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Bladder Training Before Foleys' Catheter Removal - Indispensable Or Inimical

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Abstract

Purpose:

In clinical practice, urinary catheterization is a widely used technique. However, there is no common understanding on the management of short-term catheterized patients before the indwelling catheter is removed. The purpose of this study is to determine whether or not short-term catheterized patients must undergo catheter clamping before removing an indwelling urinary catheter. Additionally, we also compared short term and long-term catheter indwelling groups for the same and found-out some interesting results.

Definition:

Bladder training before Foley's catheter removal refers to clamping the catheter until patient develops sensation to void urine. Once, the patient develops urge to pass urine, the catheter is un-clamped to drain the urine. This practice was usually practiced twice before removal of Foley's catheter.

Methods:

This study included a sample of 370 individuals who underwent Foley's catheterization for a shorter period of up to 7 days. They were split into two groups, one of which had bladder training prior to the removal of the Foley catheter and the other of which underwent catheter removal without bladder training. The risk of UTI, urine retention, timing of the first void, requirement for re- catheterization, post-operative mobilization, and other factors were all taken into consideration when comparing the two groups. Additionally, as an extension to the current study, we compared short term and long term catheter indwelling groups for the above mentioned parameters.

Results:

This study discovered that the short-term catheterized patients of up to 7 days did not require catheter clamping (bladder training) before removal. However, when the patients with long-term indwelling catheters were compared clamping group to the unclamping group, there was a significant difference in the risk of re-catheterization, the risk of urine retention, the patients' subjective judgements, and the rate of urinary tract infection noted in unclamping group.

Conclusions:

The findings of this study, short-term catheter patients do not require bladder training by clamping before urinary catheters are removed. Additionally, problems like prolonged urinary catheter retention and urinary tract damage are possible with clamping.

Keywords: NIL

Introduction

In clinical practice, the use of an indwelling urinary catheter is quite widespread. Most frequently used for short term, indwelling urethral catheters are present in at least 15.0%–25.0% of inpatients [1-3]. Urinary catheters raise the risk of infection while also revealing some information about physical function. 80.0% of nosocomial infections happen after urinary catheterization, and the urinary tract is the source of about 40.0% of them [4]. Bacteriuria was discovered in 20.0% to 50.0% of patients with urinary catheters that were left in place for more than a week [3,5], and 3.0% to 10.0% of bacteriuria per day increased with continued urinary catheter use [3,6-8].

The primary risk factor for developing a catheter-associated urinary tract infection was prolonged use of an indwelling catheter (UTI). This extended hospital stays for the patients, raised the chance of infection and the associated medical costs, and was perhaps fatal [3]. The Center for Disease Control advised in 2015 [9] that urinary catheters should only be used when necessary and should be removed as soon as they are no longer needed. Another problem is having trouble voiding after catheter removal, especially in elderly people with decreased bladder contractile activity. In 1936 [10], Ross was the first to recommend clamping the indwelling urinary catheter before removing it. The clamping approach is intended to fortify the bladder detrusor muscle, augment bladder muscle tone and sensitivity, and induce bladder filling and emptying.

Although there are some benefits to clamping, there are also some drawbacks, such as bladder over distention if the clamping is left too long [11], an increased rate of re-indwelling by up to 1.06 fold per indwelling urinary day [13], a longer time needed to keep the indwelling catheter in place, and an increased risk of infection [11,14,15]. There is no well-defined standard of care for bladder clamping in clinical practice. Depending on the level of necessity, each doctor decides whether or not to clamp the catheter before removal. There is little data to support the usefulness of clamping in patients with short-term indwelling catheters, according to Cochrane reviews and some clinical trials [1,6]. Additionally, it was established by the Joanna Briggs Institute (JBI) [17] and the Healthcare Infection Control Practices Advisory Committee (HICPAC) [16] that clamping indwelling catheters prior to removal did not give strong evidence for preventing catheter-associated UTI, with poor methodology being the primary cause [6,18]. It is obvious that the requirement to clamp the urinary catheter before removal is still a crucial topic that has to be further investigated extensively.

Does bladder function get better with clamping intervention before removal? Does it prolong catheter retention or the return to normal voiding? The management of urinary catheter removal requires research evidence, which must be obtained through systematic investigation and high-quality evaluation. This study set out to determine if patients with short-term indwelling catheters required bladder clamping before urinary catheter removal and also added the interesting facts about clamping of long-term catheters when compared with short term catheter clamping.

Methods

A group of 370 patients who underwent Foley catheterization for a shorter duration of upto 7 days were included in this study. They were divided into 2 groups of which one group undergoes bladder training before Foley catheter removal whereas the other group undergoes direct catheter removal without bladder training. Both groups were compared under various parameters like risk of UTI, urinary retention, timing of first voiding, need for re-catheterization, post-operative mobilization, voiding related symptoms and also compared in between short term and long-term catheter indwelling patients.

