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ORIGINAL ARTICLE

Prophylactically Given Tamsulosin in Preventing Post-Operative Urinary Retention in patients undergoing Surgery Under Spinal Anaesthesia in Department of Urology, Mayo Hospital/KEMU, Lahore

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ABSTRACT

Aim: To determine effect of tamsulosin in the prevention of post operative urinary retention in patients undergoing spinal anesthesia
Study design: Randomized control trial
Place and duration of study: Urology Department, Mayo Hospital, KEMU, Lahore February 2020- February 2021
Methodology: Only 106 patients (53 individuals in each group) were included in the study with non probability purposive sampling. The patients undergoing surgery under spinal anaesthesia were either given tamsulosin in one group and not given tamsulosin in other group. Postoperatively patients were monitored for urinary retention. SPSS-26 was used for analyzing the data.
Result: Incidence of postoperative urinary retention was significantly higher in placebo group as compared to Tamsulosin group. i.e. (overall result of 26.42 vs 3.77%, p-value=0.001 and 26% vs 2.5% in hernia group and 33.3 vs 7.7 % in hydrocele group)
Conclusion: Prophylactically given tamsulosin helps in preventing postoperative urinary retention in patients undergoing surgery under spinal anaesthesia.
Keywords: Postoperative urinary retention, Tamsulosin, Spinal Anaesthesia

INTRODUCTION

Spinal anaesthesia is a most commonly performed regional anesthesia technique by anesthesiologists since 1898[1]. Spinal anesthesia is used for surgical procedures involving pelvis, lower abdomen, perineal and lower extremities. It is effective for surgical procedures below the umbilicus. Complications of spinal anaesthesia are nausea, vomiting, headache, pruritus, transient neurologic problems, hypotension, bradycardia, cardiac arrest and urinary retention[1]

Postoperative micturation difficulties is considered as minor complication but have greater incidence ranging from 0-69%[2,3]. Advancing age, decreased mobility of patient, medication used for post-operative pain management, route and length of medication administration, increased infusion of intravenous fluid and type of anesthetic agents used are considered as numerous factors leading to development of post-operative urinary retention[4]. Spinal anaesthesia suppress the lower urinary tract's function by acting on the sacral nociceptive neurons and autonomic fibres and also has effect on supraspinal centres leading to inhibition of micturation reflex[5]. The patients undergoing perineal and urologic surgery underwent post operative urinary retention due to post-operative pain induced urethral sphincter spasms. The response of body to stress of surgical procedure and post operative pain leads to an increase in tone of sympathetic system which causes release of epinephrine which leads to relaxation of detrussor and act on alpha receptors of urethral sphincters thus closing the internal urethral sphincter[3].

Alpha-1 adrenoceptors located in the neck of bladder, prostatic tissue and urethra promote its contraction[6,7,8]. Alpha adrenergic antagonist aim to decrease the effect of noradrenaline which is secreted endogenously on smooth muscle component of the prostatic tissue and thus reducing prostatic tone, relaxing bladder neck and bladder outflow resistance through a sympathetic response[8,9].

We evaluated the incidence of postoperative urinary retention after prophylactically given tamsulosin and without tamsulosin in patients undergoing spinal anaesthesia with an acceptable sample size.

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Aim of this study is to evaluate effects of prophylactically given Alpha 1 antagonists (tamsulosin) on preventing post operative retention of urine after spinal anesthesia.

METHODOLOGY

After receiving clearance from boards of study and institutional review board of KEMU, the patients were selected according to the inclusion and exclusion criteria and allocated to either group with Tamsulosin or group without Tamsulosin by lottery method. A detail history about their disease, lower urinary tract symptoms, medication history and history of neurological, urological and systemic disease was asked from all patients. Blood analysis, Electrocardiogram, chest x-ray, urinalysis, ultrasonographic investigation for prostate size in male with post micturation residual volume in all patients. Approval from KEMU Ethical Committee was obtained.

RESULT

In this study we compared Tamsulosin with placebo for prevention of postoperative urinary retention in patients undergoing elective surgery under spinal anesthesia. Results of this study revealed that postoperative urinary retention was significantly higher in placebo group as compared to Tamsulosin group. i.e. (26.42 vs. 3.77%, p-value=0.001).

