



A SIMPLE PROTOCOL FOR MANAGING POST-OPERATIVE URINARY RETENTION (POUR): AN EXPERIENCE AND EVIDENCE

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ABSTRACT

Proposing a simple protocol in the management of urinary retention in postoperative patients that can provide promising results. We analyzed women who underwent pelvic organ prolapse surgery for 6 years from January 2018 to July 2023. The incidence of postoperative urinary retention was identified and we implemented a simple protocol and assessed its success rate. There were 503 surgeries due to POP incidence in Arifin Achmad General Hospital, Riau Province - Indonesia for 6 years. One hundred sixteen cases (23 %) experienced POUR, with mean first residual urine was about 393 ml (110–1.200 ml). The protocol was applied, and 81 % cases revealed satisfying results. In successful group, the patients were discharged after 4±1 days. There were significant differences in the first residual urine between patients who were successfully treated with the simple protocol (350±227 ml) and patients requiring physiotherapy consultation (576±325 ml), with $p = 0.005$. Most cases of postoperative urinary retention can be managed using this protocol. So this protocol can be considered to be applied.

Keywords: patients; postoperative voiding management; post-operative urinary retention

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INTRODUCTION

The prevalence of Post-Operative Urinary Retention (POUR) reported varies from 3,8% to 80% depends on the definition of urinary retention used and the type of surgery performance. In gynecological cases POUR is defined as the absence of spontaneous micturition 6 hours after catheter removal with residual >100 ml. The cause of POUR is complex, including factors such as the type of operation, postoperative catheter regimen, anesthesia, overhydration, medications, and surgical stress like pain and anxiety. POUR is one of the most common complications that occur in gynecological surgery, especially in urinary incontinence surgery and Pelvic Organ Prolapse (POP).^{1,2} POUR is defined as the inability to void with a full bladder during the postoperative period. The patients who have undergone pelvic reconstructive surgery may take days and sometimes months to resume the normal voiding. Prolonged, unattended post-operative urinary retention (POUR) can subsequently lead to bladder denervation and permanent bladder contractility loss. Urinary retention can lead to urinary tract infections, bladder overdistension, chronic detrusor bladder hypertrophy and de novo micturition dysfunction, including overactive bladder symptoms ^{2,3}.

Based on literature the incidence of POUR after POP surgery was 2,5% - 24%. Meanwhile, in United States, the incidence was 20%, and in Thailand, the incidence was 10%. Most of the cases were found in developing countries, including Indonesia. In 2014, Priyantini's research showed the incidence of POUR in Cipto Mangunkusumo National General Hospital, Jakarta, Indonesia, was about 29%.³⁻⁵ Despite the high incidence of POUR in developing countries, there has been a treatment protocol for urinary retention which yields promising results. The aim of this study is to show the experience and evidence of using a simple protocol to treat POUR efficiently; and to find if there are differences of first residual urine and length of stay between patients who were successfully treated with the simple protocol and patients requiring consultation with the physiotherapy section.

METHOD

After this research passed the ethical review by the Ethics Commission Unit for Medical and Health Research, Faculty of Medicine, the University of Riau through Decree Number: 224 / UN.19.5.1.1.8 / UEPKK2018. All patients who experienced POUR who had undergone POP surgery from January 2018 – July 2023 were gathered. Patients were identified based on records in the medical records at the Department of Obstetrics and Gynaecology of Arifin Achmad Hospital, Riau Province, Indonesia. All POP patients who had undergone surgery and experienced POUR became the sample of this study. However, patients who had experienced urinary retention before surgery and incomplete medical record data were excluded because they met the exclusion criteria. This study used a retrospective descriptive observational research method by collecting data based on medical records. The data were then collected regarding the incidence of POUR, the amount of urine residue after catheter removal, length of treatment, age, and parity. POUR is defined as the presence of urine residue > 100 ml following removal of the catheter 24 hours after surgery. After 6 hours of catheter removal, the patient was re-evaluated as to whether they had urinary retention symptoms, then the patient was asked to urinate spontaneously. Catheterized urine was sent for routine urinalysis. If more than 100 mL of urine residue was obtained, the patient was included as a sample for this study. Then the POUR management is carried out following a simple protocol algorithm below.