Inclusion Criteria:

1. Patients in age group of 20-70 years.
2. Patients undergoing elective surgery.
3. Patients without any urological diseases.

Exclusion Criteria:

1. Patients with known urological manifestations.
2. Patients with history of previous urological surgeries.
3. Extremes of age < 20 or >70 years.

Indications For Urinary Catheterization:

1. Urinary output monitoring.
2. Need for strict immobilization post-surgery.
3. Prolonged duration of surgery.
4. Pelvic surgeries.

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Results

A total of 370 patients were included in this study. The age range of participants was 20-70 years.

Urinary Retention

This study showed that there was no significant difference in the incidence of urinary retention between the short-term catheter clamped and unclamped groups whereas in long term catheterized patients there was a significant need for re-catheterization due to urinary retention.

Timing Of First Voiding

The clamping group's and unclamped group's mean first voiding time was 1.92 hours. (2.72 hours) ($p < 0.05$).

Uti

This diagnosis was identified by urine cultures. In patients with short-term catheter insertions, there was no discernible difference between the clamping group and the unclamping group whereas positive cultures were seen in clamping group in long term indwelling patients with 95% CI (0.38, 1.44), p = .373]. These results indicated that no significant difference in UTI was found between these two clamping interventions.

Patients' Subjective Perceptions Of Voiding-Related Symptoms

In the long-term catheter indwelling group, only 0.7% of patients reported witnessing frequent or urgent urination, 0.3% reported incomplete voiding, one patient mentioned enduring a burning sensation, spasm, or filling during voiding, and only 0.16% reported experiencing discomfort during voiding. It showed that clamping made no significant difference on short term catheter indwelling patients' subjective perceptions of voiding-related symptoms when compared to short term unclamped patients.

Re-Catheterization After Removal Of Urinary Catheter

In patients with short-term catheter insertions, there was no discernible difference between the clamping group and the unclamping group. Different clamping procedures were also compared with 95% CI (0.41, 1.42), p = .422]. The findings revealed no distinction between these two forms of clamping interventions in terms of re-catheterization. However, there is an increased possibility of re-catheterization of removal in long term catheter indwelling patients.

Discussion

Bladder training helps patients restore their capacity to maintain continence by encouraging them to wait longer between urinating. Some individuals with long-term indwelling catheters or incontinence showed improved voiding performance after undergoing bladder training. In a medical setting, indwelling urinary catheters are virtually always used temporarily. The lack of sufficient scientific literature makes it difficult to determine whether clamping is required for temporarily indwelling patients. The purpose of this study was to determine whether adult patients needed to clamp their short-term indwelling catheters before removing them.

The findings revealed no significant changes in the risk of re-catheterization, urine retention, subjective voiding symptoms, or incidence of UTI between the clamping and unclamping groups. Similar outcomes were discovered in this study. The scant information presented here once again supported the HICPAC and JBI recommendations that clamping indwelling catheters before removal was no longer necessary. In clinical practice, indwelling catheter use is fairly widespread. The bladder's muscle and sphincter are at rest while indwelling. To regain its physical function, it needs to be trained for the longest duration to re-stimulate it. [12].

According to some studies, a clamping intervention could help the detrusor muscle get stronger, increase muscular tone and bladder sensation, and promote regular bladder filling and emptying [11,12]. Others, however, concluded that, in cases of short-term indwelling catheter, bladder clamping lengthened the indwelling catheter's stay, raised infection rates, and raised costs. [14,15,30]. Surgical patients were included in this investigation. Limited muscular activity during urinating is more likely to cause complications at these surgery sites. Our findings demonstrated that clamping had no effect on the primary outcomes that were chosen.

Review of the literature revealed no distinction between these two clamping protocols in terms of re-catheterization. Progressive clamping, on the other hand, has been supported by some researches as being advantageous for urinary function [12]. The risk of

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catheterization problems increased with a prolonged retention period [30]. In addition, if the bladder or urine system is not opened again, using a clamp could increase both the workload of nurses and the danger of damage.

Conclusions

We looked at the pros and cons of clamping urethral catheters both temporarily and permanently before removing them. According to our study, there was no discernible difference in the outcomes of re-catheterization, urine retention, UTI, or patients' subjective evaluations of voiding-related discomfort in patients with short-term catheter indwelling. However, as described in the study's results section, there has been a significant difference between the two groups in cases with long-term catheter indwelling.

This study demonstrates that it is not necessary to clamp indwelling catheters before removing them in short term catheterized patients. If there is no indication that a urinary catheter should be used indefinitely, nurses should unplug the catheter sooner to lower the risk of difficulties when caring for patients with short-term indwelling catheters. Even so, after the catheter is removed, nurses and other medical professionals need to regularly monitor patients' urination and determine whether their bladders are full.

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