EARLY VS LATE REMOVAL OF FOLEY'S CATHETER IN PATIENTS UNDERGOING TURP FOR BENIGN PROSTATIC HYPERPLASIA

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ABSTRACT

Introduction: The standard surgical treatment for enlarged prostate is transurethral resection of prostate (TURP). The duration of catheter after TURP is usually 1-5 days however this duration is a matter of controversy. Some advocate early removal of the catheter with 24 hours of TURP while others favor delayed removal after 48 hours.

Objective: To determine the effectiveness of early removal of Foley's catheter and late removal after transurethral resection of prostate in patients with benign prostatic hyperplasia.

Materials and Methods: This study was conducted in the medical teaching institution Ledy Reading hospital Peshawar from May 2013 to October 2016. Through a Randomized controlled trial, a total of 312 patients of benign prostatic hyperplasia was selected in a consecutive manner from the OPD and were randomly allocated in two groups by lottery method. All patients were subjected to standard transurethral resection of prostate. Patients in group A were subjected to early removal of Foley's catheter (at 24th post operative hour) while patients in group B were subjected to late removal of Foley's catheter at 48th post operative hour. All patients were followed for 4 hours for urinary retention to determine the success of the procedure.

RESULTS: Average age in group A was 60.98 years$\pm$ 9.64 (rang 43-78 years), While group B have an average age of 62.74years$\pm$ 9.1 (range 39-76 years).Average prostate weight in group A was 49.97gram $\pm$ 4.26 (range from 32 – 97 gram) and group B have an average prostatic weight of 47.63$\pm$ 3.9 (range from 35 – 95 gram). Efficacy in term of successful voiding after removal of Foley's catheter**Group A** (catheter removed after 24 hours), 145 (94.15%)while in **Group B**(Catheter removed after 48 hours),147 (95.45%)patients were able to pass urine without any difficulty. There was insignificant difference in thesuccess ratio of trial without catheter among these two groups with p-value 0.66.

Conclusion: There is no significant difference in the early versus late removal of catheter after TURP in terms of acute urinary retention.

Key Words: Benign Prostatic Hyperplasia, Transurethral resection of prostate, Urinary Retention, Early removal of catheter.

INTRODUCTION

Bladder outlet obstruction secondary to enlarged prostate is a common problem in aging males and the incidence rises from 50% at the age of 60 years to 90% at the age of 80 years[1]. The medical therapy for such patients is comprised of alpha receptor blockers and 5-alpha reductase inhibitors (5-ARIs). Patients with acute retention of urine or high international prostate symptoms score (IPSS); have an increased risk of failure of medical therapy[2]. The surgical treatment option includes transvesical prostatectomy (TVP), retropubic prostatectomy (RPP), transurethral incision of prostate (TUIP), transurethral microwave thermotherapy (TUMT), transurethral diathermy vaporization (TUVP) and Holmium laser enucleation of prostate (HoLEP). The standard surgical treatment for enlarged prostate is transurethral resection of prostate (TURP).[3]

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The common complications of TURP include hemorrhage, clot retention, TUR syndrome, urethral stricture, erectile dysfunction, retrograde ejaculation and incontinence. TURP usually needs hospital admission.[4] Following TURP; patients need catheterization for continuous bladder irrigation to avoid any chances of clot retention. The duration of catheter is usually 1-4 days post TURP using monopolar diathermy.

However duration for which catheter remains is a matter of controversy. Some advocate early catheter removal in favor of early hospital discharge, less morbidity and early return to work. As tatsuonakagawa and Allan G. Toguri proved 82% effectiveness in terms of urine voiding.[6] While others favor late catheter removal for fear of retention secondary to blood clot or raw surgical area as suggested by Masha Khan et al 70% effectiveness in terms of urine voiding,[7] which leads to comparatively lengthy hospital stay, cost effect, more morbidity and late return to work. The outcome of TURP is also measured in terms of maximum flow rate and

post void residual volume.[8]

The rationale of study was that the lengthy hospital stays have been considered to be a cost disadvantage of TURP when compared with newer treatments. This disadvantage can be overcome by shortening the duration of post operative catheterization with early catheter removal and hospital discharge. So in this study we compare the outcome of early and late catheter removal after TURP.

