Original Research

Evaluation of the serum PSA levels in patients presenting with enlarged prostate

Dr. Nimmi Varshney

Assistant Professor, Department of Pathology, Saraswathi Institute of Medical Sciences, Hapur, Uttar Pradesh, India

Corresponding Author:
Dr. Nimmi Varshney
Assistant Professor, Department of Pathology, Saraswathi Institute of Medical Sciences, Hapur, Uttar Pradesh, India

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Abstract

Background: In recent years, there has been a significant shift in the method used to diagnose prostate cancer. The focus is on radical prostatectomy, which is thought to cure the disease, and early diagnosis when the process is still limited to the prostate. The present study was conducted to evaluate the serum PSA levels in patients presenting with enlarged prostate.

Materials & Methods:

Results: Out of 20 benign lesion, 45 (90%) were histologically confirmed. Out of 24 malignant lesions, 26 (92%) were histologically confirmed. Age group 40-49 years had PSA level of 0.61 ng/ml, 50-59 years had 2.1 ng/ml, 60-69 years had 2.4 ng/ml and 70-79 years had 2.8 ng/ml. The difference was significant (P< 0.05).

Conclusion: Serum PSA levels can be used as a marker to monitor the advancement of prostate cancer and are an excellent predictor of the prostate's glandular expansion.

Keywords: prostate, tumor, malignant

Introduction

In recent years, there has been a significant shift in the method used to diagnose prostate cancer. The focus is on radical prostatectomy, which is thought to cure the disease, and early diagnosis when the process is still limited to the prostate.[1] By monitoring PSA levels, performing a USG examination, and performing a prostate FNAC/biopsy, an early diagnosis can be made.[2] According to Anil Mandhani, the incidence of prostate cancer is approximately 6.8/100000, and it has been noted that the incidence has been rising (B Yeole). In the west, serum prostate specific antigen, or Sr PSA, has been used regularly for many years as a low-cost, non-invasive method of prostate cancer screening and diagnosis.[3]

PSA is a glycoprotein that only the prostatic epithelium secretes. Since it interacts with prostatic material in both normal and malignant tissues, it is not a tumor-specific antigen. Following genitourinary tract manipulation and discomfort, it may momentarily rise.[4] However, compared to 0.3 ng/ml/gm of tissue in BPH, the cancer tissues express 3 ng/ml of PSA in the blood per gram of malignancy.[5] In healthy guys, normal level readings are typically less than 4 ng/ml. It has been observed that 50% of men with stage A prostate cancer, 80% of men with stage B disease, and 100% of men with stage C and D illness have serum PSA values over the reference range.[6,7]The present study was conducted to evaluate the serum PSA levels in patients presenting with enlarged prostate.

Materials & Methods

The study was carried out on 74 clinically and radiologically recognized or suspected to have an enlarged prostate male patient. All gave their written consent to participate in the study.

Data such as name, age, gender etc. was recorded. The estimation of sr. PSA was done quantitatively by a chemiluminescence method.All the cases were confirmed by a histopathological examination. Results thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

Results

Table: I. Distribution of prostatic lesions with serum PSA levels

Category	Number	Histopathological diagnosis	Percentage
Benign	50	45	90%

Malignant	24	26	92%

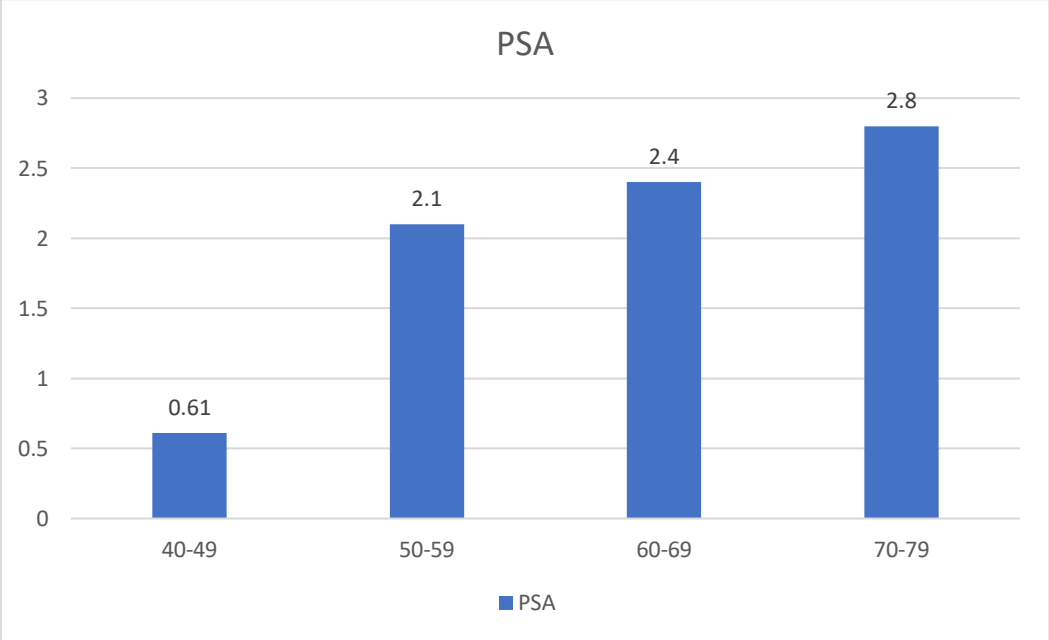
Table I shows that out of 20 benign lesion, 45 (90%) were histologically confirmed. Out of 24 malignant lesions, 26 (92%) were histologically confirmed.

