

FREQUENCY OF CARCINOMA PROSTATE IN TURP SPECIMEN IN PATIENT WITH CLINICALLY BENIGN PROSTATIC HYPERPLASIA WITH PSA LESS THAN 4NG/ML

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ABSTRACT

Material and Method: Study was conducted at institute of kidney disease hayatabad medical complex from March 2013 to march 2015. All patients meeting the criteria i.e. men of 50year and above with LUTS due to enlarged prostate, PSA less than 4ng/ml, prostate size less than 100gm, was enrolled in the study and TURP specimen were sent for histopathology to determine the frequency of prostate adenocarcinomas.

Results: In this study, 139 patients with clinically benign prostatic hyperplasia with Prostate specific antigen less than 4ng/ml had observed, in which 68(48.92%) patients have prostate specific antigen(PSA) level were less than or equal to 2 and 71(51.08%) patients have more than 2. Patients age was divided in four categories, out of which most presented in 56-65 years which were 50(36%) while 22(15.8%) patients were in the age range of less than 55 years, 37(26.6%) were of age rang 66-75 years and 30(21.6%) presented at age more than75 years. The study included age ranged from 50 up to 79 years. Average age was 65.50 years \pm 8.78SD. Overall Carcinoma prostate among patients presenting with clinically benign prostatic hyperplasia was 18(12.95%) while 121(87.05%) were found non Carcinoma prostate.

Conclusion: The incidence of Carcinoma prostate among patients with clinically benign prostatic hyperplasia with Prostate specific antigen less than 4ng/ml is quite high. The foremost thing is to create awareness among the masses to seek medical help for proper evaluation and diagnosis so that adequate treatment can be initiated at an earlier stage of the disease.

INTRODUCTION

Prostate cancer is the most commonly diagnosed cancer in men aged between 60-80years¹. Prostate cancer 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 year¹. Majority of cases are diagnosed at a time when tumor has extended beyond the confines of the gland, making it incurable². No clear etiologic factors have been identified, although a familial predisposition has been demonstrated, and an increased risk has been associated with cigarette smoking and a high-fat diet². It is estimated that the lifetime risk of a man developing microscopic foci of Carcinoma Prostate is 30%, clinically significant Carcinoma Prostate 10% and the risk of dying from Carcinoma prostate is 3%^{1,2}. Many men with lower urinary tract symptoms (LUTS) are screened for prostate cancer with prostate specific antigen (PSA) testing and digital rectal examination (DRE) as a part of a routine prostate assessment^{1,2}. There is general agreement among clinicians that the PSA test has the highest predictive value for prostate cancer¹. The most common prostate cancer symptoms

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are difficult or frequent urination, but many men have no symptoms.10% patients have carcinoma prostate in spite having normal PSA and benign prostate on digital rectal examination². Serum concentrations of prostate specific antigen have been widely used for early detection of prostate cancer^{1,3} and prostate specific antigen has been described as the best circulating tumor marker in oncology⁴. The 5-year relative survival rate for patients who are early diagnosed with localized disease is almost 100%^{4,5}. After first being described in 1979, prostate-specific antigen (PSA) became available as a biomarker and potential screening tool for the early detection of prostate cancer³. Serum concentrations of prostate specific antigen have 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}. Screening for prostate specific antigen was introduced on the basis of inferential evidence that elevated prostate specific antigen levels were associated with occult prostate cancer⁸. During the 20-year period since significant prostate specific antigen testing began, there has been a decline in prostate cancer mortality^{7,9}. The rationale of my 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 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 of 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

Study was conducted at institute of kidney disease hayatabad medical complex from March 2013 to march 2015. 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, was enrolled in the study and TURP specimen were sent for histopathology to determine the frequency of prostate adenocarcinomas. The purpose and benefit of study were explained to all the patients and written informed consent was taken. A complete history was obtained 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. Strictly exclusion criteria were followed to control confounders and bias in the study result.

RESULTS

In this study 139 patients with clinically benign prostatic hyperplasia with Prostate specific antigen less than 4ng/ml had observed in which 68(48.92%) patients have prostate specific antigen (PSA) level were less than or equal to 2 and 71(51.08%) patients have more than 2. (Figure 8). Patients age was divided in four categories, out of which most presented in 56-65 years which were 50(36%) while 22(15.8%) patients were in the age range of less than 55 years, 37(26.6%) were of age range 66-75 years and 30(21.6%) presented at age more than 75 years. The study included age ranged from 50 up to 79 years. Average age was 65.50 years \pm 8.78SD. (Table 1). Over all Carcinoma prostate among patients presenting with clinically benign prostatic hyperplasia was 18(12.95%) while 121(87.05%) were found non Carcinoma prostate. (Figure 9) Age wise distribution of Carcinoma prostate shows that it increases as the age increase. There were 3(10%) patients were found in more than 76 years of age while 27(90%) were non Carcinoma prostate, 2(9.1%) patients have age groups

