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Bacteriuria and Urinary Retention following Gynaecological Surgery: Comparing Short vs Long Term Catheterization

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ABSTRACT

Background: Post operative bladder drainage is important care following gynaecological surgeries. This study was done to compare the incidence of urinary retention and bacteriuria following long term versus short term catheterization.

Methods: The patients who were admitted for gynaecological major surgeries were enrolled in this study. One group of patients had post operative indwelling catheterization for 24hrs (short term catheterization) and another group of patients had catheterization for more than 48 hrs (long term catheterization). The urine examination and culture sensitivity was sent for all patients at the removal of catheter. The patients were followed after removal of catheter for urinary retention.

Results: Total of 102 patients were studied. There were 48 patients in short term catheterization group and 54 patients in long term catheterization group. In short term catheterization group, 3 (6.2%) cases had bacteriuria and no cases of urinary retention were observed. In prolonged catheterization group, 6 cases (11.1%) had bacteriuria and 2 cases (3.7%) had urinary retention.

Conclusions: This study has concluded that short time catheterization following gynaecological surgery had fewer incidences of bacteriuria and urinary retention than long term catheterization.

Key words: bacteriuria, catheterization, urinary retention.

INTRODUCTION

Post operative bladder drainage is one of the important care following gynaecological surgeries. Bladder drainage is done either by transurethral catheterization or by supra-pubic catheterization.[1] It is mainly done for avoiding pain and discomfort due to surgery or vaginal packing in vaginal surgery. It is also done to measure accurate urinary output during the post operative period. Duration of post operative catheterization is not uniform in different gynaecological surgeries and in different centers, but is assumed to be sufficient, if the indwelling catheterization is done for 18-24 hrs post operatively.[2]

Despite strict aseptic technique, urinary tract infection (UTI) is high in patients with catheterization and risk of urinary tract infection will be higher with increasing duration of catheterization.[3]

Due to the close proximity with the anal canal, the bowel flora will accumulate around the peri-urethral area. So, the bacteria gains access to the bladder either intra-

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luminally by entering through the catheter system or via the external surface of the catheter. This study was carried to see the incidence of Urinary Retention and bacteriuria following gynecological surgery with regard to duration of catheterization.

METHODS

A cross sectional study conducted in the Kathmandu Medical College Teaching Hospital from February 1, 2010 to May 31, 2010. Ethical Approval was taken. The patients admitted for major gynecological surgery were enrolled in this study. The patients who had UTI and/ or catheterization before surgery and who had bladder injury during surgery were excluded from the study.

Trans- urethral Foleys' catheter (16 Fr) were kept in all patients just before the surgery at Operation Theater. The patients who had been catheterized only for 24 hrs (short term catheterization) were grouped as 'A'. The patients who were catheterized for more than 48 hrs (long term catheterization) were grouped as 'B'. Urine was sent from the catheter for routine examination and culture and sensitivity at the time of removal of the catheter.

All patients received antibiotic prophylaxis for 5 days post- operatively as per hospital protocol. The patients were followed daily for signs and symptoms of urinary tract infection and urinary retention. Urinary retention was diagnosed if patient could not pass urine for more than 6 hrs of catheter removal with clinically palpable bladder on examination. They were catheterized again. Reports of urine routine and culture and sensitivity were followed. Abnormal urine analysis was diagnosed if there were more than 10 pus cells per high power field in urine microscopic examination. Patients with bacteriuria were treated according to sensitivity reports Appropriate statistical calculation is done and data are analyzed using Epi-Info 3.5.1.

RESULTS

Total of 102 patients were enrolled in the study. Out of which 48 patients belonged to Group A had mean duration of catheterization for 24 hrs and 54 patients of Group B had mean catheterization for 56.74 hrs (48-120 hrs). The mean age of patients was 41.8 yrs (16-74 yrs) and 44.2 yrs (19-74yrs) in Group A and Group B respectively.

In group A, 37.5% and in group B 46.2% cases had vaginal surgery. Same percentage of patients had abdominal surgery in both groups. Laparoscopic surgeries were higher in group A than group B (Table 1).

