



## Comparison between in/out and overnight catheterization as management of post operative urinary retention: Randomized trial

Dr. Sanjay Chaube<sup>1</sup>, Dr. Swagata Brahmachari<sup>2</sup>

<sup>1</sup>Associate Professor, Department of Surgery, L. N. Medical College & J. K. Hospital, Kolar Road, Bhopal, India.

<sup>2</sup>Assistant Professor, Department of Surgery, L. N. Medical College & J. K. Hospital, Kolar Road, Bhopal, India.

### ABSTRACT

**Background:** Postoperative urinary retention (POUR) is a common and serious problem faced during early postoperative period. Incidence varies between 4 to 70%. Post operative urinary retention can be treated by conservative methods like providing privacy to the patient, relaxation exercises and mobilization. If these measures fail, only then the patient should be catheterized as a last resort.

**Aim:** To compare between in/out catheterization and overnight catheterization and determine which method is better.

**Methods:** This randomized controlled trial was carried out on 130 patients who developed postoperative urinary retention after randomly dividing them in two groups. Group A included patients with in/out catheterization, and group B consist of patients undergoing overnight catheterization.

**Results:** Mean age of patients was 33.70±4.6 years for group A and 38.45±3.3 years for group B. In group A (in/out catheterization) out of 65 patients, 18 required re- catheterization. But from group B, re- catheterization was done in 3 patients only.

**Keywords:** catheterization, retention, peri operative, incontinence, Perianal.

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### 1. INTRODUCTION

Postoperative urinary retention (POUR) is a common and potentially serious problem faced during early postoperative period but is poorly understood<sup>1</sup>. Post-operative urinary retention is that condition in which the patient after an operation finds it impossible to urinate in spite of normal kidney function, a full bladder and the absence of organic obstruction<sup>2</sup>. Its incidence generally ranges from 4 to 25%<sup>1</sup>. Gabriele Baldini et al<sup>3</sup> reported incidence between 5% and 70%. The widely varying reported incidence of POUR reflects differences in patient characteristics, the lack of uniform defining criteria, and the multifactorial etiology of POUR, including age, gender, inadequate perioperative fluids, type of anesthesia and type of surgery<sup>3</sup>. Urinary retention is associated with risk of over distention and permanent detrusor dysfunction<sup>4</sup> and result in prolonged hospital stay and loss of work hours<sup>5</sup>. Several contributing mechanisms of POUR include traumatic instrumentation, bladder overdistention, and diminished awareness of bladder sensation, decreased bladder contractility, increased outlet resistance,

decreased micturition reflex activity, nociceptive inhibitory reflex and preexistent outlet pathology<sup>6</sup>.

Bladder catheterization is a common procedure during inpatient major surgery that allows monitoring of urine output, guides volume resuscitation, and serves as a surrogate marker of hemodynamic stability<sup>3</sup>. Post operative urinary retention can be treated by conservative methods like providing privacy to the patient, relaxation exercises and mobilization. If these measures fail, only then the patient should be catheterized as a last resort<sup>7</sup>.

Urinary retention can be tackled by two important methods of catheterization- In and out catheterization and overnight catheterization. Overnight catheterization is more commonly performed as compared to in and out catheterization. Data suggest both are useful but do not clearly mention which one is better<sup>8,9</sup>.

So the present study was carried out to find out which catheterization procedure is better and can be performed safely with low complication rate. Overnight catheterization was compared with in/out catheterization.

**2. MATERIALS AND METHOD:**

The present study was carried out in our medical college and attached hospital as randomized controlled trial during two year period (January 2011 to December 2012). An inclusion and exclusion criterion was as described below.

• **Inclusion Criteria**

- Patients in the age range of 20-45 years
- Male patients.
- Hernia repairs or perianal operations
- Patients who received spinal anaesthesia
- Failed to pass urine after conservative measures to relieve retention.

• **Exclusion Criteria**

- Patients with urinary tract infections
- Known urologic problems
- Urinary incontinence

Total 130 patients with postoperative urinary retention were included according to inclusion criteria. Patients were randomly divided into two groups using random number tables. Group 'A' underwent in-out catheterization for postoperative urinary retention and group B underwent overnight catheterization.

