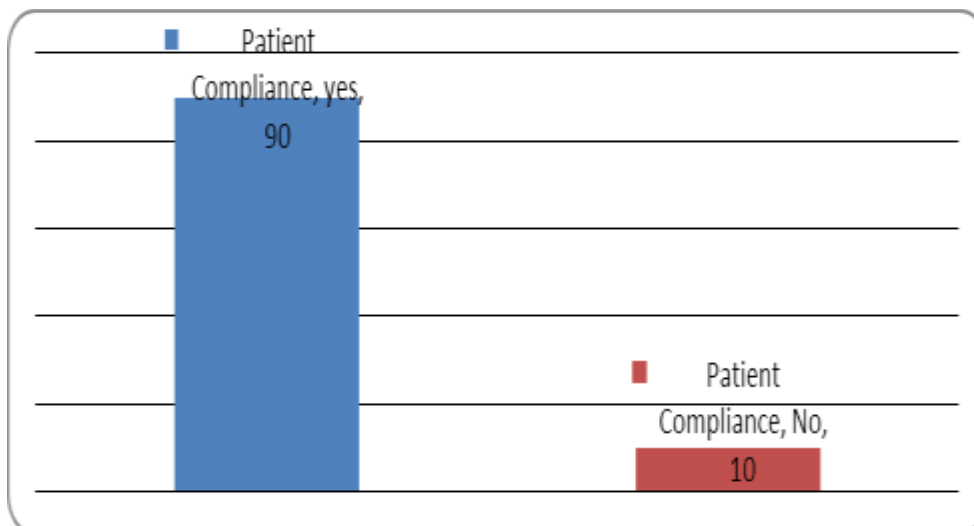


Figure 2: Patient Compliance.

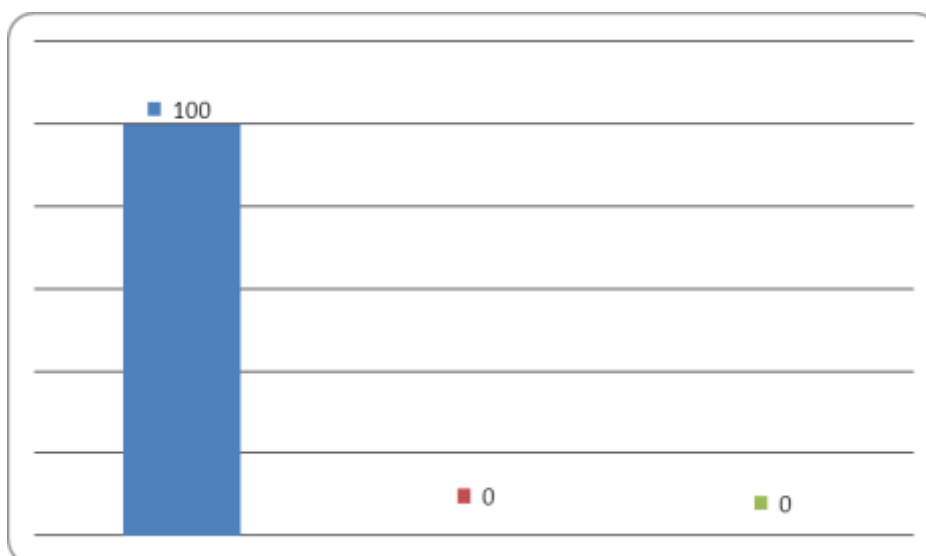


Figure 3: Doctor 's Inspection.

DISCUSSION

This study of this aim was to evaluate the incidence, management and prevention of CAUTIs. A Catheter associated urinary tract infection (CAUTI) is an infection that affects part of the urinary tract. When it affects the lower urinary tract it is known as a bladder infection (cystitis) and when it affects the upper urinary tract it is known as kidney infection (pyelonephritis) Symptoms from a lower urinary tract include pain with urination, frequent urination and feeling the need to urinate despite having an empty bladder. The most common cause of infection is the increased duration of catheterization, though other bacteria or fungi may rarely be the cause. Up to 69% of CAUTIs are considered to be avoidable, provided that recommended infection-prevention practices are implemented.

As female are more affected than male but our study showed that there were 62% of males and 36% of females found. There are 36%(20-40), 58%(40-60), 6%(60-80) of patients age seen. The signs and symptoms were burning urination 20%, fever 5%, nausea/vomiting 5%, frequent urination 30%, pain in bladder 40%.40% of antibiotics, 40% of analgesics and 20% of PPIs were prescribed to patients. According to survey in hospital for sample size 50, majority of the patients were compliant to the medication. The medicines were prescribed were antibiotics, analgesics and PPIs. There were a lot of patients who did not know the factors that caused CAUTIs. Mostly were unaware of their doses and medications. According to survey in hospital for sample size 50, doctors checked their patients regularly and patients were satisfied for their treatment .Pharmacist is an important health professional in guiding patient about their disease management but our study showed that pharmacist had no role in guiding patient for medications.

CONCLUSION

The objectives of our study were all met after the completion of research. We were able to gather pertinent data needed for the proper assessment of the patient in his condition which provided adequate baseline data. Therefore we were able to classify signs and symptoms supportive of the patient's definitive and probable diagnosis which enabled them to identify the care necessary. The collected data gave us an important information for our study. We visited 2 hospitals, namely, Sir Ganga Raam Hospital, Services Hospital for our survey. We observed approximately 15 to 20 patients in each ward. As CAUTIs are more common in women but according to our survey we observed related infections more common in male gender. (The percentage of male gender 63% and female gender was 36%). The patients were prescribed antibiotics and analgesics and other medications such as antihypertensives, anti-diabetics and PPIs for relevant diseases. Pharmacist is an important health care professional for the management and prevention of diseases in any health care unit, but from our study we concluded that not a single pharmacist was there to guide patients for their health.

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