

Original article

Incidence of urinary tract infection in patients catheterized In surgical ward and emergency ward

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Abstract

Introduction: Urinary tract catheterization is a very common intervention frequently required in hospitalized patients. It is estimated that 10-12% of hospital patients and four per cent of patients in the community have urinary catheters in situ at any given time.

Methodology : Study was conducted in Pravara Rural Medical College Loni in 120 consecutive patients of either sex, admitted to the surgical ward either directly or via emergency with foleys catheter, were included in this study.

Results : In our study, the most common indications for catheterization in the emergency ward are listed here: 80.70% (46/57) were burns patients, 8.77% (5/57) were catheterized for titration of urine output, 3.51% (2/57) patients each were unconscious or had chronic urinary retention, and 1.75% (1/57) patient had an acute abdomen or acute urinary retention.

Among the 63 patients in the surgical ward, 42.86% (27/63) were in the preoperative state, 49.21% (31/63) were in the post-operative state, while 7.94% (5/63) patients were bed ridden.

Conclusion: From the results of our study we conclude the necessity for healthcare professionalsto be alerted towards the need for careful evaluationof every patient and ensuring a mandate for catheterization prior to initiating the procedure,particularlyin females and inpatients in the emergency wards.

Introduction

Urinary tract catheterization is a very common intervention frequently required in hospitalized patients. It is estimated that 10-12% of hospital patients and four per cent of patients in the community have urinary catheters in situ at any given time (1).

Nosocomial UTIs (urinary tract infections) develop in five percent of catheterized patients per day in United States of America, with associated bacteremia in four per cent[Gokula RR, 2] and as many as 80% are a consequence of urinary catheters [2]. fever, pyelonephritis, urinary tract stones and chronic renal inflammation are some of the other complications of this procedure[3, 4] Urinary tract catheterization also prolongs hospital stay and increases the cost of healthcare [3, 5] Unfortunately, and excessive catheter use still persists.[6]To remove unnecessary urinary catheters can significantly reduce the duration of urinary catheterization and the catheter associated urinary tract infection rate in a hospital.[5] It is generally not recommended to treat asymptomatic catheter associated bacteriurea.

Methodology

Source of data: all patients admitted to the surgery ward at pravara rural hospital loni.

Sample size: 120 patients

Methods of collection of data:

Inclusion criteria-

1. Patients who had urinary retention
2. Non ambulatory patients
3. Post operative major surgery
4. Patient will be more than twelve year of age

Exclusion criteria-

1. Suprapubic catheter
2. Condom catheter
3. Percutaneous nephrostomy tube
4. Outside catheterization
5. Peadiatric group will be excluded in this study

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Results

A total of 120 patients were included in this study.

1. AGE DISTRIBUTION

AGE GROUP (in years)	NO. OF PATIENTS	% OF PATIENTS
<15	6	5.0
15-30	40	33.33
31-45	30	25.0
46-60	19	15.8
61-75	21	17.5
>75	4	3.33
TOTAL	120	100

In our study, 5% (6/120) patients were <15 years of age, 40/120 (33.33%) patients belonged to the 15-30 years age group, 25% (30/120) were between 31-45 years of age, 15.8% (19/120) patients were aged between 46-60 years, 17.5% (21/120) were 61-75 years, while 3.33% (4/120) were >75 years old.

In the present study, there were 62.5% (75/120) patients were males and 37.5% (45/120) females.

2. PLACE OF CATHETERIZATION

WARD	NO. OF PATIENTS	% OF PATIENTS
Surgical ward	63	52.50
Emergency ward	57	47.50
TOTAL	120	100

1. In the present study, in 52.50% (63/120) patients urinary catheterization was performed in the surgical ward while in the remaining 47.5% (57/120) patients urinary catheterization was performed in the emergency ward.

3. INDICATION FOR CATHETERIZATION IN EMERGENCY WARD

INDICATION	NO. OF PATIENTS	% OF PATIENTS
Acute abdomen	1	1.75
Acute urinary retention	1	1.75
Chronic urinary retention	2	3.51
Burns patient	46	80.70
Titration of urine output	5	8.77
Unconscious	2	3.51
TOTAL	57	100

In our study, the most common indications for catheterization in the emergency ward are listed here: 80.70% (46/57) were burns patients, 8.77% (5/57) were catheterized for titration of urine output, 3.51% (2/57) patients each were unconscious or had chronic urinary retention, and 1.75% (1/57) patient had an acute abdomen or acute urinary retention.

Discussion:

Among the 63 patients in the surgical ward, 42.86% (27/63) were in the preoperative state, 49.21% (31/63) were in the post-operative state, while 7.94% (5/63) patients were bed ridden.

Out of the patients in the emergency ward that underwent urinary catheterization, the duration of catheterization was ≤ 3 days in 22.81% (13/57) patients, as compared to the remaining 77.19% (44/57) patients wherein the duration of catheterization was > 3 days. In all the patients in the surgical ward, i.e. 100% (63/63) patients that underwent urinary catheterization, the duration of catheterization was > 3 days. The fisher's exact test showed that a statistically significant difference was noted ($p < 0.0001$) was noted.

Among hospitalized patients, a variation of about 12%–26% in catheter prevalence within patient groups, settings and specialties is known to exist. Even though urethral catheterization is a medical intervention with well-defined risks, nearly 14%–38% are placed without a specific medical indication. To warrant prompt removal, conscientious review of the purpose, importance and efficacy of catheters is requisite in all settings. (7) This study was conducted to

examine the incidence of urinary tract infections due to urinary catheterization in surgical and emergency wards, and to assess various parameters of urinary tract infection and catheter tip contamination.

