

## STUDY OF TAMSULOSIN & DUTASTERIDE COMBINATION IN PREVENTION OF POST OPERATIVE URINARY RETENTION IN ELDERLY MALE UNDERGOING ELECTIVE SURGERY

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### ABSTRACT

**BACKGROUND :** Post-operative urinary retention (POUR) is defined as the inability to void after surgery when the bladder is full POUR is common and represents between 5% to 70% of all surgeries, especially after lower abdominal surgery, herniorrhaphy and anorectal. Typically, this phenomenon is painful and can result in increased cost of hospitalization, prolonged length of hospital stay, bladder overdistension, and urinary tract infection (UTI) which can occur primarily or secondarily to catheterization. Urethral catheterization, a mainstay of initial management for patients with POUR, is associated with some complications and increase in cost of care. Therefore, pharmacological therapy is considered as an interesting approach for patients developing urinary retention following surgery.

**PURPOSE:** It is seen that 50% of men with age >60yrs are likely to develop Benign Prostatic Hyperplasia (BPH) related urinary symptoms. Hence, Purpose of this study is to show that post-operative urinary retention can be avoided in elderly males who are having BPH related mild urinary symptoms by giving tamsulosin & dutasteride combination 3 week prior to surgery.

**MATERIAL & METHOD:** In this Prospective study, 90 male patients age >60 years admitted to Krishna Institute of Medical Science, Karad for hernioplasty, appendicectomy, excision & eversion were to receive 0.4mg tamsulosin + 0.5mg dutasteride combination 3 week before surgery. Patients were closely monitored for the development of urinary retention after surgical intervention. The primary endpoint was to investigate the effect of tamsulosin & dutasteride combination in prevention of post-operative urinary retention after surgical intervention. Collected data were analysed using SPSS software version 20.

**RESULTS:** Post operative urinary retention (POUR) in patients who received tamsulosin and dutasteride combination (5.56%) was significantly lower than other studies. No adverse effects were noted.

**CONCLUSION:** Combination of tamsulosin & dutasteride eliminates need for post-operative catheterization in elderly males (>60year) undergoing elective & reduces the incidence of postoperative urinary retention and the need for catheterization

### KEYWORDS :

#### INTRODUCTION

Post-operative urinary retention (POUR) is defined as inability to void after elective surgical procedure despite having a full bladder. Post-operative urinary retention is a frequent complication of surgeries with incidence rate varying between 5% to 70%. Surgical populations at high risk of developing POUR include anorectal surgery (1–52%) and hernia repair (5–38%). Typically, this phenomenon is painful and affect postoperative outcomes, patient satisfaction, and has economic implications. It can lead to bladder over distension, and urinary tract infection (UTI) which can occur primarily or secondarily to catheterization.

Bladder is supplied with sympathetic, parasympathetic and efferent somatic fibres. Visceral afferent fibres, also called stretch receptors, arise from bladder wall. The perioperative period can potentially affect the normal physiology of micturition. This can be attributed to the type of anaesthesia, duration of the surgical procedure performed, pre-operative medication, intraoperative physiologic stressors, drugs, pain, anxiety etc. Many drugs used in perioperative period such as sedatives, analgesics and anesthetic agents lead to POUR.

Urethral catheterization, a mainstay of initial management for patients with POUR, is associated with complications like urethral trauma, urethra stricture, discomfort, urinary tract infection and increase in cost of care.

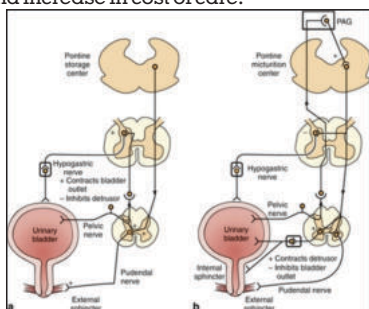


Image 1: Mechanism of storage and voiding reflexes. A, storage reflexes. During the storage of urine, distention of the bladder produces low-level bladder afferent firing. Afferent firing, in turn, stimulates the sympathetic outflow to the bladder to the bladder outlet (base and urethra) and pudendal outflow to the external urethral sphincter. These responses occur by spinal reflex pathways and represent “guarding reflexes”, which promote continence, sympathetic firing also inhibits detrusor muscle and transmission in bladder ganglia. B, voiding reflexes. At the initiation of micturition, intense vesical afferent activity activates the brainstem micturition center, which inhibits the spinal guarding reflexes (sympathetic and pudendal outflow to the urethra). The pontine micturition center also stimulates the parasympathetic outflow to the bladder and internal sphincter smooth muscle. Maintenance of the voiding reflex is through ascending afferent input from the spinal cord, which may pass through the periaqueductal gray matter (PAG) before reaching the pontine micturition center. (From Campbell-Walsh ED11, Urine Transport, Storage and Emptying, Urology 2015, 1658)

It is seen that 50% of men with age >60yrs are likely to develop Benign Prostatic Hyperplasia (BPH) related urinary symptoms. Since combination of tamsulosin and dutasteride is used in patient with BPH related urinary symptom we have used this combination in prevention of post-operative urinary retention among elderly male (>60year) undergoing elective surgery.

