Research Paper

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Randomized Controlled Trial on the Efficacy of Bladder Training Before Removing Indwelling Urinary Catheter in Patients With Acute Urinary Retention.

Medical Science

KEYWORDS : acute urinary retention, benign prostatic hyperplasia, bladder training, trial without catheter.

Dr. Brijesh Kumar Agarwal — Associate Professor, Dept. of Surgery (Urology) Shri Ram Murti Smarak Institute of Medical Sciences Ram Murti Puram, 13 Km. Bareilly-Nainital Road, Bhojipura, Bareilly

Dr. Namita Agarwal — Associate Professor, Department of Gyn. & Obs. Shri Ram Murti Smarak Institute of Medical Sciences

ABSTRACT

The aim of this study was to find out the efficacy of bladder training before removing the indwelling urinary catheter in patients with acute urinary retention(AUR) due to benign prostatic hyperplasia(BPH). In total , 210 patients were included in this prospective randomized control study. All the patients had their first episode of spontaneous acute urinary retention. They were randomly given either alfa blockers with bladder training or only alfa blockers with no bladder training for seven days and a trial without catheter (TWOC) was performed. Data on patients baseline demographics, TWOC success rate and complications were collected and statistically analysed. The two groups of spontaneous AUR patients with BPH were given alfa blockers combined with bladder training before catheter removal(n=105) or alfa blockers alone(n=105) for seven days. All patients underwent TWOC with an overall success rate of 60.95%. TWOC was success full in 62.1% of cases in treatment group and 59.8% was in control group. There was no statistically significant difference in TWOC success rate between two groups(p value> .05). This study has proved that there is no advantage of bladder training with alfa blocker in patient of AUR due to BPH on success rate of TWOC as compared to patients in whom no bladder training was given.

Introduction

Benign prostatic hyperplasia (BPH) is a histological diagnosis associated with proliferation of connective tissue, smooth muscle and glandular epithelium within prostate an accessory reproductive organ present in males at the junction of bladder and urethra.

Benign prostatic hyperplasia(BPH) is a progressive pathological process with varied etiology that causes clinically lower urinary tract symptoms(LUTS) in aging men beyond 40 yrs of age(1). The prevalence of BPH rises markedly with age. Autopsy studies have observed a histological prevalence of 8%,50% and 80% in the fourth, sixth and ninth decade of life(2)

Sometimes it can cause bladder out let obstruction and acute urinary retention of urine(AUR). AUR is a sudden and painful(sometimes) inability to void urine despite the presence of urine in the bladder.(3). Spontaneous AUR is often thought to be attributed to BPH, as being part of its natural history(4). The cause-and effect relationships have not been well established. It is an urological emergency and often these patients land up in prostate surgery after excluding other causes of acute retention of urine. This problem represent a major public health issue(5). LUTS due to BPH are associated with increased risks of mortality, depression, fallin health related quality of life as well as with billions of US dollars in annual health expenditure.(6)

Immediate management consists of complete bladder decompression by insertion of an indwelling urinary catheter. After initial management of acute retention of urine , a conservative approach involving the use of a trial without catheter(TWOC) with alfa blocker has been used as standard practice world wide.. Alfa blockers given before catheter removal increases the chance of a successful TWOC.(7). This is due to relaxation of smooth muscles of prostate(8)

Bladder training such as intermittent clamping of the urinary catheter is reported to shorten the time to return to normal bladder function on the basis that this stimulates normal filling and emptying of the bladder (9), increasing the chance of a successful TWOC.

There is no concensus on the bladder training by intermittent clamping of indwelling urinary catheters in TWOC. Some studies have found little effect of bladder training on successful TWOC. Others realize that there is a need of large sample randomized controlled trial to investigate the effects of bladder training by clamping the catheter before withdrawl. Therefore, the aim of this study was to investigate the efficacy of bladder training by clamping the indwelling urinary catheter before withdrawl in patients with AUR associated with BPH.

MATERIAL AND METHODS

All patients having first episode of spontaneous retention of urine due to benign prostatic hyperplasia(after exclusion of other causes of AUR) were included in this study. Patients with neurogenic bladder, stricture urethra, stone disease, diabetic patients, patients with urinary tract infection, urological tumours, chronic retention and drug abuse were excluded from this study

A total 210 patients from Sri Ram Murti Smarak Institute of Medical Sciences and Ekta Hospital between 1/4/2012 to 31/3/2014 with their first episode of spontaneous acute urinary retention were included in this study. The study protocol was approved by local ethics committees and health authorities and all patients were informed about the study with their consent was taken.

All the patients were taken up for a detailed history including IPSS, detailed physical examination including per rectal examination. Plain x-ray KUB,USG, routine blood investigations were done in all cases. All patients were catheterized with 2 way Foleys catheter no 14 and drained urine amount was noted and urine I was collected for culture.

Nursing staff and junior doctors were given instruction about the study. They randomly assigned a closed envelop for 210 patients. In 105 envelops ,the treatment was alfa blockers and clamping of indwelling catheter before removal and in second group it was only alfa blocker and free drainage of urine.

After initial decompression of urinary bladder all patients in the study were given Tamsulosin 0.4 mg and Dutasteride 0.5 mg once daily. In the treatment group indwelling catheter was clamped for 4 hours and released for 10 minutes every 24 hours. Catheter was not clamped in conrol group. Afte initial 7 days of indwelling catheter , a TWOC was performed. TWOC was recorded successful when patient could void urine with PVR less than 100 ml and no need of recatheterisation .

Data on patients time to first void, first voided volume, PVR, and TWOC success rate. Three adverse effects were also recorded as hematuria, infection and catheter blockage.

Statistical analysis was done.