A total of 120 patients were included in this study. A similar study was conducted by Bhatia N et al to investigate the various indications for urinary tract catheterization in patients and determine the frequency of its inappropriate use. (8) Tiwari MM et al conducted a study to evaluate the appropriateness of urinary catheter use in a non-ICU setting, examine relevant risk factors related to inappropriate urinary catheter use, and to assess clinical outcomes associated with inappropriate catheter use. (8) Jansen I et al analyzed 14,252 patients from 28 hospitals to study the prevalence of indwelling urethra catheterizations, including their inappropriate use in the Netherlands. (9) Shackley DC and associates evaluated the variation in the prevalence of urinary catheters among patient groups, settings, specialities and over time from the National Health Service database.

In our study, 5% patients were <15 years of age, 33.33% patients belonged to the 15-30 years age group, 25% were between 31-45 years of age, 15.8% patients were aged between 46-60 years, 17.5% were 61-75 years, while 3.33% were >75 years old. The age of patients studied by Bhatia N et al ranged between 15 and 86 years with 64.8% patients aged >60 years. (10) The median age of the patients noted by Jansen I et al was 67.3 years (interquartile range, 51.4–78.1). In the present study, in 52.50% patients, urinary catheterization was performed in the surgical ward while in the remaining 47.5% patients urinary catheterization was performed in the emergency ward. Majority of the patients (73.6%) in the study conducted by Garg et al were catheterized in the medical emergency, while the remaining 26.4% were catheterized in the wards. (9) In the study by Shackley DC and associates reported the highest prevalence of catheters in critical care (76.6%), which was followed by surgical wards (22.1%), obstetrics (18.8%), medical wards (15.7%) and emergency departments (9.2%) ($p < 0.001$). (11)

In our study, the most common indications for catheterization in the emergency ward are listed here: 80.70% were burns patients, 8.77% were catheterized for titration of urine output, 3.51% patients each were unconscious or had chronic urinary retention, and 1.75% patient had an acute abdomen or acute urinary retention. In the study by Tiwari MM and associates, the indications for urinary catheterization included, surgery or postoperative management (77.6%), monitoring urine output (7%), decubitus ulcer or need for diversion (3.5%), neurogenic bladder dysfunction (2.8%), comfort care in terminally ill (2.1%), urine retention (1.4%), urinary tract obstruction (1.4%), no indication (5.6%). (10) In the survey carried out by Jansen I et al, 4.3% patients were found to have an inappropriate indication for catheterization at initial placement and at the time of the survey (5)

Conclusion

From the results of our study we conclude the necessity for healthcare professionals to be alerted towards the need for careful evaluation of every patient and ensuring a mandate for catheterization prior to initiating the procedure, particularly in females and inpatients in the emergency wards.

References:

1. Stamm AM, Coutinho MS. Urinary tract infection associated with indwelling bladder catheter: incidence and risk factors. *Rev Assoc Med Bras.* 1999;45:27–33. [PubMed]

2. Gokula RR, Hickner JA, Smith MA. Inappropriate use of urinary catheters in elderly patients at a midwestern community teaching hospital. *Am J Infect Control*. 2004;32:196–9. [PubMed]
3. Burke JP, Yeo TW. Nosocomial urinary tract infection. In: Mayhall CG, editor. *Hospital epidemiology and infection control*. 3rd ed. Philadelphia: Lippincott Williams and Wilkins; 2004. pp. 267–86.
4. Sedor J, Mulholland SG. Hospital-acquired urinary tract infections associated with the indwelling catheter. *UrolClin North Am*. 1999;26:821–8. [PubMed]
5. Saint S. Clinical and economic consequences of nosocomial catheter-related bacteriuria. *Am J Infect Control*. 2000;28:68–75. [PubMed]
6. Saint S, Wiese J, Amory JK, Bernstein ML, Patel UD, Zemencuk JK, et al. Are physicians aware of which of their patients have indwelling urinary catheters? *Am J Med*. 2000;109:476–80. [PubMed]
7. Apisarnthanarak A, Thongphubeth K, Sirinvaravong S, Kitkangvan D, Yuekyen C, Warachan B, et al. Effectiveness of multifaceted hospitalwide quality improvement programs featuring an intervention to remove unnecessary urinary catheters at a tertiary care center in Thailand. *Infect Control HospEpidemiol*. 2007;28:791–8. [PubMed]
8. Dalen DM, Zvonar RK, Jessamine PG. An evaluation of the management of asymptomatic catheter-associated bacteriuria and candiduria at The Ottawa Hospital. *Can J Infect Dis Med Microbiol*. 2005;16:166–170. [PMC free article] [PubMed]
9. Tenke P, Kovacs B, Johansen TE, Matsumoto T, Tambyah PA, Naber KG. European and Asian guidelines on management and prevention of catheter-associated urinary tract infections. *Int J Antimicrob Agents*. 2008;31:S68–78. [PubMed]
10. Ojha N. Bacteriuria following Foley catheterization after gynecological and obstetrical surgery. *Nepal J ObstetGynaecol*. 2008;3:35–8.
11. Matsukawa M, Kunishima Y, Takahashi S, Takeyama K, Tsukamoto T. Bacterial colonization on intraluminal surface of urethral catheter. *Urology*. 2005;65:440–4. [PubMed]