



Short Communication

Clinical audit on indications and technique of male urethral catheterization in emergency department of a tertiary care hospital

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ABSTRACT

Urethral catheterization (UC) is a common procedure done in the Emergency Department of a hospital. The main indications for a UC are relieving acute urinary retention and bladder outlet obstruction. This cross-sectional audit was carried out between July 2019 to February 2020, in the Emergency Department (ED). All male patients aged 18 years and above, in whom UC was performed, were included in the audit. A total of 81 male patients were surveyed. Although, sterilized technique was maintained by using sterile gloves and pyodine but hand hygiene (sterilization or hand wash) was not performed before the procedure 80% of times. CDC hand hygiene guidelines were distributed to promote hand hygiene.

What do we already know about this topic? The Lippincott guidelines are considered gold standard which includes hand hygiene as an important element of urinary catheterization UC. The CDC Center of Disease Control CDC promotes the use of mandatory gloves and generous hand sanitizing before procedures.

How does your research contribute to the field? For continuous improvement and patient focused practice, we must audit the technique of nursing staff, doctors and health care assistants who are involved in insertion and ordering of catheters to provide quality health care and avoid unnecessary catheterization [1]. The aim of this study was to audit the appropriateness of usage of urinary catheters by the healthcare staff and, their technique of insertion and indications for urinary catheterization.

What are your research's implications towards theory, practice, or policy? Hand hygiene is an important element of patient care. If done properly it can prevent several hospital-acquired infections. Healthcare facilities must audit their staff on regular basis and provide refreshers and promote the use of proper hand hygiene before urinary catheterization.

1. Introduction

Urethral catheterization (UC) is a common procedure done in the Emergency Department of a hospital. The main indications for a UC are relieving acute urinary retention, and bladder outlet obstruction. These indications can vary from diagnostic to therapeutic needs [2]. It is very important to follow a standard sterilized technique in order to avoid healthcare related infections and catheter related complications [3,4]. Complications associated with indwelling urinary catheters include Catheter Associated Urinary Tract Infection (CAUTI), genitourinary trauma, retained balloon fragments, bladder fistula (with prolonged

use), bladder stone formation, and incontinence [5,6]. It is imperative to follow to follow the standard procedure and use UC only when necessary [7].

For continuous improvement and patient focused practice, we must audit the technique of nursing staff, doctors and health care assistants who are involved in insertion and ordering of catheters to provide quality health care and avoid unnecessary catheterization [1]. The aim of this audit is to observe the appropriateness of usage of urinary catheters, their technique of insertion and indications.

Abbreviations: UC, Urethral Catheterization; CAUTI, Catheter Associated Urinary tract Infection.

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2. Methods

This cross-sectional audit was carried out between July 2019 to February 2020, in the Emergency Room (ER) after ethical obtaining approval. All male patients aged 18 years and above, in whom UC was performed, were included in the audit using convenience sampling technique. Data collector was a doctor from the on-call team, who filled in the Performa. Nurses and doctors were observed for their skills of catheter insertion to see whether they apply standard guidelines. Moreover, indications for the indwelling catheters were also marked and their appropriateness were checked. The procedure was done according to the method mentioned in Lippincott procedures as per the hospital policy [8,9]. Since no intervention was being done during the procedure, an exemption for consent was applied and hence, approved by institutional Ethical Review Committee. Patient's confidentiality was maintained by giving unique identification codes. The data sheets were stored under lock and key.

The UC procedure was surveyed in a total of 81 patients [Table AI]. As per the institutional guidelines, the procedure was mostly done by nurses (82.7%) and doctors performed it only in specific circumstances, such as history of trauma (63.6%) and benign prostatic hypertrophy (BPH) (27.3%). About 67.9% of health care professionals had an experience of 1–3 years of doing the procedure while 25.9% had more than 3 years of experience. Providing privacy and securing the catheter appropriately was 100% compliant. First attempt success rate was 95.1%. Measuring urine output was the most frequent indication (91.4%).

