The role of sustained-released alfuzosin in the treatment of acute urinary retention

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Abstract

To see whether the use of alfuzosin 10 mg will increase the success rate of trial without catheter (TWOC) after an attack of acute urinary retention (AUR) related to benign prostatic hyperplasia (BPH). One hundred patients with acute urinary retention due to BPH were consented and enrolled in this prospective ,randomized ,placebo-controlled trial. After catheterization, 50 patients were given sustained release alfuzosin 10 mg once daily ,while the other 50 received placebo. The catheter was removed after three days of treatment for trial without catheter (TWOC). The main outcome measurements were success or failure of TWOC. After removal of the catheter, 64% of patients receiving alfuzosin voided successfully compared to 36% of patients on placebo; the differences being statistically significant at ($p<0.05$). The mean age of patients who successfully voided, regardless of treatment, was 67.6 years and 69.7 years for those who failed to void which is statistically not significant. Regarding retention volume, there was a significant difference ($p<0.05$) between the two groups (887.5 ml vs. 994.4 ml). The present tudy coclude that trial without catheter after three days of catheterization is a good practice for BPH men with AUR . However, using alfuzosin 10 mg once daily prior to catheter removal considerably increased the chance of successful TWOC especially if used in patients with low retention volume and younger age group.

Key words Trial without catheter, Acute urinary retention, Benign prostatic hyperplasia, sustained-released alfuzosine.

Introduction

The most prevalent and clinically significant form of abnormal prostatic growth is benign prostatic hyperplasia(BPH). As many as 25% of men reaching an age of 80 years will require some form of treatment usually in the form of surgical procedures (1,2). Acute urinary retention (AUR) which is characterized by sudden painful inability to void is a common complication of BPH and over 10% of men in their seventh decade will experience AUR over 5 years period (3). Acute urinary retention may be further subdivided into precipitated or spontaneous retention (4,5,6). Precipitated AUR may be triggered by such an vents as excessive fluid intake, bladder over distension, urinary tract infection, use of drugs like sympathomimetic or anticholinergic drugs (7,5,6). In most cases, no triggering event is identified and AUR called spontaneous which is most

commonly associated with BPH (4,5,6). The difference between precipitated and spontaneous AUR has clinical relevance because BPH surgery is less common in case of precipitated AUR (4,6). Previously, AUR was considered as an absolute indication for transurethral resection of the prostate (TURP) (1,3,6)but prostatectomy after AUR is associated with an increase morbidity due to infection, perioperative bleeding and increase transfusion rate as well as with ≤3-fold increase mortality. Additionally, a higher percentage of men fail to void after TURP compared to men undergoing surgery for symptoms alone(3) that's why a trial without catheter (TWOC) is now considered for most patients with AUR, it involves catheter removal after 1-3 days allowing the patient to void successfully in 23-40% of cases (1,6) which enables the patient to return home without the potential morbidity associated with insitu catheter (6). Trial without catheter(TWOC) also allow surgery to be delayed to an elective or even prevent the need for surgery (1,6). Acute urinary retention due to BPH may be associated with an increase in α-adrenergic activity (1,8). Inhibition of these receptors by α-blockers may decrease bladder outlet resistance thereby facilitating normal micturition. Therefore an alpha blocker should improve the chance of successful TWOC as originally suggested by Caine et al in 1976 (9).

The Reten world survey revealed that 82% of patients received an α1-blockers before catheter removal; TWOC success is greater in those receiving α-blockers (6).Two of these agents, tamsulusin and alfuzosin, are functionally uroselective with minimal cardiovascular effect (10,11). This placebo controlled randomized study was attempted to evaluate whether the addition of α-blockers alfuzosin SR 10mg given once daily would increase the success of TWOC.

Patients & Methods

This prospective ,placebo controlled study was carried out on a total of 100 patients attending Urology clinic presented with a first episode of AUR related to benign prostatic hyperplasia(BPH) during the period from March 2010 to October 2011. Subject assessment started with medical history and followed by ,physical examination ,renal function tests and prostatic specific antigen (PSA) level. Exclusion criteria included:(1) history of repeated attacks of retention of urine, (2) patients already on alpha blockers,(3) neurogenic bladder disorders(4)prostate cancer, and (5)renal insufficiency.

All patients then underwent emergency urethral catheterization with 16 F folly's catheter. The amount of urine retention was calculated for each patient on initial catheterization.

