



LEVEL OF SERUM PSA IN 40-70 YEARS OLD AGE GROUPS IN BIHAR POPULATIONS

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ABSTRACT **OBJECTIVES:** This study was done to investigate the serum PSA level in age from 40-70 years old healthy individuals of Bihar.

MATERIAL AND METHODS: This study was conducted on 218 patients reported in Urology OPD, Patna Medical College and Hospital, Patna from October 2017 to September 2019. Data were entered and analyzed by SPSS version 10.0.

RESULTS: Age specific range of serum PSA value in healthy males in Bihar population are 0.92 ng/ml in 40-49 years, 1.27 ng/ml in 50-59 years and 1.58 ng/ml in 60-69 years.

CONCLUSION: Present study highlighted the age specific reference range of serum PSA in healthy males in Bihar population. The study also suggested that PSA level increased with increasing age.

KEYWORDS : PSA, Bihar, Age specific

INTRODUCTION:

Prostate Specific Antigen (PSA) is a serine protease secreted by the prostate gland. This antigen was originally sought to be used as a forensic tool to identify semen in rape victims¹ until it became an invaluable tool for detection of prostate cancer². Prostate cancer is the most frequently diagnosed visceral cancer and the second leading cause of cancer death in men³. Several studies have reported that important racial and ethnic differences exist in age specific reference range of Serum PSA value among Global Population^{4,7}. African and American men have highest PSA values⁶, while the PSA values are lower in Asian and Arabian^{4,5,8} and higher in European Men⁹.

Asian men living in different regions have diverse PSA levels. Same information regarding prostate cancer in Asian- Indian suggests that the incidence in five major Indian major cities appears to be rising¹⁰. In India, Prostate cancer is the Third commonest in Delhi, Fourth in Mumbai, Fifth in Bangalore and Ninth in Chennai^{11,12}. Several articles considered that the effect of race and ethnicity, environmental factors, lifestyles, metabolic and physiological changes with advancing age can lead to changes in serum PSA level.

In the World literature the 95th percentile of serum PSA is 4 ng/ml which has been accepted as the reference range of serum PSA for all age groups^{6,7}. However the incidence of prostate cancer detection in Asian population were 16.7% in low PSA group (2-4 ng/ml) and 23.7% in intermediate PSA group (4.1-10 ng/ml)¹³. Thus the concept of standard range for serum PSA does not compensate for healthy individual males. So this study was done to establish age specific serum PSA range in healthy Bihar Population.

MATERIAL AND METHODS:

The present study was conducted in Department of Urology, Patna Medical College and Hospital, Patna, Bihar over a period of two years from October 2017 to September 2019. This study included 218 healthy individual who presented in the OPD of Department of Urology of the hospital.

Exclusion criteria:

1. Patients who have known prostatic disease like BPH, Prostatitis, Prostate Cancer.
2. Documented UTI on Urine culture
3. Fever at the time of presentation
4. H/O of urinary tract instrumentation including catheterisation.

RESULTS:

In total 218 healthy subjects as per age group from 40 years to 70 years were included in the study. The results that is expressed in mean±SD, median and 95% confidence interval for all age groups is 1.13±1.04 ng/ml, 0.80 ng/ml and 1.23 ng/ml.

Table Age specific serum PSA in healthy Bihar males

Age in years	40-49	50-59	60-69	All ages
No. of pts	64	94	70	218
Mean ± SD (ng/ml)	0.81±0.55	1.08±0.98	1.30±1.20	1.13±1.04
Median (ng/ml)	0.65	0.87	0.88	0.80
95% confidence interval (ng/ml)	0.92	1.27	1.58	1.23

DISCUSSION:

India is a socioculturally and ethnically diverse country. Therefore, the prevalence of prostate disease varies markedly. But the reasons for such ethnic disparities are poorly understood. Serum PSA is the common oncogenic marker for prostate cancer. Besides this its level can be affected by many factors like age, race, and ethnicity^{4,6}. The main aim of this study was to identify differences in age specific reference range of serum PSA among healthy Bihar population.

The result of present study was compared with Asian population and suggests that the normal level of serum PSA in Bihar subjects is lower than other Asian countries population. Studies also suggest that Asian population have lower PSA levels than other races. It may be due to lower level of androgen. Androgens are required for the normal development of prostate, as well as its neoplastic transformation. Despite the widespread clinical use of PSA as a tumor marker; the relationship between androgen action and PSA concentration in men without prostate hyperplasia or cancer remain unclear.

Age is one of the key factors for the prostate disease, with the increment of the age; susceptibility towards the disease too increases⁵. Serum PSA was found to be elevated with age and was clearly shown in various studies conducted among Asian populations such as Chinese, south India, Koreans, Singaporeans, and Japanese^{4,7}. Dubey concluded that in India there is no scientific rationale to advocate routine use of PSA for early detection of prostate cancer in Indian males due to low incidence of prostate cancer. But the importance to establish reference range of serum PSA for healthy south Indian males to interpret PSA result in benign as well as malignant disorders of prostate was given by

Malati and Kumari⁴. The study suggests that the reference range of serum PSA level increases with advancing age in south Indian males and are lower than global population. In the present findings, Bihar males have quite similar serum PSA range as in south Indian males.

PSA could be related to the specific dietary habits. Edward et al. reported that a lower intake of red meat and a higher intake of soya based food may reduce the risk of prostate cancer. Studies have demonstrated a significant impact of diet on prostate cancer. East Asian diets have been traditionally vegetarian and low in fat content. A diet rich in phytoestrogens, which is found in vegetarian diets, and soy products has been associated with a protective mechanism against prostate cancer. There is a growing evidence that curcumin (turmeric) and a diet rich in vegetables has a significant protective effect on prostate cancer growth. These dietary factors could be responsible for the low incidence of prostate cancer in India.

CONCLUSION:

It is seen that PSA varies with the race and ethnicity. The Bihar population range seen are lower than those in the western population and hence the data available from the west cannot be extrapolated to the Bihar population. It was also seen that with increase in age the serum PSA level also showed an increasing trend.

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