

Trial without Catheter in Acute Retention of Urine secondary to Prostatomegaly

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ABSTRACT

Introduction: Acute Retention of Urine is one of the main presentations for Benign Prostatic hyperplasia. Trial without catheter is an ambulatory care protocol. The greater morbidity and mortality associated with emergency surgery, and the potential morbidity associated with prolonged catheterization have led to the increasing use of a trial without catheter. Trial without catheter involves catheter removal allowing patients to void successfully so that surgery can be performed at a later stage. Use of an alpha (1)-blocker before a Trial without catheter has demonstrated that it increases its success. **Aims:** Identifying the success and failure of Trial without Catheter in patients with Benign Prostatic Hyperplasia and evaluating factors influencing them. **Methods:** A total of 60 patients who presented with acute urinary retention were enrolled in this study at Nepalgunj Medical College which was conducted between February 2021 and August 2021. All the patients underwent Foley Catheterization. Tablet Alfuzosin 10mg one tablet at night and requested follow-up after a week. Trial without Catheter conducted and the amount of urine measured after removal of the Foley catheter. **Results:** The study evaluated various factors predicting success of Trail without Catheter. Age group of 61-70years had higher success. Patients with moderate American Urological Association score had higher success rates than the rest. About 10 (6%) patients had a Quality of Life of less than four. The prostate volume ranging from 30-39ml had higher success rates. Patients with Grade III Intravesical Prostatic Protrusion had fewer chances of successful Trial without Catheter. Duration of Lower Urinary Tract Symptoms less than six months was favorable for the success of Trial without Catheter. Thirty five (58.3%) patients voided more than 200ml during Trial without Catheter. **Conclusion:** Trial without catheter should be opted for selective patients having Benign Prostatic Hyperplasia presenting with Acute Urinary Retention.

Keywords: Anemia, Low birth weight, Neonates, Prematurity

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INTRODUCTION

Benign prostatic hyperplasia (BPH) is a medical condition that is related to increasing age, the prevalence of which increases from 25% among men 40 to 49 years of age to more than 80% among men 70 to 79 years of age. Acute urinary retention (AUR) due to BPH is a sudden and painful inability to void urine voluntarily. Urethral catheterization is immediate management of AUR for bladder decompression.¹ Trial Without Catheter (TWOC) is a standard of care after initial management with catheterization with or without alpha-blocker therapy.² The long term catheterization has its obvious morbidity and immediate surgery is associated with a high post-operative complication rate and mortality rate. This has led to increased use of TWOC in clinical practice. The reported success rate of TWOC in AUR performed one to seven days after catheterization is 23-55%.

In the past, the first approach was early surgery. The second approach was long-term catheterization (transurethral, supra-pubic, or intermittent). The third approach was TWOC usually with medical therapy, for which reported success rates have currently improved.

Studies have shown old age (≥ 70 years), prostate size ≥ 50 mL, severe Lower Urinary Tract Symptoms (LUTS), drained volume at catheterization more or equal to one liter, Intravesical Prostatic Protrusion (IPP), and spontaneous AUR to be the predictors for unsuccessful outcome of TWOC.³ Men with an IPP of 10 mm or less, compared to those with a larger IPP, were six times more likely to have a successful TWOC.⁴

METHODS

The study was a prospective, single center, observational

study. Patient consent was taken with ethical approval from the Nepalgunj Medical College and Teaching Hospital Institutional Review Committee. A total of 60 patients who presented with AUR were enrolled in this study at NGMCTH which was conducted between February 2021 and August 2021. The study evaluated numerous factors such as Age groups, American Urology Association (AUA) Score, Prostate Size, Post-void Residual Urine Volume (PVR) and IPP to predict the success of TWOC in patients presenting with first episode of AUR secondary to BPH. Simultaneously, Quality of Life and Re-catheterization rates were calculated. All the patients underwent Foley Catheterization via the urethra and were prescribed Tablet Alfuzosin 10mg one tablet at night and requested follow-up after a week. TWOC conducted and the amount of urine measured after removal of the Foley catheter. Demographic data at the time of admission was taken.

Inclusion criteria- Patients with prostate size of more than 30 grams, having age of 40 years and above and presenting with first episode of AUR secondary to BPH either in Outpatient Department (OPD) or in Emergency were all included in the study.