3. Discussion

Although, sterilized technique was maintained by using sterile gloves and pyodine but hand hygiene (sterilization or hand wash) was not performed before the procedure. Our findings are similar Tabrizi et al, audit on compliance with urethral catheterization guidelines in a hospital [10]. They have reported an adherence to all guidelines for catheterization except for maintenance of hand hygiene. They also followed up on complication and found a urinary tract infection in 11 patients 10. Since we conducted the audit in the emergency department, we were unable to follow up on urinary tract infection rates among the participating patients. We also did not measure the injuries caused during the catheterization. A study demonstrated that iatrogenic injuries were mostly caused by senior doctors who were routinely involved in performing this procedure [11]. This was contrary to other studies that showed junior doctors had inadequate training in UC during medical school that resulted in low confidence during execution in practical life [12]. This was due to the fact that during internship male and female catheterization had never been done by one in five first-year interns and 45% of the interns respectively [13]. Hence, training of the health care providers and re-audit is necessary for better health care quality.

The report from the audit was shared with the department and hospital management. The Center of Disease Control CDC guidelines which are considered standard 1,[14] were distributed to all the health care providers. It was further emphasized that hand hygiene is mandatory before catheter insertion. An official refresher for the procedure with a simultaneous re-audit was planned in March 2020 but due to COVID-19 pandemic, the plan could not be made operational. The need for a checklist-based protocol was also communicated to the management to ensure that best practices are being followed with patient centered approach.

Submission declaration

The authors declare that this study has not been published previously, that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, including electronically without the written consent of the copyright-holder.

Ethical approval

Ethical Review Committee at Aga Khan University.

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Author contribution

SW; conception, initial draft. NK; protocol development, ethical approval, data collection, initial draft. AA; data analysis, results section. SM; introduction and discussion sections. All authors have reviewed the final draft.

Registration of research studies

1. Name of the registry: Not Applicable
2. Unique Identifying number or registration ID: Not applicable
3. Hyperlink to your specific registration (must be publicly accessible and will be checked): Not applicable

Guarantor

Dr Nazir Kapadia

Consent

This was an audit hence an ethical exemption was obtained from the Ethical review committee of Aga Khan University. No additional information was collected and only routine information that is generally gathered by the physician or nursing staff was used for the purpose of the audit. Patient confidentiality was maintained. The identifiers such as name were replaced with codes.

Declaration of competing interest

The authors declare that they have no competing interests.

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Appendix

Table AI
Patient demographics, risk factors and indication for catheterization (n = 81).

VARIABLES	FREQUENCY [PERCENT]
Inserted By	
• Nurse	67 [82.7%]
• Doctor	11 [13.6%]
• Others	3 [3.7%]
If done by doctor [n = 11]	
• Low platelets	0
• BPH/Surgery	3 [27.3%]
• RTA	7 [63.6%]
• Others	1 [9.1%]
Years of Experience	
• Less than 1yr	5 [6.2%]
• 1–3yr	55 [67.9%]
• >3yrs	21 [25.9%]
Privacy Provided	
• Yes	81 [100%]
• No	0
Preparation Done	
• Yes	79 [97.5%]
• No	2 [2.5%]
Hand Wash	
• Yes	0
• No	81 [100%]
Sterilized Field	
• Yes	80 [98.8%]
• No	1 [1.2%]
Appropriate assistance	
• Yes	80 [98.8%]
• No	1 [1.2%]
Catheter secured	
• Yes	81 [100%]
• No	0
Indication	
• Measuring Output	74 [91.4%]
• Relieving Retention	4 [4.9%]
• Both	3 [3.7%]
Indication Relevant	
• Yes	80 [98.8%]
• No	1 [1.2%]
Number of Attempts	
	77 [95.1%]
• First Attempt	1 [1.2%]
• Second Attempt	2 [2.5%]
• Third Attempt	1 [1.2%]
• Fourth Attempt	

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