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A COMPARATIVE STUDY OF POST TURP OUTCOME AND COMPLICATIONS BETWEEN BPH PATIENTS ꟳRESENTING WITH OR WITHOUT ACUTE URINARY RETENTION

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INTRODUCTION

Benign prostatic hyperplasia (BPH) is a very common urological condition affecting men in older age group. It occurs in about 10 % of men of the age of less than 40 years, and increased to 80 % in age group of 80. Even though there are other causes now being considered, Benign prostatic hyperplasia still remains one of the most common cause in men that can give rise to lower urinary tract symptoms, with or without bladder outlet obstruction (BOO). It has been documented in a multicenter study that the age-related division of men with symptoms was higher in the Asia Pacific when compared to the Western countries The reason behind this is unknown.

The pathological process in BPH is a hyperplasia (and not hypertrophy)which affects both the stromal and glandular elements of this gland. This condition affects the quality of life (QOL) in a significant way in many of the patients.

Even though most seek medical intervention because of bothersome symptoms, BOO was found in 60% in those symptomatic and 52% in those asymptomatic[1, 2]. Lower urinary tract symptoms affect the patient's quality of life. Intervention may be needed for bothersome symptoms in around 30% of men who are older than 65 years [3].

Several theories have been proposed in the etiopathogenesis of BPH. These include

- Age-related tissue changes,
- Metabolic syndrome
- Hormonal alterations,
- Inflammation[4].

Although BPH is not caused by the androgens, the postulated theory is that the presence of androgens is needed for the pathogenesis. It should be borne in mind that the association between metabolic syndrome and the development of BPH exist. Recent evidences suggest that BPH may be due to an inflammatory-based disorder. For male older than 50 years of age, TURP is the second most common surgery performed next only to cataract surgery. Even though many new modalities of management for the BPH have been developed, TURP is still the gold standard as for as the management of BPH is concerned[5]. The development of LASERs in endourology is gradually replacing the TURP in the management of BPH. Holmium laser (HoLEP) is said to be the gold standard [6, 7] though many urologists have reservation in accepting this as the gold standard. The major disadvantage is the

prohibitive cost of these lasers.

TURP still remains the widely used technique for the management of BPH[8,9,10].

TURP has become a relatively safer procedure due to the advent of newer technologies in diathermy and visual scopes. But still there is a chance of TURP syndrome and electrolyte imbalance especially in high-risk cardiac patients. The risk is accentuated by the use of glycine for irrigation. The complications rates were decreased with the development of bipolar diathermy with normal saline as irrigant fluid.

ACUTE URINARY RETENTION

Acute retention of urine is a severe symptom of men who developed BPH. It is defined as a sudden and painful inability to void voluntarily [11, 12]. Even though there are many causes of AUR, the most common cause being BPH. The prevalence rate of AUR in men with BPH is estimated to be as high as 53% [13] AUR is a painful condition. Higher mortality and morbidity rates in men presenting with AUR have been reported in previous studies [14, 15].

In Western countries, AUR was the chief compliant in 20 – 42% of men who underwent TURP 16. Escalating postoperative complications and longer Hospital stays in men with BPH who develop AUR have been reported [15, 16], and [17]. Patients who presented with AUR had a high mortality rate in the first 3 years after prostatectomy[18]. There are many studies available describing the complications of BPH. Comprehensive comparative analysis of post-TURP complications between patients with and without AUR is lacking.

In our study we tried to compare the post TURP complications between patients who presented with and without AUR

AIM OF STUDY

To compare the outcome and complications of TURP for BPH patients with and without acute urinary retention.

MATERIALS AND METHODS

1. Study group:

Patients who were admitted in Kilpauk Medical College and Govt. Royapettah Hospital with lower urinary tract symptoms (LUTS) due to benign prostatic hyperplasia (BPH) with and without acute urinary retention are included in the study.

Study design:

Prospective observational analytic study

Study period:

One year from 01.01.2014 to 31.12.2014

Materials:

The patients with complaints suggestive of LUTS were thoroughly evaluated with History & Physical examination, DRE, USG KUB, Uroflow& PVR and patients with BPH were selected. Patients who presented with and without AUR were assigned as group A and Group B respectively Inclusion criteria –

1) Prostate sizes > 30gms and less than 60 gms
2) Maximum flow rate (Qmax) less than 10 ml/s,
3) Men more than 45years and less than 70 years

4) Post void residual urine (PVR) exceeding 100 ml,
5) Patients who gave informed consent for the study were included

Exclusion criteria –

1. Urethral stricture,
2. Neurogenic bladder,
3. Previous prostate or urethral surgery
4. Unwilling patients
5. Prostate cancer

This is a prospective analytical study conducted in both Kilpauk Medical College Hospital and Government Royapettah hospital from January 2014 to December 2014.