Exclusion criteria- Patients diagnosed with chronic retention, acute prostatitis, prostatic abscess or prostatic cancer and urethral stricture. Patients who underwent recent surgery (<15 days), patients with obstructive uropathy, patients with history of myelopathy or polyneuropathy, patients taking anticholinergic drugs or antidepressants and patients coming before seven days or failed to follow up after catheterization

A detailed history was taken including AUA score of the patient. Tablet Alfuzosin 10 mg was advised orally at night for seven days. Under all aseptic precautions, after seven days, patient's foley catheter was removed. Patients encouraged to take plenty of fluids and observed for six hours for spontaneous urination during TWOC. Post void residual urine measurements by USG were done in patients who were able to pass urine. Successful TWOC is defined as voiding with less than 200 mL of PVR volume and patient not needing re-catheterization in next 24 hours and voided volume >100ml.⁵

Statistical analysis

Data analysis was done using Statistical Package for Social Sciences (SPSS) Version 26.0. Normally distributed data were reported as the mean ± SD using descriptive statistics. 'P' value of less than 0.05 was considered significant. Chi-square test was used to test the association between categorical variables and confidence interval was 95%.

RESULTS

A total of 60 patients who presented with AUR were enrolled in this study. Among them, 35(58.5%) had successful TWOC and 25(41.5%) had unsuccessful TWOC. Patients with age less than 70 had higher chances of success during TWOC. The minimum and maximum age of the patients enrolled in the study was 54 and 80 years respectively. About 26(43.3%) patients were under moderate AUA grade, among which all

the patients underwent successful TWOC. Similarly, 34(56.6%) patients had severe AUA grade, among which nine (26.3%) patients had a successful TWOC. (Table I) Only 10 patients (16.7%) had a quality of life less than four and the remaining 50(83.3%) patients had a poor quality of life. (Figure 2) The size of the prostate varied from minimum 32ml to maximum value of 72ml. Patients with prostate volume less than 50ml favored TWOC. (Figure 4) The minimum value was three mm and maximum was 14mm. Success rates of TWOC were high in grade II patients while failure rate was high in grade III patients. About 30(76.9%) patients out of 39 in grade II succeeded TWOC while all patients with grade III IPP failed TWOC. (Figure 3) Similarly, about 35 (58.3%) of the enrolled patients voided more than 100ml of urine and the residual urine was less than 200ml. (Figure 1) About 25 (41.6%) of the total enrolment were re-catheterized and were declared failure of TWOC.

AUA grade	TWOC		Pearson Chi-Square (P value)
	Successful	Failure	
Mild	0	0	<0.05
Moderate	26	0	
Severe	9	25	
Total	35	25	