MATERIALS AND METHODS

It was a randomized controlled study conducted at medical teaching institution Ledy Reading hospital Peshawar from May 2013 to October 2016. Total 312 patients were included in the study with 156 patients in each group usingWHO software for sample size determination.

All patients with BPH who were planned to undergo TURP were included in the study through Consecutive non probability sampling technique. The diagnosis of Benign Prostatic Hyperplasia was based uponenlarged prostate with features of bilateral symmetrical enlargement, no nodularity, palpable median sulcus and mobile rectal mucosa over the gland and prostate specific antigen value of < 04 ng/ml.

All included patients were evaluated by history, clinical examination including digital rectal examination, and relevant investigations such as urine analysis or culture and sensitivity, complete blood count, serum PSA level, blood sugar levels, renal function tests and ultrasound. After evaluation, patients were randomly allocated to Group "A" and "B" by lottery method. Patients in group A were subjected to early catheter removal while patients in group B will be subjected to late catheter removal after TURP.

Standard TURP was performed on next operation list on all patients by or under the supervision of the same experienced urologist, fellow of CPSP, using 26 Fr Karl-Storz Germany resectoscopic sheath and 22 Fr Resecting loop using Valleylab monopolar diathermy with 120 W for cutting and 80 W for coagulation using Glycine 1.5% as irrigation solution, under spinal or general anesthesia. After completion of TURP, roller ball was used in each case for hemostasis. Post operatively 22 Fr 3 ways hematuria catheters was passed perurethra, balloon was inflated with 30cc normal saline, without applying traction and then continuous irrigation was started with normal saline.

The irrigation was run as long as necessary to maintain a less than red coloration to the irrigation fluid. Patients allocated to group "A" had early catheter removal at 24th post TURP hour and that in group "B" had late catheter removal at 48th post TURP hour. All patients in group A and group B were carefully observed for four hours to determine intervention effectiveness in terms of urinary retention by using a graduated jar.

All the data was entered into a computer and analyzed using SPSS. Mean ± standard deviation was calculated for numerical variables such as patient's age and size of the prostate. Frequency and percentages were calculated for categorical variables like urinary retention and effectiveness. Chi-Square test was used to compare the effectiveness of early and late catheter removal. Effectiveness was stratified among the age and pre operative size of prostate to see the effect modifiers.

RESULTS

A total of 312 patients were observed, which were divided in two equal groups A & B. Patients in Group A were managed by early catheter removal after TURP while patients in Group B were managed by late removal of Foley's catheter after TURP.

Average age in group A was 60.98 years$\pm$ 9.64 (rang 43-78 years), while group B have an average age of 62.74years$\pm$ 9.1 (range 39-76 years). The age distribution among group A and group B was insignificant with p-value 0.117.

Average prostate weight in group A was 49.97gram $\pm$ 4.26 (range from 32 – 97 gram) and group B have an average prostatic weight of 47.63$\pm$ 3.9 (range from 35 – 95 gram). The distribution prostatic weight was also insignificant between these two groups with p-value = 0.590.

Efficacy in term of successful voiding after removal of Foley's catheter was compared in both the groups which show that in Group A (catheter removed after 24 hours),147(94.23%) patients were able to pass urine without any difficulty, while only 9 (5.77 %) patients hadmoderate to severe difficulty in passing urine, after removal of Foley's Catheter and were recatherized, which was successfully removed on the 2nd Postoperative day.