Although the combination of alpha-adrenergic receptors inhibitors and 5-alpha reductase inhibitors have been used off-label for the prophylaxis and treatment of POUR, it has not been investigated in clinical setting. Therefore the present study was conducted to investigate the efficacy of tamsulosin & dutasteride combination in prevention of POUR.

**MATERIALS AND METHOD**

This study was conducted in post-graduate department of surgery, Krishna Institute of Medical science, Karad for period of December 2019 to June 2021. All patients with male sex & age >60years with IPSS <7 who are undergoing elective surgery hernioplasty, appendectomy, excision & eversion, umbilical hernia were included in the inclusion criteria. A total of 90 patients were included in the study.

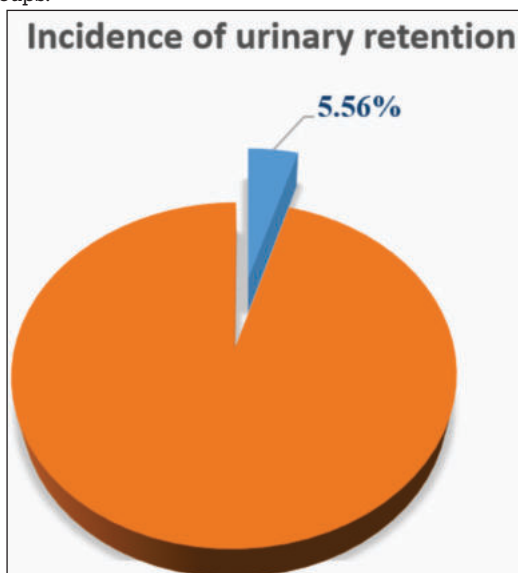
The exclusion criteria was Subject already taking combination of alpha-1-adrenergic blocking agent (such as tamsulosin, doxazocin, silodocin, prazocin) with 5-alpha reductase inhibitor (such as dutasteride), having allergy or hypersensitivity to any alpha-1-adrenergic blocking agent, Subject with neurological illness include stroke, cerebral palsy, multiple sclerosis, diabetic and alcohol neuropathy, poliomyelitis, and Subject already on Anti-cholinergic, Anti-depressant (TCA/SSRI), Anti-psychotic agent, Calcium channel blocker, Anti-histamine and NSAIDs.

Patient full filling inclusion criteria undergoing elective surgery were selected. In all cases tamsulosin & dutasteride combination was given 3 weeks prior to surgery. All patients received combination of 0.4mg tamsulosin and 0.5mg dutasteride 3 weeks prior to surgery. The patient were asked to urinate before the surgery in order to enter the operation theatre with an empty bladder. Post operatively patient was monitored for urinary retention and requirement of catheterization. All the patients were followed postoperatively and any difficulty in voiding or urinary retention was recorded.

Urinary retention was diagnosed when a patient had bulge in suprapubic area, felt discomfort, and failed to pass urine post operatively despite a sufficient fluid intake and when conservative efforts such as warming the suprapubic region and encouraging the patient to stand up and walk were unsuccessful and bladder catheterization seemed inevitable. Indwelling Foleys catheter and 2% xylocaine jelly were used for catheterization.

**RESULTS**

Total of 90 patients were included in this study. POUR in patients who received tamsulosin & dutasteride combination was significantly lower than previous studies. In this study 5.56% of the patients reported urinary retention following surgery as compared to 5.9% Ali Hamidi Madani et al (males with age 18 to 50 years), 2.5% Mohammadi-Fallah et al (males >50years), 2.5% Ahmad et al (All patients of either sex or age <70 years). No serious adverse effects were seen in both groups.



**DISCUSSION**

Post-operative urinary retention (POUR) occurs more frequently after lower abdominal, scrotal and anorectal surgeries, depending on type of surgery. The incidence of urinary retention after herniorrhaphy ranges from 0.2 to 30% & after anorectal surgery ranges between 1 and 52%.

Purpose of this study is to show that post-operative urinary retention can be avoided in elderly males who are having BPH related mild urinary symptoms by giving tamsulosin & dutasteride combination 3 week prior to surgery.

In this study, patient with mild symptoms (IPSS <7) and age >60years, befitting the criteria have been included in our study. In this study we have included patient with mild symptoms only and excluded patient with higher IPSS score. The combination of tamsulosin & dutasteride was given for 3 weeks. These patient were observed for post-operative urinary retention.