Table I: TWOC

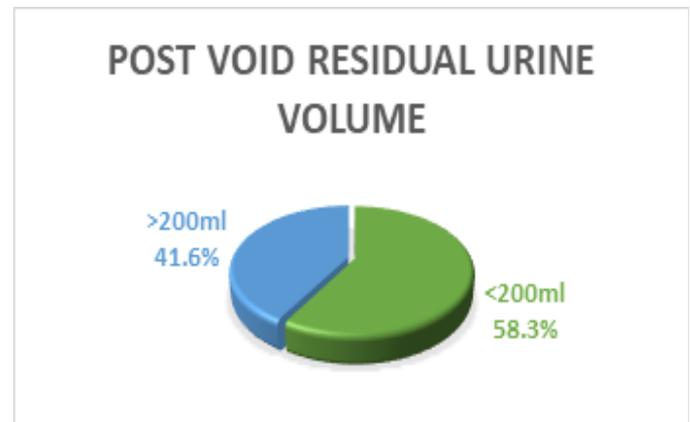


Figure 1: Post Void Residual Urine after TWOC

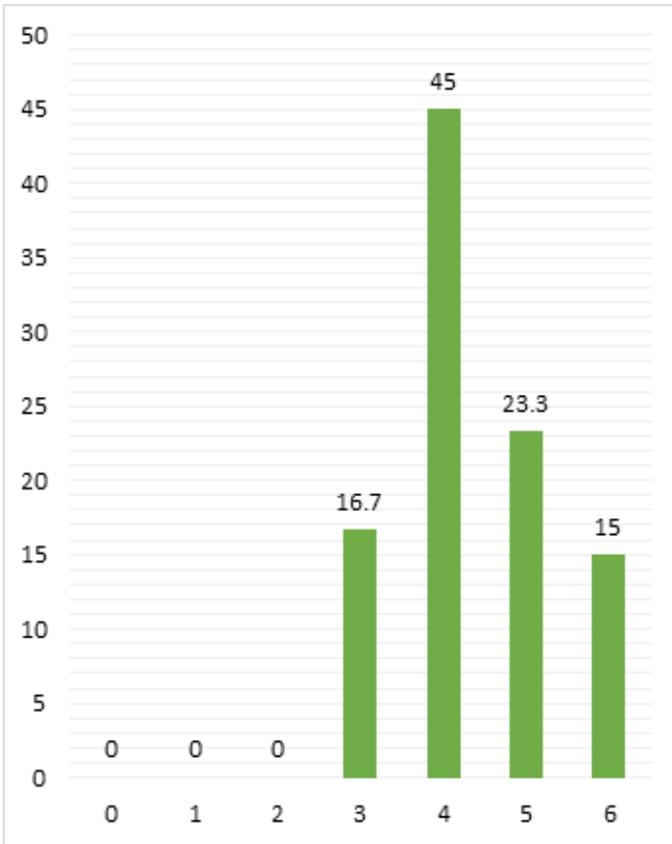


Figure 2: Quality of Life

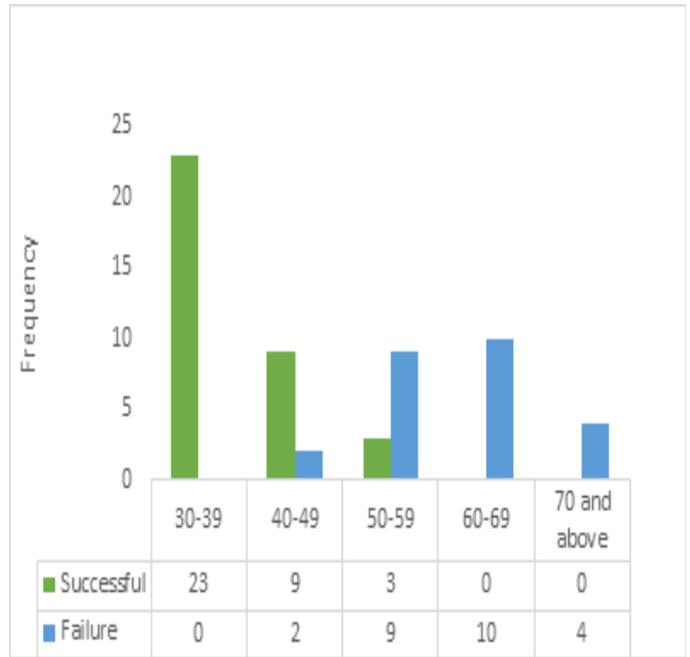


Figure 4: Prostate Volume

DISCUSSION

In 2003, a national survey was performed in hospitals of United Kingdom revealed that 70.5% of the Urologists start alpha-blocker therapy for AUR and 64% perform TWOC within two days. TWOC failed once was an indication for surgery by 72.8% urologists whereas surgery after second failed TWOC was advocated by 11.7%.⁶ A French cross-sectional study of 2618 patients showed that 72.8% of patients had TWOC after a median of three days catheterization and if first TWOC failed, 33.4% had second TWOC before considering surgical intervention.⁷

The reported success rate of TWOC in AUR performed one to seven days after catheterization is 23-55%.⁷⁻¹² Thus, in our study, we prescribed patients Alfuzosin tablet 10 mg for seven days. McNeill et al (2005) was a double blinded placebo-controlled study utilizing alfuzosin. The study was a landmark for use of alfuzosin, also known as the ALFAUR study, it concluded stating the benefit of alfuzosin as it facilitated rapid catheter removal.¹³ Taube M and Gajraj et al (1989) and Jha et al (2020) are two extremes of this research which annotate more than 30 years of clinical studies.^{9,14}

McNeill et al (1999) concluded that elderly patients were less likely to void successfully during TWOC. Fitzpatrick et al (2011) defined patients with >70 years of age associated with higher rates of TWOC failure. Similarly, Mahadik et al (2013) and Lodh et al (2013) concluded age had a significant association with TWOC. The latter study listed cut off age of 69 years above which TWOC success was less likely. Bansal A and Arora A (2016) defined cut off value of 64 years for age, above which patients were advised for immediate surgery.^{2, 5, 8, 15, 16} In this study, patients were divided into six age groups and evaluated in terms of TWOC. Patients of age group 61-70 comprised

