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Research Article

Relation between Serum Prostate – Specific Antigen PSA with Prostate size and Body Mass BMI

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Abstract

Special threshold of Prostate – specific antigen (PSA) has been debatable to define patients with high risk of infection to Prostate cancer. This study is done aimed at review the PSA Values rate based on age and studying the PSA relation and body mass index (BMI) and volume and size of work method. In this descriptive research is used of dimorphic data and total PSA values and prostate size Gained of results. Of 1149 people who had gone to check up clinic of Green Hospital in 1385-1390. Its notable that visitors were without symptom. For analyzing, SPSS software and proper statistical and descriptive test were used. Results of the study showed age average between 45 ± 12 and body mass volume 27 ± 8 and relation between PSA rate and prostate volume was higher than correlation between PSA rate and all prostate sizes ($P= 0.001$) Conclusion This study showed there inst meaningful relation between PSA rate and BMI while in studies has been done in this area on people with symptom, relation between two factor was meaningful that could due to PSA rate higher than 10 and caused this ambiguity that maybe relation between these indexes in seen better in high PSA rate.

Keywords: Prostate specific antigen, Prostate, body mass.

1. Introduction

Prostate cancer is the most widespread cancer and the second deadly cancers in men. Of each 6 men, one man suffers from this cancer (1,2). The more frequency of prostate cancer is in Africa and low rate in Asia (3). Because this cancer includes about 30% of all cancers and with respect to high death rate of it, screening methods has importance for diagnosis and follow-up (4), Generally many factors should be considered for screening prostate cancer which recommended usually for early diagnostics of prostate cancer with Digital Rectal

Examination, serum Prostate-specific Antigen (PSA) and Transected Ultrasound-guided Prostate Biopsy.

The first line for screening Prostate cancer is combination of PSA method and Digital Rectal Examination, but PSA method is the most applicable tumor index available to diagnosis and follow-up the prostate cancer (5). In several studies are reported direct relation between serum PSA level and patient age and prostate volume but a little are studied the relation size and body Mass Index (BMI) (6). So, this study is done for diagnostic, simple and cheap methods. On the other hand, several epidemiological studies have evaluated the relation between BMI and prostate cancer risk. Prevention of cancer studies and analysis are suggesting the prevention experiences of prostate cancer. Which obesity has positive relation with risky prostate cancer and negative relation with low risk disease. It also corresponds to steps of multiple prostatectomy in other expression, risk of prostate cancer in fat people may be similar the others, but the probability being more invasive is high (7). Studies have shown that fat men have larger prostate and lower mean serum PSA, and seems PSA is low after improving for prostate volume for these people (8). Regarding fat men has low PSA, also more invasive pathological and clinical expressions, a question discussed is that: May PSA screening be improved based on BMI? This change doesn't recommend in clinic, until a study shows specific death of the worst cancer in a screened and treated group. Clearly, more data should be gained. The important challenging aspect of stabilizing complex genetic and environmental issues with interactional effect is that with interactional effect is that with two moving purposes i.e, epidemiology of obesity and prostate cancer, isn't low statistically, there is confrontation. So, stabilization is still abstractive. However, it's necessary that the relation between PSA and BMI rate is studied in people without symptom, to talk about prognosis of prostate cancer using its results and these results provide an area for more studies to reach a clear relation between obesity and prostate cancer.

2. Methodology

This study is descriptive of cross sectional kind. In this study is used demographic data and total PSA values and prostate size of Sonography results 1149 persons had gone to check up clinic of Green Hospital in 1385-1390. It's notable that visiting people were without symptom and had gone to Green Hospital to check up and all tests and sonography made in this hospital. In this study natural level of PSA considered 4-0 and 10-4 (9). Regarding the study aim is finding the relation between BMI and PSA in people with PSA values in beard line and to using of that as prognosis for prostate cancer, 26 person with higher PSA rate of 10 were eliminated. Then, the average PSA level in 4 age groups 40-49, 50-59, 60-69, 70-79 was computed, and people were divided from body mass aspect to two natural category i.e, BMI between 18-27 and abnormal BMI higher than 27 and lower than 18 and obtained natural PSA rate, Pearson correlation between sonography results and blood test was taken and for investigation the relation between PSA and BMI rate, Pearson correlation was also used. SPSS software was used for analysing statically.