All surgeries done in this study are performed as elective procedures without prior catheterization. Therefore, limiting the perioperative volume of fluids and controlling pain are reasonable measures to reduce POUR.

Some precautions, such as limitation of fluid intake, early mobilization, warm compress to the suprapubic area, and the use of short-acting local or spinal anesthesia have been reported to prevent this complication. In a randomized prospective study of perioperative fluid restriction in anorectal surgery, **Bailey and Ferguson** were able to reduce urinary retention from 14.9 to 3.5%.

We found total 5 out of 90 subjects who developed urinary retention had presented with suprapubic pain & discomfort with inability to void. We observed that incidence of post-operative urinary retention was seen among patient with inguinal hernia (bilateral >unilateral) which was 5.56%.

Ali Hamidi Madani et al in their randomized placebo controlled, clinical trial, 232 male patients aged 18 to 50 years old admitted to Razi University Hospital for varicocelelectomy, inguinal herniorrhaphy, and scrotal surgery were randomly assigned to receive either three doses of 0.4mg tamsulosin (n = 118) or placebo (n = 114), 14 and 2 hours before, and 10 hours after surgery. They observed that POUR in patients who received tamsulosin was significantly lower than placebo, as 5.9% of the patients treated with tamsulosin and 21.1% placebo group, reported urinary retention following surgery (P = 0.001). No serious adverse effects were seen in both groups. They suggested that short perioperative treatment with tamsulosin can reduce the incidence of urinary retention and the need for catheterization after varicocelelectomy, inguinal herniorrhaphy, and scrotal surgery.

**Table 1 – Comparison of various studies with present study.**

STUDY INCIDENCE OF POUR (IN STUDY GROUP)	
Present study	5.56%
Ali Hamidi Madani et al	5.9%
Mohammadi-Fallah et al.	2.5%
Ahmad et al.	2.5%

Mohammadi-Fallah et al. followed 80 males (age >50year) who underwent elective inguinal herniorrhaphy. Patients were randomly assigned to receive two doses of placebo orally, 6 h before surgery and 6 to 12 h after surgery (controls), versus the treatment group who received 0.4 mg tamsulosin orally; 15% of the patients in the control group developed POUR compared to only 2.5% in the treatment group (P = 0.04).

Ahmad et al. studied 626 patients (All patients of either sex or age <70 years) who presented with benign pathology in

anorectal region and were operated for hemorrhoidectomy, fistula surgery, sphincterotomy, maximal anal dilatation, incision and drainage of perianal abscess were included in study. 313 patients received tamsulosin and 313 received placebo/controls. Of the control group, 56 (17.9%) developed POUR compared to 8 (2.5%) patients from the tamsulosin group.

In the present study, 5 out of 90 patients (5.56%) who were given combination of tamsulosin & dutasteride 3 week prior to surgery developed urinary retention. As shown in above studies the incidence of post-operative urinary retention was significantly greater in men who did not receive any therapy before surgery.

According to our results, combination of tamsulosin and dutasteride also had the desirable effect in prevention of post-operative urinary retention among elderly males who underwent elective surgeries. Our results showed that, inguinal hernioplasty was most common procedure among patient with post-operative urinary retention showing that it is the most associated with the incidence of POUR.

Tamsulosin is selective blocker of  $\alpha_1$  receptor, it reduces bladder outlet tone and thereby reducing resistance to urine flow whereas dutasteride decreases production of DHT within prostate resulting in decrease prostate volume and improvement in symptoms. Tamsulosin has been associated with adverse effect such as postural hypotension, dizziness whereas gynecomastia, ejaculatory dysfunction, decreased libido, impotency are associated with dutasteride but none of these effect were observed among study subject.

Based on above findings post-operative urinary retention is associated with factors such as spinal anesthesia, advancing age, perioperative fluid administration. However, results of this study shows that POUR can be avoided significantly by giving combination of tamsulosin & dutasteride in elderly males undergoing elective surgery.

The result of current study in prevention of post-operative urinary retention are similar to previous study (table 1) and shows that the combination of tamsulosin & dutasteride eliminates need for post-operative catheterization in elderly males (>60year) undergoing elective surgeries with mild symptoms (IPSS <7) of benign prostatic hyperplasia.

## CONCLUSION

The result of current study shows that the combination of tamsulosin & dutasteride eliminates need for post-operative catheterization in elderly males (>60year) undergoing elective surgeries with mild symptoms (IPSS <7) of benign prostatic hyperplasia. Reduces the incidence of postoperative urinary retention and the need for catheterization & also decreases risk of urinary tract infection and length of hospital stay and healthcare cost.

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