

FREQUENCY OF CARCINOMA PROSTATE IN TRANS URETHRAL RESECTION OF PROSTATE SPECIMENS IN PATIENTS WITH CLINICALLY BENIGN PROSTATIC HYPERPLASIA WITH PROSTATE SPECIFIC ANTIGEN LESS THAN 4NG/ML

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Back ground/Objectives: To determine the frequency of Carcinoma Prostate in patients with PSA less than 4ng/ml.

Material and methods: This Descriptive cross sectional study was conducted in Surgery Department of Hayatabad Medical Complex Peshawar and Urology Department of Institute of Kidney Diseases Hayatabad Peshawar from 1st January 2012 to 31st December 2014. A total of 139 patients above 50 years of age presenting with lower urinary tract symptoms and enlarged prostate on digital rectal examination were included through non probability consecutive sampling.

Results: A total of 139 patients with clinically benign prostatic hyperplasia with Prostate specific antigen less than 4ng/ml were observed, in which 71 (51.08%) patients had prostate specific antigen (PSA) level less than or equal to 2 and 68 (48.92%) patients had more than 2. In 10 (14.7%) out of 68 patients having PSA more than 2 were having Carcinoma prostate while 58 (85.3%) were non Carcinoma prostate and 7 (10%) patients having PSA less than or equal to 2 were Carcinoma prostate while 64 (90%) were non Carcinoma prostate. The results are statistically insignificant with a P-value of 0.281.

Conclusion: The incidence of carcinoma prostate among patients with clinically benign prostatic hyperplasia with Prostate Specific antigen less than 4ng/ml is statistically insignificant but quite high, therefore every TURP specimen should be sent for histopathology even with normal PSA.

Keywords: Benign prostatic hyperplasia, Carcinoma Prostate, Trans Urethral Resection of Prostate (TURP), Prostate Specific Antigen (PSA).

INTRODUCTION

Carcinoma prostate is the most commonly diagnosed cancer in elderly men and is the second most common cause of cancer deaths in men, with an estimated 41,000 deaths and more than 125,000 new cases per year.¹ Most of the cases are diagnosed when cancer is locally advanced making it incurable. No clear etiological factors are known but familial predisposition has been demonstrated and increased risk is associated with cigarette smoking and a high-fat diet.² 30% of men

develop microscopic carcinoma prostate, in 10% it is clinically significant and 3% of men die from it.^{1,2}

Men presenting with lower urinary tract symptoms (LUTS) due to enlarged prostate are routinely screened with Digital rectal examination (DRE) and prostate specific antigen (PSA).² PSA test has the highest predictive value for prostate cancer and is generally accepted by clinicians.¹ The most common symptom in patients with carcinoma prostate are frequency and hesitancy, but 10% patients of prostate cancer have no symptoms and have normal PSA and DRE findings.² Patients with localized carcinoma prostate have 100% 5-year relative survival rate.⁵ After 1979, prostate-specific antigen (PSA) became a biomarker and potential screening tool for the carcinoma prostate.^{3,4,6} Now PSA is widely used for the early detection of carcinoma prostate and is described as best circulating tumor marker for carcinoma prostate.⁷ During the last 20-year period there is marked decrease in prostate cancer mortality due to PSA screening test.^{8,9}

This study is based upon controversy regarding actual frequency of incidental carcinoma prostate in patients with prostate specific antigen value less than 4ng/ml and there is a high variation in the frequency of incidental carcinoma in different studies ranging from 1-20%. So this is simple study to elucidate the frequency

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of incidental carcinoma in benign prostatic hyperplasia patients having prostate specific antigen level less than 4ng/ml. This study will provide local statistics about the frequency of carcinoma prostate in transurethral resection specimen in men with serum prostate specific antigen level below 4ng/ml. The result of this study will be provided to local Urologists and general surgeons and on basis of such result we will be able to modify our current treatment plans in the early course of carcinoma of prostate.

MATERIAL AND METHOD

This descriptive cross sectional study was conducted in the Surgical department of Hayatabad Medical Complex and Urology department of Institute of Kidney Diseases Hayatabad Peshawar from 1st Jan 2012 to 31st dec 2014. Sample size was 139, using 10% proportion of prostate, 95% confidence level and 5% margin of error under WHO software for sample size determination. Sampling technique used was non probability consecutive sampling and all the men above 50 years of age presenting with lower urinary tract symptoms and enlarged prostate on digital rectal examination were included.

This study was conducted after approval from Hayatabad Medical Complex ethical committee. All patients meeting the criteria i.e. men of 50 year and above with LUTS due to enlarged prostate, PSA less than 4ng/ml, prostate size less than 100gm, were enrolled in the study and TURP specimen were sent for histopathology to determine the frequency of prostate adenocarcinoma. The purpose and benefit of study were explained to all the patients and written informed consent was taken. Men with lower urinary tract symptoms caused by any urological malignancy other than prostate and those who had previous prostatic surgery or pelvic radiotherapy, with prostate specific antigen >4ng/ml or prostate size more than 100mg were excluded. These factors are confounder and make the results biased if included.

A complete history followed by examination and routine set of investigation were done in all patients. All the above mentioned information including name, age, gender and address were recorded in a predesigned proforma.

All statistical analysis was done in SPSS version 16. Mean and standard deviation was computed for numerical variables like age and serum prostate specific antigen level. Frequencies and percentages were computed for categorical variables like carcinoma prostate. The results were presented in the form of tables.