Table 1. Types of Surgery

Types of Surgery	Group A (n=48)	Group B (n=54)
Abdominal Surgery	18 (37.5%)	25 (46.29%)
Vaginal Surgery	18 (37.5%)	25 (46.29%)
Laparoscopic Surgery	12 (25%)	4 (7.4%)
Total	48	54

Bacteriuria was found in 6.2% and 11.2% of the cases in group A and group B respectively. The cases of bacteriuria were found almost double in group B cases (OR 1.88). Similarly abnormal urinary analysis was found higher in group B cases (8.33% Vs 12.8%). In comparison to abnormal urinary analysis, urinary bacterial growth was observed less (8.3% vs 6.2% and 12.8% vs 11.1%) in both groups.

In short catheterization group, urinary retention was not observed, whereas two cases of urinary retention were found in prolonged catheterization group (Table 2). One case of Pelvic Floor Repair had urinary retention and managed with re-catheterization while another case of Total Abdominal Hysterectomy with Bilateral Salpingo-ophorectomy had urinary retention. She had urinary bacterial growth, too. She was managed with antibiotics and re-catheterization.

Table 2. Bacteriuria, Urinary Retention and Abnormal Urinalysis

Variables	Group A (n= 48)	Group B (n = 54)	Odd Ratio (OR)
Abnormal urinalysis	4 (8.33%)	7 (12.8%)	
Bacteriuria	3 (6.2%)	6 (11.1%)	1.88
Urinary Retention	Nil	2 (3.7%)	
Total	7	15	2.25

E. coli was found more in urinary culture of group A while Klebsiella was found more frequently in urinary culture of group B (Table 3).

Table 3. Urinary Bacterial Growth

Organisms	Group A (n= 3)	Group B (n = 6)
E. Coli	2	1
Klebsiella	-	3
Cytobactor	1	1
Actinobactor	-	1

In group A, out of 3 cases of bacteriuria, only 1 case had abnormal urinary analysis. Whereas in group B, 4 cases had abnormal urinary analysis among total of 6 cases of bacteriuria.

Post-catheterization complication like, urinary retention, abnormal urinary analysis and bacteriuria were associated with prolong catheterization (OR 2.25 at 95% CI 0.76-6.9).

DISCUSSION

Having a catheter in urinary tract will increase the chances of urinary tract infection (UTI). It also makes it harder to treat the infection. Catheter associated infection is more common as the duration of catheterization has increased.[3,4] The chances of bacteriuria are around 1-3 % per intermitant catheterization and upto 5% as the catheter was placed for 24 hrs.[5] UTI is caused by bacteria. However, the fungus may cause the infection of the urinary tract. In our study, the commonest bacteria causing catheter associated UTI is E. coli followed by Klebsiella. E.coli is found the commonest organism in urine of the patient admitted in the ICU and community acquired UTI.[6,7] However, Staphalycoccus aureus is the second most common organism isolated in urine in large multi-centric study.[7] But, Staphylococcus aureus was not isolated in urine in patients of our study. Instead other uncommon organism like acinitobactor and cytobacter were isolated in our cases.

In our study, none of the women from short term catheterization needed re-catheterization. But, two cases of re-catheterization needed in long term catheterization group. One case had urinary tract infection and other had no obvious cause for it. But in contrast to our study, N. Thakur et al had found more cases of re-catheterization in short term catheterization in compared to long term.[8] Similar finding had reported by a randomized trial which reported upto 40% re-catheterization needed in short term catheterization group.[9] But, another study from Nepal had reported only 5/257 had developed urinary retention in 24 hr catheterization cases of vaginal hysterectomy.[10] Urinary retentions was also reported less in short duration catheterization by Schiotz HA.[6,11]

To reduce post operative urinary tract infection prophylaxis antibiotic has important role. The use of a Cephalosporin group of antibiotic as a perioperative antimicrobial prophylaxis is the optimal regimen in preventing UTIs after pelvic surgery. [12]

CONCLUSIONS

Urinary drainage with indwelling catheterization is important post operative management. Short term urinary catheterization has got fewer incidences of urinary retention and bacteriuria in compared to prolonged catheterization.

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