Data was collected and statistical analysis was done using Microsoft Excel. Results were presented in tabulated form.

**3. RESULTS:**

A total 130 patients were included in this study that developed urinary retention following surgery and were randomly divided in two groups of 65 each. In group A, post operative urinary retention was managed by in out catheterization whereas in group B, patients were treated by overnight catheterization process.

Age group	Group A	Group B
20-25	9 (13.85%)	10 (15.38%)
26-30	12 (18.46%)	9 (13.85%)
31-35	21 (32.31%)	18 (27.69%)
36-40	18 (27.69%)	22 (33.85%)
41-45	5 (7.69%)	6 (9.23%)

**Table1: number of patients in each group according to age groups.**

All 130 were male patients. Female patients were excluded from the study as anatomical factors that lead to retention are different in both sexes. The age of patients varied between 20 to 45 years. Mean age of patients was 33.70±4.6 years for group A and 38.45±3.3 years for group B. Most of the patients in group A 21/65 (32.31%) were in age group 31-35. Conversely 33.85% patients in group B were in age group 36-40.

Distribution of patients according to type of surgical procedure performed is shown in table II.

	Group A	Group B
Perianal operations	43	39
Hernia repair	22	26
Total	65	65

**Table 2: Distribution of patients according to type of surgical procedure performed.**

Re-catheterization: The need of re-catheterization was required in both the groups. In group A (in/out catheterization) out of 65 patients, 18 required re-catheterization. But from group B, re- catheterization was done in 3 patients only.

None of the patients included in the study developed any of the postoperative complications and retention resolved.

	Re- catheterization	
	Required	Not required
Group A	18 (27.69%)	47 (72.31%)
Group B	3 (4.62%)	62 (95.38%)

**Table 3: Summary of Re-catheterization done in two groups.**

**4. DISCUSSION:**

Post-operative retention of urine is a common surgical complication, and it is essential to have a clear understanding of the factors involved in its production and the principles of its management, if further complications and mortality are to be prevented<sup>7</sup>. Though it is well known clinically that POUR is common and potentially serious condition that causes prolonged hospital stay, limited data is available regarding the method that will be much better in relieving POUR. The present study was carried out to compare two commonly used methods of managing postoperative urinary retention- in/out catheterization and overnight catheterization. Their efficacy was judged by comparing the frequency of re-catheterization after urinary retention. 27.69% patients of group A (in/out catheterization) needed re-catheterization but only 4.62% patients of group B (overnight catheterization) required re-catheterization. So overnight catheterization may be assumed better method compared to in/out catheterization as far as re-catheterization is concerned. Lua et al<sup>5</sup> found no significant difference between in-out catheterization and overnight catheterization in terms of re-catheterization and development of urinary tract infection.

A study by Tangtrakul et al<sup>13</sup> carried out on post caesarean section urinary retention and urinary tract infection, they noticed no significant difference between incidence of urinary tract infection in both groups of catheterization. They further suggest that incidence of urinary retention after in/out catheterization is more than that in overnight catheterization and advocates overnight catheterization

over in/out catheterization for management of POUR<sup>12</sup>. Study by Iftikhar Ahmad and Mohammad Nadeem<sup>12</sup> also advocates the same. The present study also agree that overnight catheterization is better modality to manage POUR.

Previous studies<sup>1, 8-11</sup> states that POUR increases with age, with the risk increasing by 2.4 to 2.8 times in patients over 50 years of age. Present study implicate that age is independent risk factor for development of POUR. But most of the patients were in age group 31-40 years. Iftikhar Ahmad and Mohammad Nadeem<sup>12</sup> also recorded the same.

The main limitation of the present study was sample size. It could be more and should chose patients from other surgical procedures and anaesthesia. A microbiological study for development of urinary tract infection should also be combined with similar study. A study involving several departments could be much more promising.

#### 5. CONCLUSION:

Post operative urinary retention is common problem that has to be faced by almost all the surgeons. In/out and overnight catheterization are useful methods to relieve POUR. But overnight catheterization appears to be much effective as compared to in/out catheterization in terms of re-catheterization.

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**Conflict of Interest: None Declared**

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