of less than 30 years were Carcinoma prostate while 20(90.9%) were non Carcinoma prostate, 10(12.2%) have age range of 56-65 years were Carcinoma prostate while 40(87.8%) were non Carcinoma prostate and 3(8.1%) cases have age range of 66-70 years of age were Carcinoma prostate while 34(91.9%) were non Carcinoma prostate. Although statistically it was insignificant with p-value=0.321 (Table 2). The majority of patients having prostate specific antigen more than 2 i.e. 10(14.7%) presented with clinically benign prostatic hyperplasia were Carcinoma prostate while 58(85.3%) were non Carcinoma prostate and 8(11.3%) patients having PSA less than or equal to 2 were Carcinoma prostate while 63(88.7%) were non Carcinoma prostate. Which shows that the PSA more than 2 patients are found in minority as that of less than 2 with Carcinoma prostate in clinically benign prostatic hyperplasia. (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 twofold high incidence rate than that for US whites¹⁰. Prostatic cancer is extremely rare in Asians¹¹. The average age of the patients of present series was 65.5 years. The youngest patient was 50 years old and the oldest was 79 years. This highest incidence of BPH was noted in 56 to 65 years age group. Similar observation was made in Sheikh et al (2000)¹². The average age of patients treated with TURP in their study was 66 years (range 54-80 years) and maximum patients were belonged 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. There are a number of similarities between benign prostatic hyperplasia (BPH) and cancer. Both display a parallel increase in prevalence with patient age according to autopsy studies (86.2% and 43.6%, respectively, by the ninth decade), although cancer lags

Table No 1: Age Wise Distribution of the Patients

	Frequency	Percent	Cumulative Percent
<= 55.00	22	15.8	15.8
56.00 - 65.00	50	36.0	51.8
66.00 - 75.00	37	26.6	78.4
76.00+	30	21.6	100.0
Total	139	100.0	

Table No 2: Age Wise Distribution of Carcinoma Prostate

		Carcinoma Prostate		Total	p-value
		Yes	No		
Age (in years)	<= 55.00	2	20	22	0.321
		9.1%	90.9%	100.0%	
	56.00 - 65.00	10	40	50	
		12.2%	87.8%	100.0%	
	66.00 - 75.00	3	34	37	
		8.1%	91.9%	100.0%	
76.00+	3	27	30		
	10%	90%	100.0%		
Total		18	121	139	
		12.3%	87.7%	100.0%	

Table No 3: Carcinoma Prostate Wise Distribution of Prostate Specific Antigen

		Carcinoma Prostate		Total	p-value
		Yes	No		
Prostate specific antigen	<= 2.00	8	63	71	0.281
		11.3%	88.7%	100.0%	
	3.00+	10	58	68	
		14.7%	85.3%	100.0%	
Total		18	121	138	
		12.3%	87.7%	100.0%	

by 15-20 years²⁰. Both require androgens for growth and development and both respond to ant androgen treatment regimens. 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%)²¹. 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. Transrectal 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 Low and Listrum²² reported 10% incidence of carcinoma of the prostate in a series of 1000 cases. Size of their study sample was 10 times larger and this difference may be one of the reasons for difference in results. Similarly incidence of

carcinoma prostate in the study of Cooner et al¹⁶ was 14%. Shah¹⁹ reported 4% incidence in his study. Serum concentrations of prostate specific antigen have been widely used for early detection of prostate cancer and prostate specific antigen has been described as the best circulating tumor marker in oncology. 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%²². Some men with prostate specific antigen value less 4ng/ml may harbor clinically significant organ confined cancer¹⁷. Javaid et al and Hamid A 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 K, 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 prostatectomy was 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. The frequency of prostate cancer in patient with prostate specific antigen level of 0-4.0 ng/ml is

10-20%²⁰. Which is very similar to our study results? A significant body of evidence suggests that a diet high in fat, especially saturated fats and fats of animal origin, is associated with high risk of prostate cancer.

CONCLUSION

The incidence of Carcinoma prostate among patients with clinically benign prostatic hyperplasia with Prostate specific antigen less than 4ng/ml is quite high. These results indicate that high incidence of carcinoma prostate is common in TURP specimens and, when found, indicates a significant risk of cancer. The presence of carcinoma in TURP specimens should be reported by the pathologist; in addition, the entire specimen should be submitted for histological examination to exclude carcinoma. The foremost thing is to create awareness among the masses to seek medical help for proper evaluation and diagnosis so that adequate treatment can be initiated at an earlier stage of the disease.

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