RESULTS

In this study, 139 patients were included, in which 71(51.08%) patients had prostate specific antigen (PSA) level less than or equal to 2 and 68(48.92%) patients

Table No: 1 Age Wise Distribution of the Patients

Age in Years	Frequency	Percent
< 55.00	22	15.8
56 – 65	50	36.0
66 – 75	37	26.6
>76	30	21.6
Total	139	100.0

Table No: 2 Distribution of Carcinoma Prostate in terms of Age

	Carcinoma Prostate		Total	p-value
	Yes	No		
Age (in years) <55	2 9.1%	20 90.9%	22 100.0%	0.962
56 – 65	6 12.2%	44 87.8%	50 100.0%	
66 – 75	5 13.5%	32 86.5%	37 100.0%	
>76	4 13.3%	26 86.7%	30 100.0%	
Total	17 12.2%	122 87.8%	139 100.0%	

Table No: 3 Distribution of Carcinoma Prostate in terms of Prostate Specific Antigen

	Carcinoma Prostate		Total	p-value	
	Yes	No			
Prostate specific antigen <2.00	7 10.0%	64 90.0%	71 100.0%	0.281	
>2.00	10 14.7%	58 85.3%	68 100.0%		
Total	17 12.3%		121 87.7%	138 100.0%	

had more than 2. The mean age was 65.50 years + 8.78SD. Most of the patients presented in 56-65 years which were 50(36.0%) while 22(15.8%) patients were in the age range of less than 55 years. (Table 1)

Over all Carcinoma prostate among patients presenting with clinically benign prostatic hyperplasia was 17 (12.2%) while 122 (87.8%) were not found to have Carcinoma prostate. Age wise distribution of Carcinoma prostate shows that it increases with age [n=6 (12.0%)] in age range of 56-65 years had Carcinoma prostate while 44 (88.0%) had no Carcinoma prostate. 5 (13.5%) patients in age range of 66-70 years had Carcinoma prostate while 32 (86.5%) had no Carcinoma prostate. Overall the results are statistically insignificant with p-value=0.965 (Table 2)

A total of 10 (14.7%) patients out of 68 having prostate specific antigen level less than 2 were Carcinoma prostate while 58 (85.3%) were non Carcinoma prostate and 7 (10%) patients having PSA less than or equal to 2 were Carcinoma prostate while 64 (90%) were non Carcinoma prostate. The results are statistically insignificant with a P-value of 0.281 (Table 3)

DISCUSSION

Carcinoma of the prostate is the most common form of malignancy in males as followed closely by lung cancer and the second leading cause of cancer death. It is more common in developed than developing countries. The incidence rates show a 63 fold difference between countries, being lowest in Far East countries such as China- Shanghai (2.5 per 105) and highest in US blacks in Detroit (158 per 105). US blacks have a particularly high risk of prostate cancer with almost a two fold high incidence rate than that for US whites.¹⁰ Prostatic cancer is extremely rare in Asians.¹¹

The average age of the patients of present series was 65.5 years with the youngest patient being 50 years old and the oldest 79 years. This highest incidence of BPH was noted in 56 to 65 years age group. Similar observation was made in Shaikh et al¹². The average age of patients treated with TURP in their study was 66 years (range 54-80 years) and maximum patients were belonging to above 61 years of age range.

Benign prostatic hyperplasia is a growing global health burden. As expected male lifetime is increasing rapidly, more men will need treatment. Transurethral resection of the prostate (TURP) has been the gold standard for active treatment since the 1970s¹³.

Most cancers arise in prostates with concomitant BPH (83.3%), and cancer is found incidentally in a significant number of transurethral prostatectomy (TURP) specimens (10%). The clinical incidence of cancer arising in patients with surgically treated BPH is approximately 3%. BPH may be related to a subset of prostate cancer which arises in the transition zone, perhaps in association with atypical adenomatous hyperplasia (AAH). It is important to exclude cancer in patients presenting with symptoms of bladder outlet obstruction presumably due to BPH. For such patients, digital rectal examination (DRE) and, at least in high risk patients, serum prostate specific antigen (PSA) determination is recommended. Trans rectal ultrasound (TRUS) should be employed in patients with elevated PSA levels to determine the volume of the prostate, the relative contribution of BPH to volume, and the PSA density (ratio of PSA level to volume). Biopsy should be obtained from any area suspicious for cancer. Early detection and treatment of cancer when it is localized offers the greatest chance for cure.¹⁴

Serum concentrations of prostate specific antigen has been widely used for early detection of prostate cancer and prostate specific antigen has been described

as the best circulating tumor marker in oncology.^{4,6} At present, a prostate specific antigen level of 4ng/ml is widely used as the cutoff value for the performance of a prostate biopsy. In this case, however, the sensitivity is 67.5% to 80%, but the specificity is only 20% to 30%.⁵ Some men with prostate specific antigen value less 4ng/ml may harbor clinically significant organ confined cancer.^{5,7}

Javaid et al¹⁶ and Hamid A¹⁷ reported 6% and 4% incidence of carcinoma of prostate respectively in their studies. The incidence of 2% in current study is inconsistent with the results of Iqbal Sial K¹⁵, who reported 8% incidence of prostate cancer in a study conducted on 126 patients. They did not mention any selection criteria and the patients were presumed to have BPH on clinical assessment and prostatectomies were performed. Lowest incidence of carcinoma was reported in Japanese but those who were living in America were having greater incidence than their native countrymen. This fact depicts the importance of environmental factor and the role of diet. The diet of Japanese men has much less fat than of US men.¹⁸

The frequency of prostate cancer in patient with prostate specific antigen level of 0-4.0 ng/ml is 10-20%⁵⁻⁷, which is very similar to our study results.

CONCLUSION

The incidence of carcinoma prostate among patients with clinically benign prostatic hyperplasia with Prostate Specific antigen less than 4ng/ml is statistically insignificant but quite high, therefore every TURP specimen should be sent for histopathology even with normal PSA.

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