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ORIGINAL ARTICLE

Unexpected Barriers Against Patient Safety: The case for the Indwelling Urinary Catheter

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ABSTRACT

Objectives: Catheter associated urinary tract infections are the leading class of hospital acquired infections. We aimed to report the background findings of a quality improvement project that evaluated the perceptions of the healthcare personnel about the usage of urinary catheters and the barriers against the appropriate use of them.
Material and Methods: This is a retrospective analysis of a cross-sectional study, in which a patient safety evaluation tool was used to gather information as a part of a quality improvement project. Doctors and nurses caring for adult patients were asked to fill in a questionnaire.
Results: 258 nurses and 48 doctors responded. 81% of the nurses and 52% of the doctors told that clinical nurses acted to remove the catheter when it is no more required. 60.5% of nurses and 54.2% of doctors said that the major barrier against the removal of the urinary catheter was the unwillingness of the patient and the family. The second perceived barrier was the placement of the urinary catheter in the emergency room even though it's not required.
Conclusion: The major barrier against the removal of a urinary catheter was the resistance from the patient and the families as the number one perceived barrier by the doctors and the nurses. Prevention of catheter associated urinary tract infections require a deep understanding of the real-life factors in the healthcare setting, training on evidence based patient safety approaches and a multifaceted improvement plan that will stimulate the effective communication between the nurse, the doctor and the patient and his/her accompanies.

Keywords: Urinary tract infections, health literacy, infection control, patient safety

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INTRODUCTION

Hospital-acquired infections are one of the most important adverse events that jeopardize patient safety in most of the healthcare settings. They can be prevented by appropriate infection prevention measures such as hand hygiene and rational use of indwelling catheters. Urinary tract infections compose an important fraction of hospital-acquired infections, while majority of urinary tract infections acquired in the hospital are associated with a urinary catheter [1]. Each additional day of urinary catheterization increases the risk of catheter-associated urinary tract infection (CAUTI)[2]. Urinary tract infections can be prevented by 65-70% if appropriate measures are taken[3]. It was shown that using appropriate catheters placed with aseptic technique, proper nursing care and removal of the catheter when it was no longer required could prevent the development of CAUTI[4,5]. In addition, daily questioning the need of the urinary catheter and the use of electronic reminders to limit the duration of uri-nary catheterization are evidence-based strategies to reduce CAUTI[6,7]. Several studies have shown that sociocultural factors are also important to prevent hospital-acquired infections and these should also be evaluated per patient [8, 9]. A quality and patient safety programme is in place for more than 10 years in our hospital. The hospital staff was kept informed about the programme and the improvement projects

through orientation training programmes, in-service training sessions and through alerts in the electronic healthcare information and management system. As a part of the daily routine of the nurses, each patient is evaluated for the presence and appropriateness of invasive catheters through a standard form since January 2014. Here, wereport the background resultsof a quality improvement project that aimedto outline the perceptions and attitudes of the doctors and the nurses to guide for an improvement plan to de-crease the rate of CAUTIs in a University Hospital.

MATERIAL and METHODS

This is a retrospective analysis of a cross-sectional study, in which a patient safety evaluation tool was used to gather information as a part of a quality improvement project. Doctors and nurses working in Adult Patient Wards of a University Hospital were asked to fill in a questionnaire. The Hospital has a patient safety and quality programme with the participation of active infection control teams. An invasive device surveillance form is filled up for every hospitalized adult patient admitted to the wards by the ward nurse and a urinary catheter bundle is assessed daily for appropriateness of the presence of the catheter. The nurses are instructed to remind the presence of the urinary catheter to the doctor and asked to have it removed if it's no more needed for a proper indication. Urinary catheter usage and CAUTI rates are traced with active surveillance by the Adult Infection Control Team in certain high-risk areas of the Hospital and findings are reported to the Hospital Leadership and the staff. However, despite these efforts, the rates of CAUTI are quite high when compared to the National Healthcare Safety Network- Centers for Disease Control and Prevention data. A quality improvement project was planned and in order to analyze the current situation in terms of the attitudes of the healthcare personnel and perceived barriers against the removal of the urinary catheters, a questionnaire was developed based on the assessment tool by Saint and colleagues [10] and validated by Fletcher and colleagues [11]. A written permission was granted by Dr. Saint stating that the assessment tool can be used for the project. The questionnaire was composed of yes/no questions on the attitudes of the nurses and the doctors, and a multiple-choice question asking about experienced substantial resistance with regards to the removal of the urinary catheter. All of the nurses working in the wards where adult patients are admitted and residents from one medical and one surgical department were handed these questionnaires. The questionnaires were received unanimously by the Quality Office. Descriptive statistics were used to present the data. Pearson Chi-square test was used to test for the difference between the categorical variables with Fisher's exact test and continuity correction where appropriate. A p value < 0.05 was considered statistically significant.