RESULT

Table-1 Patients demographic features and findings in this study

Patients factors	Bladder training group(n=105)	Free drainage group(n=105)
Age(yrs)	62(52-82)	64(54-92)
Duration (months)	**6.5±4.0**	**7.0±3.50**
Urine drained(ml)	**650±50**	**580±56**
IPSS	**18±5**	**18±5**
Prostate size	**34±15.2**	**40±16.8**
PSA(ng/ml)	**3.8±1.4**	**4.2±1.7**

Table-2-Comparison of outcomes and adverse effect in s in both groups

Outcomes and adverse effects	Bladder training group.(n=105)	Free drainage group(n=105)	P value
Start tim e of urination(hr)	3.2±1.1	**3.00±1.0**	0.09
Voided volume(ml)	**230±40.5**	**260±40.5**	0.12
Post void residue(ml)	**58±22**	**56±18.5**	1.0
TWOC success rate	62.1%	61.8%	.24
Urinary tract infection	8(7.6%)	6(5.7%)	.72
Hematuria	2(2.4%)	3(2.8%)	.70
Catheter block	6(5.7%)	4(3.7%)	.54

In total, 210 patients fulfilled our criteria and were taken up for the study. Out of 210 men, 105 were in study group and the other 105 were in the control group. Base line demographics and other features are shown in table no-1. The base line data did not differ statistically between the study and control group.

All patients underwent TWOC after seven days of catheterization with timed catheter clamping in study group or free drainage in control group. The overall success rate was 61.85. TWOC was successful in 62.1% in study group and 61.8% in control group as shown in table-2.

The mean time to first urination was almost same in both group. Start time voided volume of urine and post void residue were statistically not significant. Complications like UTI, hematuria and catheter blockage were almost same in both group. These are shown in table-2.

DISCUSSION

BPH is a common problem in ageing men and affects up to the 70% of men over 60 years old. The prevalence increases rapidly in the fourth decade of life , reaching nearly 100% in the ninth decade.(10). It can progress clinically to AUR ,which is a common event in the natural history of BPH. AUR has become the most common indication for TURP reaching 42.9% in 1998(11). AUR is both a significant public health issue in male population. The estimated cost of BPH treatment in the US is about 3.9 billion dollars per year.(12).

There is general consensus that patients refuse surgery on there first episode of AUR. Therefore , a conservative approach involving the use of a TWOC , with or without alfa blokers ,has been adopted as standard therap[y worldwide. There is a general feeling that intermittent clamping and releasing the urinary catheter before its removal shortens the time taken to return to normal bladder function on the basis that this stimulates normal filling and emptying of the bladder , increasing the chance of a successful TWOC.

This study compared bladder training with timed clamping verses free drainage of the indwelling catheter before removal. The results demonstrated that there were no difference in TWOC success rate between two groups.

In a cross-sectional study urinary retention after gynecologic surgeries and effect of foley catheter clamping on its prophylaxis done by Nahid et al (13). This study has shown that clamping of foley catheter has not an effect of 100% in prevention of urinary retention. Because of the complex etiology of postoperative urinary retention, it is unlikely that clamping of foley catheter can easily resolve this problem. Unfortunately, no randomized studies of foley catheter clamping for this purpose have been reported. Use of clamping of foley catheter for urinary retention is not common. Indeed, references to its use for this purpose can not found in general gynecology texts.

It has been observed that there is ischemia - reperfusion injury of bladder muscles occurs as a result of outlet urinary obstruction due to BPH. Intermittent clamping and releasing of catheter can further cause ischemia-reperfusion injury to bladder muscles and reduces the chance of successful TWOC. Further studies are needed to prove this hypothesis because this study does not support this hypothesis.

There were no difference in complication in both the groups.

Conclusion

This randomized controlled trial did not show any advantage with bladder training before catheter removal. The author recommend that timed catheter clamping and releasing should not be done in clinical practice until strong evidence becomes available by other studies.

REFERENCE

1. Jacobsen SJ, Jacobson DJ, Girman CJ, Roberts RO, Rhodes T, Guess HA, et al. Treatment for b enign prostatic hyperplasia among community dwelling men: the Olmsted Country study of urinary symptoms and health staus. J Urol 1999; 162:1301-6. | 2. Barry MJ, Fowler FJ Jr, Bin L, Pitts JC 3rd, Harris CJ, Mulley AG Jr. The natural history of patients with benign prostatic hyperplasia as diagnosed by North American Urologists. J Urol 1997;157:10-4. | 3. Emberton M, Anson K. Acute urinary retention in men: an age old problem. BMJ 1999;318:921-5. | 4. Fitzpatrick JM, Desgrandchamps F, Adjali K, Gomez Guerra L, Hong SJ, El Khalid S, Reten-World Study Group. Management of acute urinary retention: a worldwide survey of 6074 men with benign prostatic hyperplasia. BJU Int 2012;109"88-95. | 5. Kalejaiye O, Speakman MJ. Management of acute and chronic retention in men. Eur Urol Suppl 2009;8:523-9. | 6. Taylor BC, Wilt TJ, Fink HA, Lambert LC, Marshall LM, Hoffman Ar, et al. Prevalence, severity, and health correlates of lower urinary tract symptoms among older men: The MrOS study. Urology 2006:68:804-9. | 7. Kumar S, Tiwari DP, Ganesamoni R, Singh SK. Prospective randomized placebo-controlled study to assess the safety and efficacy of silodosin in the management of acute urinary retention. Urology 2013;82:171-5. | 8. Lucas MG, Stephenson TP, Nargund V. Tamsulosin in the management of patients in acute urinary retention from bengin prostatic hyperplasia. BJU Int 2005;95:354-7. | 9. Williamson ML. Reducing post-catheterization blader dysfunction by reconditioning. Nurs res 1982;31:28-30. |