The ethical committee of this institution has given approval to conduct this study. All men who participated in this study have given written consent for this study. Totally 126 patients were enrolled in this study, of which 74 were patients presented with AUR and 52 were patients who presented without AUR. The diagnosis of BPH was confirmed both by clinical evaluation and by radiological method. Patient age, associated comorbid conditions, was recorded. IPSS grading system was used to assess the patient symptoms. It consists of 7 symptoms with score of 0 to 5 for each symptoms and the total maximum score is 35. Low grade is - 0 to 7. Moderate grade- 8 to 19 and high grade 20 to 35. Based on this patients with moderate to high grade may need interventions. For patients who presented with AUR, urinary symptoms prior to AUR were recorded.

DRE: - Digital rectal examination was done to assess the grade as well as the consistency, symmetry of the gland, any obliteration of median furrow and lateral sulci, and also presence of any nodules were assessed. It was done under local anesthesia with the patient in left lateral position. BPH was graded, depending on the encroachment of the prostate into the rectal lumen.

DRE grading of prostate

Size	DRE
Normal	Encroaches 0 to 1 cm into rectal lumen
I	1 to 2cm
II	2 to 3 cm
III	3 to 4 cm
IV	>4 cm

Basic blood investigations like complete haemogram, renal function test, random blood sugar, serum electrolytes were done before the procedure. Serum electrolytes were done in all the patients after the procedure and during surgery if the clinical picture suggestive of TUR syndrome. Only one patient in the AUR group developed TUR syndrome which was diagnosed and corrected promptly.

Routine urine analysis and urine culture were done in all the patients. Urine culture was done by collecting the mid stream voided urine in patients without AUR. For patients with AUR urine sample was collected from urethral catheter. If culture was found to be positive appropriate antibody was given and UTI treated before the procedure. Urine culture was also done in all the patients after the procedure.

Serum PSA was measured in all the patients who have enrolled in this study. If the patients presented with catheter, serum PSA was done one week later. If the PSA was in the gray zone, or if the percentage of free PSA was low, TRUS followed by biopsy was done to rule out malignancy. If the patient was found to be positive for malignancy he was excluded from the study.

Uroflowmetry was done in all the patients as an outpatient procedure to assess the flow pattern. If stricture pattern was found during the Uroflow evaluation, ascending urothrogram was done to rule out stricture. If the Uroflow findings does not correlates with the clinical examination , or if there is any suspicion of neurogenic bladder, urodynamic evaluation was done to rule out any neurogenic component. Patients with neurogenic problems were excluded from the study.

OBSERVATION AND RESULTS

The aim of our study was to compare the outcome and complications of post TURP between patients who presented with and without AUR. We compared the following factors of preoperative variables like age, presence of any co morbid illness, gland size, grade of the gland by DRE, serum PSA. And post operative variables like haematuria, need for blood transfusion, UTI, sepsis, recatheterisation rate, post operative irritative LUTS, PVR, length of hospital stay, lower urinary tract stricture , re surgery rate, TUR syndrome, Q max.

We enrolled 126 patients, out of which 74 were in AUR group and 52 in AUR minus group. We excluded patients with neurogenic illness, prostatic carcinoma. All patients were followed for a period of three months.

STATISTICAL METHODS:

Summary statistics mean, standard deviation and percentage for the groups were computed. Chi-square test has been used to find the significance of study parameters on categorical scale between two groups. Results on continuous measurements are presented on Mean ± SD... Student't' test i.e. independent t-test has been used to determine the statistical significance between two group means. All analyses were two tailed and $p < 0.05$ was considered significant. SPSS version 16.0 was used for data analysis.

In our study out of 126 patients, 34.9% belongs to less than 60 years and 34.1% between 61 and 65 years, and 31% of patients are more than 65 years.

In No AUR group 36.50% of patients were less than 60 years of age, 36.50% were between 60 and 65 years, 26.90% were more than 65.

In AUR group 33.80% were below 65, 32.40% were between 60 and 65, 33.80% were more than 65.

In our study 21.6% of patients with AUR had HT and 19.2% of patients without AUR had HT.

In our study 23.0% of patients who presented with acute urinary retention had DM as comorbid condition and 23.1% of patients without AUR had DM, almost both groups are same.