3. Results

This study is done in 1123 men with age average between 12 ± 45 and body mass volume 8 ± 27 . From people with natural BMI, 1% was with PSA between 4-10 and people with abnormal BMI, nobody was with PSA between 4-10. Generally, 98% people with PSA were in natural interval i.e, between 0-3-9 and 2% were in board line interval 4-9.9. Based on BMI 1% was with BMI lower than 18 and 49% with BMI higher than 27 and 50% in BMI natural i.e, 18-27. The results of Pirson correlation for studying the relation of PSA and BMI showed that they have low correlation but reversed but this correlation isn't meaningful, in other words, these two factor don't have meaningful relation ($r=-0.054$, $p= 0.08$). According to table 1, the correlation among PSA rate and height, length and width of prostate isn't much alone, but the meaningful difference isn't between them and its while the correlation between PSA rate and prostate volume is higher that its sizes one by one. Correlation between people age and PSA rate express this issue that PSA rate relates to people age, but this dependence isn't more, ($r=0.279$, $p= 0.001$). In table 2, PSA rate was represented based on age.

Table.1 The rate of PSA correlation and prostate sizes and its volume.

Variables	Correlation rate	Meaningful rate
With PSA rate	(r)	(p)
Prostate height	0.274	0.001
Prostate length	0.239	0.001
Prostate width	0.213	0.001
Prostate volume	0.394	0.001

Mean \pm deviation	Minimum	Maximum	PSA age
Standard			
Prostate height	0.274	4-43	40-49
Prostate length	0.239	7/8	50-59
Prostate width	0.213	9/36	60-69
Prostate volume	0.394	8/41	70-79

4. Discussion

As we know, prostate-specific antigen is best screening test and diagnosing prostate cancer, however, cancer epidemic in different age groups and race was different and its epidemic based on serum prostate-specific Antigen is also different (11).

This study is made with aim of investigating the relation among. Serum prostate-specific Antigen and BMI rate and prostate sizes and volume, studying its values rate in age groups and results are so: There is high correlation among all studied factors for all the difference that this correlation has higher rate and in same others lower rate in some of factors.

In this study, correlation rate between PSA rate and prostate volume is evaluated $r=0.394$ that its similar results can see in studies such as Ayatolahi in 2009, and this rate was higher than its correlation with prostate sizes one by one that could due to this issue that evaluating prostate volume results of every prostate sizes and being larger is same in each aspects and is seen in correlation computing in an aspect while total changes is considered in aspects in form of volume (12).

In this study , low and reversed correlation is also seen between PSA and BMI but this correlation rate wasn't meaningful while results of Peter study (1) expressed the relation between these two factors as meaningful , this difference may be due to this issue that the relation between these two factors were investigated in studies about people with symptom till now , which may have higher PSA rate than 10 , and results in the ambiguity that in high PSA rate may seen the relation between these indexes the better and this issue expresses that other studies is needed including comparing the relation among these factors in people with or without symptom to talk about the relations between two indexes with more confidence (13) .

These meaningful level of findings and their effects on diagnostic value isn't a reason about abnormality of diagnostic value in fat people and should use clinical scenario framework and the other effective factors on PSA rate in diagnosis . PSA rate in different ages is studied in this research and showed that high PSA rate in age group 60-69 is with mean 1/66 while RSA rate mean in this age group is evaluated 1/35 in a study in 2011 (14) . PSA rate in age group 70-79 compared to age group 60-69 is low which this issue get into trouble increasing PSA rate with age that more studies are needed why this result may be due to different diseases including urinary infection or prostate infection and other factors which increase PSA rate (15) . Therefore , in this study mean PSA rate in age group 70- 79 is same as its similar studies , we could see this result with high probability which people in age group 60- 69 have had background diseases for increasing PSA rate (16) . To prove this issue , more completed studies are needed.

5. Conclusion

Generally , regarding to results of this study , we could acknowledged that PSA level in people increases with age and regarding to its natural range in each age , use it as a factor to screen prostate cancer . Although most of specialist recommend screening from age 50 for men and 45 for people with family background , but results of this study showed the high PSA rate in age 60 that maybe use it as suggestion for more studies to find screening age in Iran .

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