In Group B(Catheter removed after 48 hours),149 (95.51%) patients were able to pass urine without any difficulty, while only 7 (4.49 %) patients had moderate to severe difficulty in passing urine, after removal of Foley's Catheter and were recatherized, which was successfully removed on the 3rd Postoperative day. There was insignificant difference in thesuccess ratio of trial without catheter among these two groups with p-value 0.66. There was also no significant affect of age or size of prostate in term of successful voiding after removal of Foley's catheter.

DISCUSSION

Failure to void after TURP is reported to occur in 0.5% to 11% of patients.[9] In Mebust's series49, 2.4% of patients was discharged with an indwelling catheter. The most common cause for this was thought to be hypotonic bladder. In a series of 90 patients older than 80 years of age undergoing TURP, Wyatt et al[10] reported failure to void on initial TWOC in 27%.

Table 1: Showing the success rate of post TURP trial without catheter between two groups

	Trial without catheter successful	Trial without catheter unsuccessful	P - Value
Group A n=154	147	9	0.66
Group B n=154	149	7	

Schatzl G et al[11] concluded that age older than 80 years, retention volume greater than 1500ml, and low maximal detrussor pressure were significant predictive factors for an unsuccessful out come and counseled against offering TURP to such patients.

The interval to catheter removal after transurethral prostatic surgery has decreased significantly during the last 15 years.[10] The benefit from such a decrease is medical, with a theoretical diminution of known complications of an indwelling catheter (stricture and infection). However, the interval to removal had no influence on complications in our study or in a prior retrospective study on a much more significant scale.[10]

Another benefit is economic, with shorter hospitalization being one of the few effective ways of combating growing health budget deficits. This objective has even led some urologists to practice transurethral resection and transurethral incision of the prostate on an outpatient basis.[12] Presently, most studies report an interval of 24 to 48 hours postoperatively.[13] The interval to catheter removal following transurethral resection of the prostate is variable, ranging from 24 hours to 5 days.[6] The most commonly adopted interval is 3 days.[14]

There is limited understanding of what factors influence the success or failure of a trial of void or acute urinary retention (AUR) in patients who undergo TURP. An indwelling catheter is classically placed during the TURP operation to allow continuous irrigation of the bladder and to assist the removal of blood clots and debris. A few days later, the catheter is removed, and patients are observed for AUR. Emberton advocate that the criterion for a successful AUR is greater than 150 ml voided at one time, with a residual volume of less than 100 ml.[15]This is further supported by Steggall, who also argues this should occur on three consecutive occasions.[16]

The duration of postoperative hospitalization and indwelling urethral catheterization has been significantly reduced during the last decade.[17] Studies reported that early catheter removal has reduced the length of hospital stay, which in turn would be beneficial to health care costs.[1]In addition to cost savings, early catheter removal and early discharge thereafter may bring advantages especially for patients for whom an early return to their employment is required. Short-term urinary catheterization can also reduce the risk of urinary tract infections associated with an indwelling catheter.[18]

In the Cherrie et al.[19] study of 200 patients 91% were catheter-free with successful results (no AUR) on postoperative day 1 which was lower to results of our study in the early catheter removal group (94.23%). The difference in catheter-free patients on postoperative day 1 between our study and those of Cherrie et al. [19] is insignificant (p-value 0.69).

Even more promising results were projected by Pervez A et al[20] who concluded that only 4% of patients developed AUR after early removal of foleys catheter after TURP which were more closer to our study results (5.77% AUR in our study in the early removal group).

The results of the study by Mueller EJ[21] concluded that AUR occurred in only 1.7% of early removal of foley's catheter group and in 3.3% of patients in the late removal group and the difference was statistically significant with p value of <0.05, these result were in contrast to the results of our study and many other studies conducted in the past years in which the incidence of AUR was only marginally higher in the early catheter removal group, however with insignificant p-value. The size of the prostate gland removed was not a criterion for longer catheterization as previously reported[1].

CONCLUSION

Early catheter removal on postoperative day 1 is safe for the majority of patients without increased complications. It decreases post operative morbidity, decreases the hospital stay and is cost effective.

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