In our study 10.8% of patients with AUR suffered from IHD, whereas 9.6% of patients without AUR had IHD. If the patient was on any antiplatelet drugs, we will ask them to stop one week before the procedure.

Regarding the grading of prostate by DRE, 9.5% of patients with AUR and 40.4% without AUR had grade I enlargement. 89.2% with AUR and 59.6% without AUR had grade II enlargement. 1.4% with AUR and no patients in AUR minus group had grade III enlargement.

Master table comparing all variables with p value

s.no	Variables	With AUR in %	Without AUR in %	P value
1	HT	21.6	19.2	0.918
2	DM	23.0	23.1	1.000
3	IHD	10.8	9.6	1.000
4	Mean volume	53.20	44.21	0.000
5	Mean PSA	3.357	3.094	0.006
6	TUR syndrome	1.4	0.0	1.00
7	Haematuria	10.8	5.8	0.523
8	Blood Transfusion	4.1	1.9	0.642
9	UTI-Post op	24.3	3.8	0.007
10	Sepsis	1.4	0.0	1.000
11	Recatheterisation	23.0	3.8	0.007
12	Irritative LUTS	24.3	15.4	0.319
13	Stricture	2.7	1.9	1.000
14	Re surgery	1.4	0.0	1.000
15	Mean Hospital Stay	7	4.56	0.000
16	Mean PVR	14.31	13.32	0.062
17	Mean Q max	19.22	19.20	0.947

DISCUSSION

Benign prostatic hyperplasia is a common urological problem affecting men in older age group. Acute urinary retention may be the presenting symptom. The prevalence rate of AUR in men with BPH varies. In western countries, the incidence rate was lower, ranging from 20 to 40%. Where as in developing countries the rate was quiet higher, can reach even more than 50%. The reason for the increased incidence of AUR in men with BPH in developing countries is unawareness of the symptom of BPH, fear of surgery, and cost factors. Chen JS and Chang CH et al from Taiwan conducted a retrospective study and found that post TURP complications were more in patients who presented with acute urinary retention when compared to those who presented without retention. Sajjad Ahmed from post graduate institute from Lady reading hospital Peshawar, Pakistan conducted a study and found that the chance of post TURP complication are more with those patients who present with acute urinary retention . There are few more studies which found that the complication rates are more for the patients with acute urinary retention. The purpose of this study is to found that whether there is any difference in the Post TURP complications and outcome of surgery for BPH for patients with and without acute urinary retention in our population, so that we can prevent and make ourselves as well as the patient to get ready to tackle these complications and create awareness among people.

In our study we enrolled 126 patients diagnosed as BPH with their symptoms, clinical examinations, uroflowmetry and USG. Of these 126 patients, 74 presented with AUR and 52 present without retention. We compared the following factors of preoperative variables like age, presence of any co morbid illness, gland size, grade of the gland by DRE, serum PSA. And post operative variables like haematuria, need for blood transfusion, UTI, sepsis, recatheterisation rate, PVR, length of hospital stay, lower urinary tract stricture , re surgery rate, TUR syndrome, Q max.

Age distribution

In our study men aged between 40 to 70 years were included. Of these the mean age for men who presented with AUR was 62.51 and for men without AUR were 61.06. The p value for the mean age is 0.164 which was not significant. So both the groups are comparable with age. Study done by Kurita et al also showed that there is no statistical difference between these two groups based on age. Whereas other studies like Olmsted county study, Meigs et al study and the study done by Berges et al showed that AUR occur more common in older age group.

Co-morbid illness

Regarding the co morbid factors, HT occurs in 21.6% of patients with

AUR and 19.2% of patients without AUR. The two groups are comparable as for as the HT is concerned as the p value is 0.91 which is not significant. DM occurs is 23% of patients with AUR and in 23.1% of patients without AUR. The p value here is 1.000- Not significant. 10.8% of the patients with AUR and 9.6% of patients without AUR had IHD with a P value of 1.000. So in our study both groups are comparable in co morbid illness. Few studies showed that presence of co morbid factors may be confounding factors.

TUR syndrome

Only one patient in the AUR group developed TUR syndrome immediately at the end of the procedure. It was suspected clinically and serum electrolytes were done which showed hyponatremia and it was corrected. No patients in AUR minus group developed this syndrome.

Haematuria

In our study10.8 % of patients with AUR and 5.8% of patients without AUR had persistent haematuria after TURP. The p value is 0.523 which is not significant.

Jeng- Sheng- Chen et al study showed haematuria in 8.1% of patients with AUR and 7.4% of patients without AUR. Our study is more or less similar to this one.