Table: II. Assessment of PSA levels in BPH patients

Age group (years)	PSA	P value
40-49	0.61	0.05
50-59	2.1	
60-69	2.4	
70-79	2.8	

Table II, graph I shows that age group 40-49 years had PSA level of 0.61 ng/ml, 50-59 years had 2.1 ng/ml, 60-69 years had 2.4 ng/ml and 70-79 years had 2.8 ng/ml. The difference was significant (P< 0.05).

Graph: I. Assessment of PSA levels in BPH patients



Discussion

Only prostatic epithelial cells secrete the serine protease known as prostate-specific antigen (PSA).[8] Serum PSA concentrations are raised in 25 to 92 percent of patients with prostate cancer, depending on tumor volume, and in 30 to 50 percent of individuals with benign prostatic hyperplasia, depending on the size of the prostate and the degree of blockage.[9] Although blood PSA measurement is the most sensitive diagnostic now available for tracking the course of prostate cancer and the response to treatment, its usefulness for early prostate cancer detection and staging is unknown.[10] In the United States, prostate cancer is the most prevalent type of cancer and the second most common cause of cancer-related deaths among males. Approximately 65 percent of prostate cancers are clinically localized at the time of diagnosis.[11,12]The present study was conducted to evaluate the serum PSA levels in patients presenting with enlarged prostate.

We found that out of 20 benign lesion, 45 (90%) were histologically confirmed. Out of 24 malignant lesions, 26 (92%) were histologically confirmed. Catalona et al[13]measured serum PSA concentrations in 1653 healthy men 50 or more years old. Those with PSA values greater than or equal to 4.0 micrograms per liter then underwent rectal examination and prostatic ultrasonography. Ultrasound-directed prostatic needle biopsies were performed in the men with abnormal findings on rectal examination, ultrasonography, or both. The results were compared with those in 300 consecutively studied men 50 or more years old who underwent ultrasound-directed biopsy because of symptoms or abnormal findings on rectal examination. Serum PSA levels ranged from 4.0 to 9.9 micrograms per liter in 6.5 percent of the 1653 men (107). Nineteen of the 85 men in this group (22 percent) who had prostatic biopsies had prostate cancer. Serum PSA levels were 10.0 micrograms per liter or higher in 1.8 percent of the 1653 men (30). Eighteen of the 27 men in this group (67 percent) who had prostatic biopsies had cancer. If rectal examination alone had been used to screen the men who had biopsies, 12 of the 37 cancers (32 percent) would have been missed. If ultrasonography alone had been used to screen these men, 16 of the 37 cancers (43 percent) would have been missed. Serum PSA

measurement had the lowest error rate of the tests, and PSA measurement plus rectal examination had the lowest error rate of the two-test combinations.

We found that age group 40-49 years had PSA level of 0.61 ng/ml, 50-59 years had 2.1 ng/ml, 60-69 years had 2.4 ng/ml and 70-79 years had 2.8 ng/ml. Ingle et al[14] in their study no False positive or false negative cases were observed. Histopathological Categorization of the Prostatic lesions: All the cases were confirmed by a histopathological examination. Of the 31 cases of malignancy, 2 cases underwent prostatectomy, while 4 underwent a biopsy and were confirmed by HPE. 27 cases were labelled as inoperable and they underwent bilateral orchidectomy, followed by radiotherapy. 5. Categorization of the Prostatic lesions on the basis of the Sr P.S.A. levels, which were confirmed by Cyto-HPE: The accuracy of Sr PSA in diagnosing BPH was 97.18%, while for the malignant enlargements, its accuracy was 83.33%.

The shortcoming of the study is small sample size.

Conclusion

Authors found that serum PSA levels can be used as a marker to monitor the advancement of prostate cancer and are an excellent predictor of the prostate's glandular expansion.

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