After the management was carried out according to the protocol, an assessment was conducted regarding its success. The treatment success rate was assessed if the final urine residue obtained is <100 ml and the patient can be discharged without the need for medical rehabilitation, and it is said to fail if the contrary is found. The amount of residual urine at the last measurement, length of stay, patient age and parity were also variables in this study. The data were collected by reviewing medical records. All variables that were considered important were also recorded on the research worksheet. After the data collection was complete, data processing was carried out by means of editing, coding and tabulation. In the tabulation, the collected data were entered in the frequency table according to their respective categories. The data that has been processed were displayed descriptively by presenting the frequency distribution of all variables and factors that may have an impact, and analyzed the data using independent t-test. Then the data were presented in the form of diagrams and frequency distribution tables to draw conclusions.

RESULTS

Research subjects were recruited between January 2018 and July 2023 using patient medical records, a total of 503 patients after pelvic organ prolapse surgery met the inclusion and exclusion criteria. Among this population, 116 subjects (23%) experienced urinary retention after POP surgery.

Table 1.
Subject characteristics

Variables	f (%)
Age	
<50 years old	15 (12.9)
≥50 years old	101 (87.1)
Parity	
<3	16 (13.8)
≥3	100 (86.2)
Menopause	
Yes	90 (77.6)
No	26 (22.4)

Among the 116 study subjects who experienced urinary retention, the median urine residue was 393 ml (110-1200 ml). Ninety four of the study subjects (81%) were successfully managed with routine urinary retention procedures in the urogynecology division with a mean length of stay of 4 ± 1 days, as shown in Figure 2. Based on 116 patients who experienced urinary retention, it was found that the average age of patients who experienced POUR was over 50 years old as much as 87,1%.

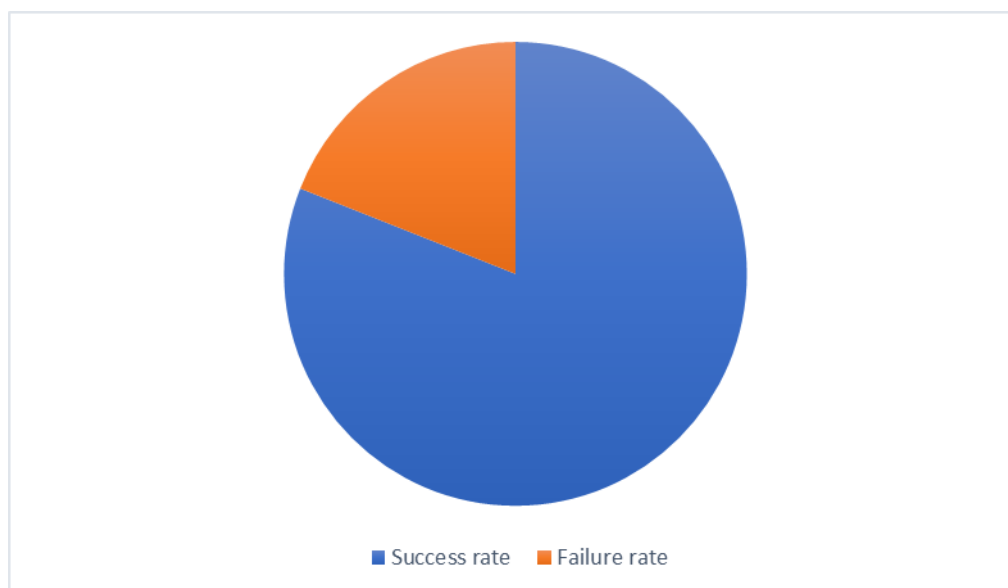


Figure 2 Successful rates of POUR Management using Simple Protocol

The options for treatment are insertion of a permanent catheter for 24 additional hours, or open and close the catheter every 4 hours (bladder training), or intermittent residual urine according to the amount of residual urine during examination, accompanied by instructions for plentiful drinking, antibiotic administration, and prostaglandin preparation. Among the 94 successful subjects, 18 of them (19%) were successfully managed and were discharged within the first 24 hours after urinary retention diagnosis, 43 subjects (45,8%) were successfully managed in the first 48 hours, 24 subjects (25,5%) were successfully managed in the first 72 hours, and 9 remaining subjects (9.7%) were successfully managed over the first 72 hours, as shown in Figure 4.2.