Mebust et al study showed haematuria and blood transfusion in 6.4%, Kuntz et al showed 2%, where as it was higher in a study done by Doll et al- 22%.

Blood transfusion

Blood transfusion rate was 4.1% and 1.9 % for patients with and without AUR respectively with a p value of 0.642 which is not significant.

Jeng- Sheng- Chen et al study showed blood transfusion rate of 3.2% and 1.5% for patients who presented with and without AUR.

Post operative UTI

We did urine culture and sensitivity for all our patients post operatively. In our study 24.3% of patient with AUR and only 3.9% of patients without AUR had UTI as documented by urine culture. These patients were given a course of culture specific antibodies. The occurrence of UTI is higher in patients with AUR with a p value of 0.004 which is significant. The reason for this increased occurrence of UTI may be due to prolonged catheterization and hospital stay in patients with AUR.

Jeng- Sheng- Chen et al study reported the UTI rate as 18.6% in AUR group and 15.6% in AUR minus group. Mebust et al showed 3.9%, Borboroglu et al showed 4%, whereas it was quiet higher in Doll et al study which showed 25%

Sepsis

In our study only one patient (1.4%) with AUR developed sepsis after TURP. No patient without AUR had sepsis. Patient was treated intensively with IV fluids and higher antibiotics. Jeng- Sheng- Chen et al study reported sepsis in 1.4% only in patients with AUR group. Mebust et al and Haupt et al showed

urosepsis in 0.2% of patients after TURP. Doll et al showed 3% urosepsis.

Recatheterisation

In our study 23% of patients with AUR developed urinary retention after catheter removal in TURP, which was quiet higher when compared to 3.8% of patients without AUR. This is statistically significant with a p value of 0.007. If the patient develops urinary retention, we will recatheterise the patient and put him on alpha blocker and give trial void after 1 week. All of our patients responded well in trial voiding.

Jeng- Sheng- Chen et al study showed recatheterisation rate in 13.8% and 0% for patients with and without AUR respectively. Mebust et al has 6.5%, Doll et al 3% Borboroguli et al 7.1% recatheterisation rate after TURP. The reason for increased rate of recatheterisation in patients with AUR may be due to hypoactive detrusor after chronic obstruction, inadequate resection due to increased gland size, or early cessation of procedure due to patient factor.

LUTS

18 (24.3%) patients in the AUR group developed irritative lower urinary tract symptoms like incontinence, increased frequency and urgency. In the AUR minus group only 8(15.4%) patients developed irritative LUTS. P value0.319

The difference between the two groups is not statistically significant as evidenced by p value as for as the irritative LUTS is concerned

Lower urinary tract stricture

In our study totally 3 patients developed lower urinary tract stricture 2(2.7%) in the AUR arm and 1(1.9%) in the non AUR arm. This was diagnosed 2 to 3 months after TURP, when the patient c/o thin stream and strain to void. We did AUG for these patients and diagnosed the stricture. We advised optical internal urethrotomy for these patients. These 3 patients were not willing for urethrotomy; hence dilatation was done. The reasons for the stricture formation may be due to instrumental injury, diathermy injury during TURP or due to prolonged catheterization.

Jeng- Sheng- Chen et al study showed 2.6% and 3.2% for patients with and without AUR.

Re surgery

Only one patient (1.4%) in our study developed clot retention. Cystoscopic clot evacuation was attempted, which could not be possible. Then open surgical evacuation was done and prostatic fossa was packed. The pack was removed after 2days, bleeding has stopped.

Mean length of hospital stay

It was 7 and 4.56 days for patients with and without AUR. This was statistically significant.

Post operative PVR

Mean post operative PVR for patients with and without AUR was 14.31ml and 13.32 ml respectively. The p value was 0.062 which was not significant statistically.

Q max

We did Uroflow for all of our patients who voided after TURP to compare the flow pattern of urine. The mean Q max was 19.22ml/sex and 19.20ml/sec for patient with and without AUR. The p value is 0.947 which was not significant.

CONCLUSIONS

Our study is a prospective observational analytical study to compare the post TURP complication and outcome of patients with and without AUR. Our study clearly shows that post TURP complications like persistent haematuria, blood transfusion rate, post op UTI, sepsis, recatheterisation,

lower urinary tract stricture, resurgery, TUR syndrome, length of hospital stay were higher in patients who presented with AUR than patients without AUR. Of these complications, post TURP UTI, recatheterisation rate and length of hospital stay were statistically significant in AUR group when compared to AUR minus group. So it is better to intervene earlier before the patients develop AUR in order to minimize the complications and to maximize the outcome.

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