RESULTS

A total of 306 healthcare personnel (258 nurses and 48 residents) responded. Only 9.5% of the responders told that they have a well-functioning team (or work group) focusing on CAUTI prevention, while 34.3% told that there is a dedicated project manager to coordinate the CAUTI prevention activities (Table 1). Although there were discrepancies between the nurses' and the doctors' responses, more than half of the responders in both groups admitted that bedside nurses assess, at least daily, whether their catheterized patients still need a urinary catheter and take initiative to ensure the indwelling urinary catheter is removed when the catheter is no longer needed. On the other hand, it was evident that doctors didn't collect CAUTI-related data nor routinely feedback CAUTI-related data to frontline staff, while nearly half of the nurses participated in these activities. The positive response rates marked by the nurses were significantly higher than those marked by the residents with regard to the presence of a project manager to coordinate CAUTI prevention activities, the daily task of the nurses to assess the presence and the indication of the urinary catheter and get it removed when it's no more required.

DISCUSSION

Table 1. CAUTI Patient Safety Assessment Tool and the Responses of the Nurses and the Residents

Questions	Number of responders marking 'yes' (%)			
	All responders (n=306)	Nurses (n=258)	Residents (n=48)	P value
Do you currently have a well-functioning team (or work group) focusing on CAUTI prevention?	29 (9.5)	28 (10.9)	1 (2.1)	0.061
Do you have a dedicated project manager to coordinate your CAUTI prevention activities?	105 (34.3)	100 (38.8	5 (10.4)	< 0.001
Do you have an effective nurse champion for your CAUTI prevention activities?	129 (42.2	114 (44.2)	15 (31.3)	0.132
Do bedside nurses assess, at least daily, whether their catheterized patients still need a urinary catheter?	254 (83.0)	228 (88.4)	26 (54.2)	< 0.001
Do bedside nurses take initiative to ensure the indwelling urinary catheter is removed when the catheter is no longer needed (eg, by contacting the physician or removing the catheter per protocol?)	234 (76.5)	209 (81.0)	25 (52.1)	< 0.001
Do you have an effective physician champion for your CAUTI prevention activities	111 (36.3)	80 (31.0)	31 (64.6)	< 0.001
Is senior leadership supportive of CAUTI prevention activities?	107 (35.0)	82 (31.8)	25 (52.1)	0.011
Do you currently collect CAUTI-related data (eg, urinary catheter prevalence, urinary catheter appropriateness, infection rates) in the unit(s) in which you are intervening?	148 (48.4)	141 (54.7)	7 (14.6)	< 0.001
Do you routinely feedback CAUTI-related data to frontline staff (eg, urinary catheter prevalence, urinary catheter	151 (49.3)	138 (53.5)	13 (27.1)	0.001
appropriateness, infection rates)				

CAUTI (catheter-associated urinary tract infection)

Responders were asked to mark the perceived barriers during their activities to prevent CAUTI (Table 2). Interestingly, the most prevalent answer by both the nurses and the residents was patient and family requests for an indwelling urinary catheter (57.1%), followed by catheters commonly being inserted in the emergency department without an appropriate indication (21.0%).

Table 2. Perceived barriers during their activities to prevent CAUTI and the responses of the nurses and the residents

Questions	Number of responders marking 'yes' (%)			
	All responders (n=306)	Nurses (n=258)	Residents (n=48)	P value
Have you experienced substantial nursing resistance?	17 (5.6)	7 (2.7)	10 (28.1)	< 0.001
Have you experienced substantial physician resistance?	51 (16.7)	47 (18.2)	4 (8.3)	0.140
Have you experienced patient and family requests for an indwelling urinary catheter?	182 (59.5)	156 (60.5)	26 (54.2)	0.512
Have you experienced indwelling urinary catheters commonly being inserted in the emergency department without an appropriate indication?	67 (21.9)	52 (20.2)	15 (31.3)	0.129

