



UROFLOMETRY AND POST VOID RESIDUAL URINE-DO THEY AFFECT POST TRANS RECTAL PROSTATIC BIOPSY COMPLICATIONS?

Urology

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ABSTRACT

Objective: to evaluate the effect of Uroflometry parameters and post void residual urine on post trans rectal prostatic biopsy (TRPB) complications. Also to evaluate the effect of urinary tract infection (UTI) on acute urinary retention (AUR) after TRPB. **Material and methods;** this was a prospective comparative study conducted from December 2016 till May 2019. Total 150 patients were included. Effect of various Uroflometry parameters on post TRPB complications was evaluated. **Results;** Post void residual urine (PVR) had a significant effect on acute urinary retention (AUR) (P-value 0.016), and febrile urinary tract infection (UTI) (P-value 0.016), while as peak flow rate (PFR) and average flow rate (AFR) did not have any significant effect on AUR and UTI after TRPB. **Conclusion;** Patients with significant PVR subjected to TRPB should be watched carefully for febrile UTI and AUR. Low PFR and AFR do not have a statistically significant effect on AUR and febrile UTI after TRPB if kept on Alfa blockers before TRPB.

KEYWORDS

Prostatic biopsy, Complications, Uroflometry, PVR

INTRODUCTION:

Trans-rectal prostate biopsy is one of the commonest procedures performed by urologists, and although it is generally considered a safe procedure, complications secondary to biopsy are some of the most common adverse events encountered in practice. It is considered the standard procedure for confirmation of prostatic cancer and about 5,00,000 prostate biopsies are performed in USA each year.^[1] No such study was found in literature on searching in Google and Pubmed data base using above mentioned key words.

MATERIAL AND METHODS:

It was a prospective comparative study of 150 patients conducted over 2.5 years from December 2016 till May 2019 in our institute. Trans rectal true cut biopsy was taken in a standard way with prophylactic antibiotics in all and Alfa blockers in those having obstructive Uroflometry. 10 to 12 cores were taken in all, and those having UTI (urine culture positive), indwelled catheter (pre procedure AUR), and bleeding diathesis were excluded from the study. PFR, AFR and PVR were recorded before procedure and their effect on post TRPB complications like AUR and febrile UTI was assessed. Also impact of UTI on AUR was assessed after TRPB. Pearson Chi Square test was used and P-value <0.05 was taken as significant for statistical analysis.

Results: the complications include hematuria (26.8%), febrile UTI (14.6%), AUR (8.5%), and rectal bleed (8.5%). APVR of more than 42 and 55 was seen to have a statistically significant effect on post TRPB febrile UTI and AUR respectively (P-value-0.016). PFR and AFR were not having any significant effect on post TRPB complications (for AUR, P-value 0.266 & 0.166, and 0.29 & 0.44 for UTI), table 1,2. And picture 1,2. Table 3 shows that AUR was seen more frequently in the patients who had UTI. 33% of patients with UTI developed AUR as compared to 4.3% in non infected patients (P-value 0.008, significant).

DISCUSSION:

TRPB is one of the commonest procedures being performed in outpatient department. However, it is not free from complications, the most common of which is hematuria, as seen in our study. Most common organisms causing infection after TRPB are the coliforms,^[2,3]

although anaerobic infection has also been reported.^[4] The commonest coliforms identified include E. coli, Enterobacter, Proteus and Klebsiella species,^[2] while the commonest anaerobes are reportedly

Bacteroides, Peptococcus and Peptostreptococcus species.^[4] C H Hibert et al, (2011)^[5] in an analytical cross-sectional study that included 117 patients, found 71.8% macroscopic hematuria, 33.3% rectal bleeding, 6% fever, and 5.1% acute urine retention. After a prostate biopsy without prophylaxis, the expected probability of bacteriuria, genito-urinary febrile or sepsis infection is of 20-53%, 5-10% and 1-5% respectively, which is reduced to less than 5% with the use of prior antibiotic prophylaxis.^[6] In our study febrile UTI occurred in 14.6% patients out of which 6% developed sepsis and 1.5% required ICU monitoring. All the patients were treated successfully. Fever associated with genitourinary symptoms is described in 3-10% or more, turning into septicemia in less than 5%.^[7]

No reference could be found in literature till date on searching key words- prostatic biopsy, complications, PVR and Uroflometry (PFR and AFR) in Google and Pubmed data base. Cormio et al,^[8] in a review on relationship between various variables and prostatic cancer found a statistically significant difference in all tested variables (age, PSA, DRE, prostate volume, PFR and PVR) between patients with and without carcinoma prostate. PVR was directly related to prostatic volume ($p < 0.0001$) and inversely related to PFR ($p < 0.001$). Our study is unique in that the relationship between PFR, AFR, and PVR with post TRPB febrile UTI and AUR is evaluated which has not been done before as per literature. Also no reference was found for relationship between febrile UTI and AUR. Our study showed that frequency of AUR is statistically significant in patients with UTI as compared to patients without UTI after TRPB (P-value 0.008, table 3, figure 3).