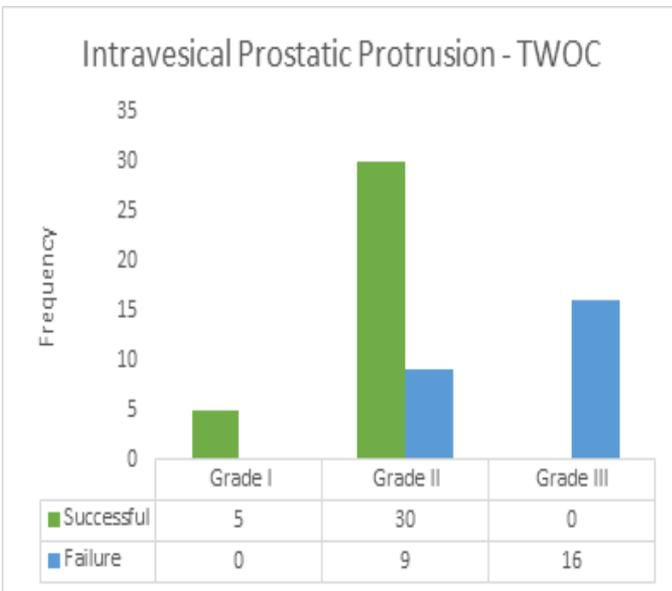


Figure 3: Intravesical Prostatic Protrusion in patients with BPH

larger number patients succeeding TWOC while patients with >70 years of age were less likely to have a successful TWOC.

Bhomi KK and Bhattachan CL (2011) defined cut off value of 16 for IPSS score above which success of TWOC was less likely. Vella et al (2016) utilized a modified IPSS-4 score with threshold of 12 was identified to predict success of TWOC. Bansal A and Arora A et al (2016) also defined a cut off value of 20 for AUA score above which TWOC failed. Jha AA et al (2020) showed statistically significant differences with AUA score.^{2, 14, 17, 18} This study categorized patients in terms of AUA score as Mild, Moderate and Severe and evaluated with successful TWOC. Patients with AUA score <20 had more successful TWOC and patients exceeding 24 score had high chances of TWOC failure. Mariappan et al (2007) showed small prostate volume favouring success of TWOC and Bhomi KK and Bhattachan CL (2011) defined 40ml as cut off value for prostate size above which TWOC less likely to succeed. Mahadik P et al (2013) showed prostate size having significant association with success of TWOC. Similarly, Bansal A and Arora A (2016) defined 56ml, Das et al (2018) defined 49.5ml, Fitzpatrick et al (2011) defined 50g and Panda et al (2008) defined 38.5ml as a cut off for prostate volume for TWOC success.^{2, 4, 5, 15, 17, 19}

This study identified patients with <50 ml prostatic volume succeeding more during TWOC while failure rates increased as the size of prostate increased simultaneously.

IPP has been defined as most consistent and significant predictor of successful TWOC. Tan YH and Foo KT (2003) identified Grade III IPP as a parameter with high failure rate of TWOC (67% failure compared to 36% and 58% with Grade I and II respectively). Mariappan et al (2007) identified IPP more than 10 mm as a cut off for TWOC success above which success was less likely. Bhomi KK and Bhattachan CL (2011) defined eight mm IPP as a cut off, Bansal A and Arora A et al (2016) defined nine mm IPP as a cut off value of IPP, Das et al (2018) defined Grade III IPP (20-35) associated with higher percentage of failure of TWOC. Jha et al (2020) identified IPP as significant determinant of TWOC. Similarly, Panda et al (2008) stated 8.2mm IPP cut off above which TWOC success was less likely.^{2-4, 11, 14, 17, 19}

LIMITATIONS

The major limitation was that this was an observational study with limited sample size. The results would be more accurate and statistically significant by conducting a randomized controlled trial to support the results. For this we need to have a longer study period and larger sample size.

CONCLUSION

Considering the results of the study, it can be concluded that TWOC is a reasonable option before opting for surgery in selective patients who present with AUR secondary to BPH which may help to delay surgery and decrease surgery related complications.

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