Hospital-acquired infections, particularly the urinary tract infections associated with indwelling urinary catheters are preventable [12]. In order to set a quality improvement project, the leaders, first of all, should understand the realities of the micro- and macroenvironment, and the attitudes and the perceptions of the people involved in the process. This basic descriptive information is needed to set an efficient plan-do-check-act to carry out a change for improvement. In this regard, the use of a simple, non-costly assessment tool helped us to gather the basic information about the perceptions and the attitudes of the nurses and the residents caring for adult patients in our hospital. One of the main findings of the study was that the nurses were much more involved in data gathering and reporting activities to prevent CAUTI, which was in accordance with the results of the qualitative validation study by Fletcher et al [11]. Unfortunately, nearly half of the residents were not aware of the fact that the nurses assessed the presence and the necessity of the urinary catheter on a daily basis as per protocol of the hospital patient safety programme. The lowest response, consistently in both groups, was the lack of a team or work group focusing on CAUTI prevention, which have implications at the level of hospital leadership and clinical governance.Improving the multidisciplinary teamwork and constituting an efficient communication milieu in the health care setting is one of the well-known principles for safe and high-quality patient care [4,13]. Successful leadership and clinical governance have a pivotal role in cultivating a culture of safety and to overcome barriers in quality improvement projects [14]. Engaging the doctors in quality improvement strategies and creating a culture of safety in the hospital is of utmost importance to motivate patient safety discussions within the team. The strategies adopted by the health professionals to prevent CAUTIs are use of algorithms, reminders and bundle approach [15]. As defined by the Institute for Healthcare and Improvement (IHI), a 'bundle is A small set of evidence-based interventions for a defined patient segment/population and care setting that, when implemented together, will result in significantly better outcomes than when implemented individually' and care bundles have been shown to be effective methods to improve patient outcomes [16]. Components of care advised by IHI to prevent or reduce the risk of CAUTI are avoiding unnecessary urinary catheters, inserting urinary catheters using aseptic technique, maintaining urinary catheters based on recommended guidelines, reviewing urinary catheter necessity daily and removing promptly [17]. Around the motto of 'Less is more', healthcare is now evolving

to 'not to maximize, but to optimize' medical care [18]. Choosing Wisely campaign, in this regard, aims to guide conversations on informed choices between the patients and the doctors to reach the optimal care [19]. The Society of Hospital Medicine's Choosing Wisely list states that 'Don't place, or leave in place, urinary catheters for incontinence or convenience or monitoring of output for non-critically ill patients (acceptable indications: critical illness, obstruction, hospice, perioperatively for <2 days for urologic procedures; use weights instead to monitor diuresis)' as the number one recommendation as well as a similar recommendation ranks 5 by the American Academy of Nursing. Ironically, while the placement of urinary catheters in the Emergency Department was perceived as the second ranking barrier against the CAUTI prevention activities by the responders of this survey, 'avoid placing indwelling urinary catheters in the emergency department for either urine output monitoring in stable patients who can void, or for patient or staff convenience.' ranks in the 2nd place in the Choosing Wisely list of the American College of Emergency Physicians. It's clear that, there is plenty of evidence for not placing or keeping urinary catheters without accepted indications, but there is a quality gap in practicing the best evidence in this area. The most striking result of this study was to see that the perceived barrier by both the nurses and the residents was the request to leave the catheter in place from the patients and the families. There might be similar trends in developed countries such as reported by Greene et al. Nearly half of the surveyed acute care hospitals in the United States declared that urinary catheters were used for indications such as urinary incontinence without outlet obstruction (42.4%) and upon patient/family request (34.2%) [20]. The reason behind this finding might be lack of proper guidance by the nurses and the doctors, lack of effective communication, and/or low health literacy of the patients and the families. Heath literacy is the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions [21]. The national data indicates that the health literacy of the Turkish population is below the average of the European communities [22]. Low health literacy is a major barrier against the effective communication between the patient, the families and the healthcare staff. The fact that the urinary catheters should be taken out as soon as the indication is over should be conveyed to the patients in a way that they can obtain, process and understand the information. The health care personnel have a vital role to improve the health literacy of the patients to create a patient-centered and safe health care setting.

The study has some limitations. First of all, the responses from the doctors were poor and the number of doctors was low. Second, although the statistical analyses yielded significant differences in several items with regard to the responses of the nurses and the residents, the results should be evaluated cautiously and verified in larger and heterogeneous groups. Nevertheless, the findings of the study helped us gain very valuable background information for a quality improvement project to decrease CAUTIs in our hospital.

In conclusion, prevention of CAUTIs require a deep understanding of the real-life factors in the healthcare setting, training on evidence based patient safety approaches and a multifaceted improvement plan that will stimulate the effective communication between the nurse, the doctor and the patient and the families.

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