In this study, 106 patients were included with 53 patient in tamsulosin group and 53 patients in placebo group and effects of prophylactically given tamsulosin on urinary retention in patients undergoing elective surgery under spinal anesthesia was seen. Mean age of patient in tamsulosin group was 58.86 years±7.23 SD and in placebo group was 60.50±8.63 SD. Mean preoperatively calculated IPSS in tamsulosin group was 4.33±1.01 SD in tamsulosin group and 4.54±1.02 SD in placebo group. Mean operative time was 43.01 in tamsulosin group and 48.86 in placebo group. Out of 53 patients 2 patients in tamsulosin group (3.77%) went into urinary retention and 14 patients in placebo group (26.42%) went into urinary retention.

There was significant lower incidence of urinary retention in patients prophylactically given tamsulosin on comparison with patients of placebo group. Out of 53 patients of tamsulosin group,

40 patients underwent open surgery for inguinal hernia and 13 patients underwent surgery (Jabouley's procedure) for hydrocele. The result was 1 out of 40(2.5%) patients of hernia and 1 out of 13 (7.6%) patients went into urinary retention. Out of 53 patients in placebo group 50 patients underwent open surgery for hernia and 3 patients underwent surgery for hydrocele. The result of this study showed that 13 out of 50(26%) patients of hernia and 1 out of (33.3%) patients of hydrocele went into urinary retention. Mean quantity of urine obtained on catheterization of retention patients in tamsulosin group was 700 ml and in placebo group was 775±67.22SDml.

Postoperative urinary retension in Treatment groups with Specific Operation Procedure type

Operation procedure type			Group		Total
			Tams	Placebo	
Hernia	Post operative urinary retension	Yes	1(2.5%)	13(26%)	14
		No	39(97.5%)	37(74%)	76
	Total		40	50	90
Hydrocele	Post operative urinary retension	Yes	1(7.7%)	1(33.3%)	2
		No	12(92.3%)	2(66.7%)	14
	Total		13	3	16
	Total		53	53	106

DISCUSSION

Postoperative urinary retention is a known complication of upto 30% of general surgical and urological procedures. It is a common cause of patient discomfort and embarrassment. It interferes with medical therapies, and significant burden to nursing staff. More importantly, urinary retention needs urgent placement of an indwelling urinary catheter or use intermittent catheterization, thus exposing the patient to a raised risk of urinary tract infection (UTI), iatrogenic injury to urethra, increased cost and prolonged length of hospital stay. Because of these reasons, effective and safe measures taken for prevention of post operative urinary retention would be highly valuable[10].

Alpha-1 adrenergic antagonist usage was examined by Ghuman et al. for prevention of retention of urine. They concluded that the usage of alpha-1 adrenergic antagonist has a role in reducing the risk of postoperative urinary retention (p-value< 0.0001). A reduction in the risk of post operative urinary retention following spinal anesthesia was seen by the usage of alpha-1 adrenergic blocker 13.16% vs 30.24, RR=0.48(95%Cl:0.33;0.70, p-value.001) on comparison to placebo which is in favour with the result of our study.[11]

Moreover, Ahmad et al. in his study investigated the tamsulosin's effect on preventing of post operative retention of urine among patients undergoing surgeries of anorectal region under spinal anaesthesia. The results were that 8 (2.5%) of the case group required catheter placement following retention while 56 (17.9%) patients of the control group went in to urinary retention and required placement of a catheter, which was significant statistically (p-value< 0.0001)[12].

The patients undergoing surgery under spinal anaesthesia were benefitted by prophylactically given tamsulosin in preventing post operative urinary retention.

CONCLUSION

Results of this study suggest that prophylactically given tamsulosin is effective in terms of prevention of post operative retention of urine and the need for catheter placement in patients undergoing elective surgery under spinal anesthesia. Therefore, the preoperative use of tamsulosin can be recommended in all male adult patients who are planned for elective surgical procedures under spinal anesthesia.

Patients consent: All data were acquired legally and in accordance with the guidelines set out by proforma.

Recommendation: Tamsulosin can be recommended prophylactically to prevent post operative urinary retention in patients undergoing spinal anaesthesia.

Conflict of Interest: No competing interests.

Funding: Self

Ethical Approval: Approval from Institutional Review Board, King Edward Medical University on 10/02/2020

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