CONCLUSION:

Patients having PVR of more than 55 ml are at a significantly greater risk of developing post TRPB febrile illness and AUR. Those having PVR more than 55ml should preferably be put on Alfa blockers before the procedure. Low PFR and AFR do not have a significant effect on such complications if Alfa blockers are used during the procedure. However we recommend randomized trials for further validation of our conclusion.

Table 1: AUR and its relationship with PFR, AFR and PVR

	NoAUR(N=129)	AUR(N=21)	P-value
PFR (median)	2.5-31.2(13.75)	5.8-16.6(12.5)NO=21	0.166
	NO=126		

PVR (median)	5-170(55) NO=129	12-234(73)NO=21	0.016
AFR (median)	1.10-15.5(7.65) NO=126	2.4-12.0(7)NO=21	0.265

PFR-peak flow rate, AFR-average flow rate, PVR-post void residual urine

Table 2: relationship between febrile UTI and PFR, AFR & PVR

	No UTI	UTI	P-value
PFR (median)	2.50 - 31.20 (13.5) NO=120	5.80 - 18.2 (12.5) NO=27	0.296
PVR (median)	5.0 - 156 (42) NO=111	12 - 234 (89.5) NO=24	0.016
AFR (median)	1.1 - 15.5 (7) NO=120	2.2 - 13.0 (6.1) NO=27	0.446

PFR-peak flow rate, AFR-average flow rate, PVR-post void residual urine, UTI-urinary tract infection

Table 3: AUR and its relationship with UTI

Retention	UTI				Pvalue
	No		Yes		
	Number	%	Number	%	
No	134	95.7%	16	66.7%	0.008
Yes	6	4.3%	8	33.3%	
Total	140	100.0%	12	100%	

UTI-urinary tract infection

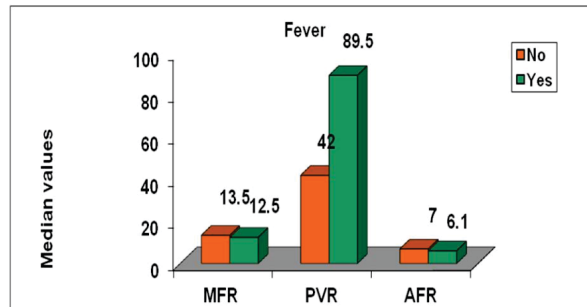


Fig. 1; Bar diagram showing relationship between PFR, AFR, and PVR with post TRPB febrile UTI

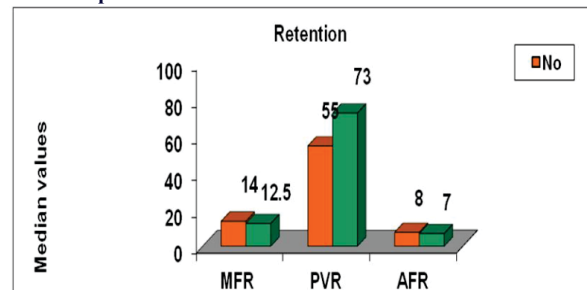


Fig.2; Bar diagram showing relationship between PFR, AFR, and PVR with post TRPBAUR

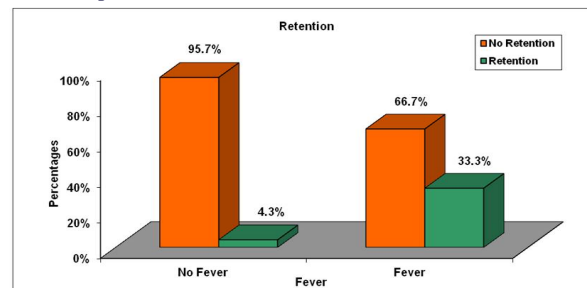


Fig.3: bar chart showing relationship between AUR and febrile UTI

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