Fifty patients were randomly and blindly assigned to receive 10 mg alfuzosin (SR) once daily while the remaining fifty received placebo for 3 days. Catheter was then removed for trial without catheter (TWOC).

TWOC was considered successful when patient was able to void for 24 hours.

When unsuccessful, another TWOC was started for another one week. In case of second TWOC failure, patients were offered another treatment option.

Results

Table (1) shows patients characteristics and outcome after TWOC. The age of the whole study group ranged between 58-85 year,mean age is 69.6 ± 7.4 . After catheter

removal, voiding were successful in 36 out of 50 (64%) of patients receiving alfuzocin (successful TWOC) compared to (36 %) of patients receiving placebo which is the statistically significant (P<0.05)

Considering age factor, table 2 shows comparison between those who had successful voiding and those who did not, regardless the treatment, revealed no significant difference, unlike the mean retention volume factor which showed statistically significant difference between the two groups(P<0.05).

Discussion

It has been proposed that rather than being an end stage result of long standing BPH ,acute urinary retention may represent un event not related to severity of bladder out let obstruction, which may be due to sudden stimulation of alpha adrenergic receptors perhaps consequent to prostatic infarctions reported by Spiro L H et al (12).Although some other report no effect of prostatic infarction on AUR like Anjum et al (13).

Previously first attack of AUR was an indication of prostatectomy, but up to 23 % of those patients may not require prostatectomy(14), that's why many investigators consider that TWOC should be offered to those patients as a first line measurement.

The main objective of this study is to see whether the use of alpha blocker alfuzosin 10 mg will improve the outcome of TWOC after an attack of AUR related to BPH. The present study results suggest that alfuzosin has a significant effect since 64% of patient who received the drug resume voiding after TWOC compared to 32% of patients with placebo P(<0.05).This finding agree with the preliminary results of the international, multicenter study ALFAUR(15),and also the earlier results by McNeill et al (8).

In contrast ,Shah et al observe no beneficial effect when alfuzosin was administered prior to TWOC after an episode of AUR (14). This result does not reflect the experience of any other study, which may be attributed to higher retention volume of urine for patients receiving alfuzosin ,in addition the mean age of patients receiving alfuzosin was greater (69.5 vs 67.7 years), as both retention volume and age has been shown to influence the outcome of TWOC. also the use of post residual volume of > 200ml as a definition of a failed TWOC may affect the interpretation of the result by Shah et al.

Another issue which has been discussed extensively in the literatures is the impact of urinary retention volume on the outcome of TWOC .In the present study, there was a significant difference between retention volume of those successfully void (887.5 ml), and those who did not resume voiding (994.4 ml) after TWOC at P(<0.05).

According to Taube M and Gajraj (16),TWOC should be avoided if the retention volume >900ml, which is in a quite agreement with the present study.

Regarding the age of patient at the time of occurrence of AUR, Mc Neill et al reported that it is a good prognostic factor for the outcome of TWOC since increasing age was associated with less likelihood of a successful TWOC (8). In the present study, because the mean age difference between the successful and unsuccessful groups was small (2 years), such prognostic effect cannot be clarified (P<0.05).

Furthermore, it is worth noting that the effect of alfuzosin even supervene the bad

effect of higher retention volume in the alfuzosin group in compare to placebo (960 vs. 901 ml) (table 1), To support this effect we suggest further study with wide scale of population.

Conclusion

Trial without catheter after three days of catheterization is a good practice for BPH men with AUR . However, using alfuzosin 10 mg once daily prior to catheter removal considerably increased the chance of successful TWOC especially if used in patients with low retention volume and younger age group

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Table 1 : Study group characteristics and outcome after TWOC .

Drug		Placebo	alfuzosin
Number of patients		50	50
Age (years)	Range	59-85	58-83
	Mean±SD	69.9±7.4	67.9±12.1
Residual urine volume(ml)	Range	600-1300	600-1300
	Mean±SD	901±170	960±239
Successful TWOC n(%)		18 (36%)	32 (64%)
Unsuccessful TWOC n(%)		32 (64%)	18 (32%)

Table 2 :Comparison between those who successfully voided and those who did not regardless of treatment group.

Patients outcome of TWOC	53(successful)	47(unsuccessful)	P < 0.05
Age in years Mean ±(SD)	67.6± (15.3)	69.7± (7.5)	NS
Residuel volume on cathetarization (ml) Mean±(SD)	887.5± (208.7)	994.4± (194.9)	P < 0.05