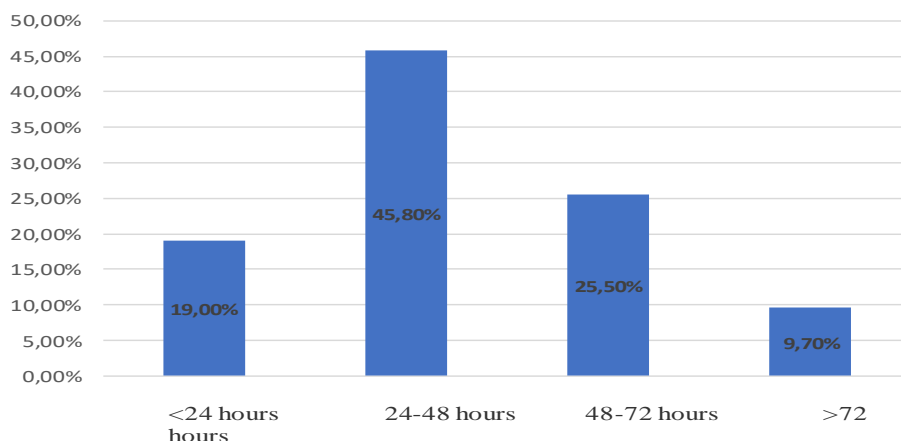


Figure 3. Successful rates of urinary retention management at the Urogynecology Division.

From the graph above, it can be seen that by using our simple protocol, only two additional days are needed to correct patient's POUR, without having to consult to another department. There is a significant difference in first residual urine between patients who were successfully treated with the simple protocol (348 ± 220 ml) and patients requiring consultation physiotherapy section (737 ± 355 ml), with p 0.005. Among the 116 study subjects who experienced urinary retention, 22 study subjects (19%) had to be followed by consultation with the physiotherapy section of the medical rehabilitation department for further management of urinary retention, with a mean treatment duration 8 ± 5 days. There is a significant difference in treatment duration between patients who were successfully treated with the simple protocol (4 ± 1 days) and patients requiring consultation physiotherapy section (8 ± 5 days), with p 0.002.

DISCUSSION

Pour is a frequent complication in gynecologic patients undergoing surgery, especially in patients with pelvic organ prolapse with an incidence of 2.5-24%. The etiology of pour is still not fully known. However, some theories explain that postoperative changes cause edema, inflammation and trauma to the peripheral nerves, affecting the micturition pathway which causes urinary retention. This can lead to bladder overdistension, detrusor muscle dysfunction, urinary tract infection and prolonged treatment. Proper treatment is needed to reduce morbidity and improve quality of life.⁶ The incidence of POUR in this study was 23% of 503 patients who underwent POP surgery. This result is in accordance with the literature which states that the incidence of POUR is around 2-24%. This figure is higher than the study conducted by Asumpinwong in Thailand with an incidence of 10%. Based on Chong, this figure is lower than their 27.1%. However, it is found to be lower than that obtained by Priyatini and Sari in 2014 at RSCM Jakarta (29%).^{3,5,7,8}

The incidence of POUR was also influenced by the demographics of the study sample. Advanced age is a factor that can increase the risk of POUR by 2.4 times, especially in patients aged over 50 years. In this study, there were 101 (87%) patients aged more than 50 years. The older patients might have decreased muscle tone and more nerve dysfunction.^(9,10) The mean length of stay in these patients was 4 ± 1 days. More than 80% of patients can be discharged in good condition after this protocol. This is in line with a study conducted by Carey with an average length of stay in patients after gynecological surgery for 3 days. Length of care is influenced by various factors such as the severity of the disease, the

general condition of the patient and the patient's comorbidities. Decreasing length of stay can improve patient satisfaction and reduce hospital costs.¹¹

POUR has several effects on patients who have undergone surgery if not managed properly. POUR can be managed with intermittent self-catheterization, recatheterization with an indwelling urethral catheter, or preemptive placement of a suprapubic catheter intraoperatively. When POUR is not identified, it can lead to significant morbidity including prolonged bladder distension with associated detrusor injury, renal dysfunction secondary to ureteric reflux and urinary tract infection.¹² The limitation of this study is its retrospective design, in contrast to prospective studies that allow researchers to collect more accurate and complete data. The strength of this study is the uniformity of the catheterization protocol algorithm method, which is indicated by the small number of subjects undergoing catheterization for more than 24 hours.

CONCLUSION

Based on this study, it can be seen that although there is a high incidence of POUR after POP surgery in Riau Province, Indonesia, as much as 23%. Where the average incidence is only 2.5% - 24% in developed countries. However, this problem can be solved well by using a simple protocol with a success rate of 81%. Patients can be managed with a treatment duration of less than 72 hours, so that morbidity and duration length can be prevented and reduced. There were significant differences in first residual urine and length of hospitalization between patients who were successfully treated with the simple protocol and patients requiring consultation physiotherapy section.

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