

Prostate Specific Antigen Levels Among Men With Prostate Cancer in Ramadi City

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ABSTRACT

Prostate cancer is the most common non skin cancer in men. Screening for prostate cancer with prostate specific antigen (PSA) may help in decreasing morbidity and mortality of men. to assess the PSA level among Iraqi men in Al-Anbar governorate. Hundred and sixty two patients with prostate cancer as a study group and fifty apparently healthy subjects as a control group were included in this study from the period of 1st of June, 2007 to 1st of October, 2010. All the patients were well diagnosed clinically and by laboratory investigations by their physicians and they were on therapy. Blood samples were taken from both the study and control groups and tested for detection of PSA levels. All PSA measurements were performed in the laboratory using ELISA test. A significantly higher percentages of patients with prostate cancer had a PSA level of more than 4.0 ng/ml (79.6%) than those among apparently healthy subjects (16%) ($p < 0.05$). Men from older age groups had higher percentage of PSA level of ≥ 4.0 ng/ml than in younger age groups. Men with older age group are more exposed to risk of prostate cancer and should be encouraged to participate in early detection studies to define personalized PSA screening that may diagnose prostate cancer at a curable point.

Introduction

Prostate cancer is the most common non-skin cancer in men. In USA, an estimate 250000 men received a new diagnosis of prostate cancer in 2007, and one out of six men will receive a diagnosis in their lifetime ⁽¹⁾.

Prostate specific antigen (PSA) is a protein produced by the cells of the prostate gland and it is present in small amount in the semen and blood of normal men ⁽²⁾. It is important to note that PSA can also be found at low concentrations in other body fluids. PSA exists in different forms. It can be joined to other proteins when it is often referred to as complexed PSA, or it can exist on its own, known as free PSA. The PSA tests commonly referred to and used in prostate cancer risk management are total PSA tests. This means that they detect both free and complex PSA to give a measure of all PSA present in the blood sample.

The serum PSA test was approved by the U.S. Food and Drug Administration in 1986, and its use for prostate screening has increased between the period from 1995-2004 ⁽³⁾.

However, PSA testing is not specific to prostate cancer ; common conditions such as benign prostatic hyperplasia and prostatitis, also increase PSA concentrations. Approximately 1.5 million men, their is form age 40 to 69 years, have a PSA level greater than 4.0 nanogram per milliliter, a widely use cutoff value for a positive screening result⁽⁴⁾.

PSA test results show the level of PSA detected in the blood which is usually reported as nanograms of PSA per milliliter (ng/ml) of blood and it was considered a total PSA concentration below 4.0 ng/ml as the cutoff level (normal). The increase of the total PSA levels may suggest the early detection of prostate cancer ⁽⁵⁾. The American Society estimates that 28000 men died of prostate cancer in 2006 ⁽⁶⁾. After reaching the highest level in 1991 (29.4 deaths per 100 000 men), the prostate cancer of specific mortality rate has gradually decreased. Although this positive trend may be related to the increase in screening for prostate cancer, the PSA levels appear to be more predictive for prostate cancer rise ⁽⁷⁻⁸⁾.

It was found that there is a strong evidence that PSA screening test lowers the risk of prostate – cancer specific mortality, but at a cost of substantial over-diagnosis, over-treatment, and a significant burden of treatment side effects and costs ⁽⁹⁾.

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No attempts were carried out to study the association of between prostate cancer alarming and PSA level assessment, Therefore, the aim of this study was to determine the level of PSA among men with prostate cancer at Al-Anbar Province .

Materials and Methods:

healthy subjects (16%)($p < 0.05$).

Table (2) shows the percentages of PSA levels in patients with prostate cancer according to age. A higher difference in the percentages of PSA level among patients with prostate cancer in relation to age, patients from One hundred and sixty two patients with prostate cancer as a study group and fifty apparently healthy subjects as a control group who attend Al-Gailani-Central Medical Laboratory at Al-Ramadi centre were included in this study from the period of 1st of June, 2007 to 1st of October, 2010. All the patients were well clinically diagnosed by their physicians besides the laboratory investigations and they were on therapy. The blood samples were taken from both the study and control groups and tested for detection of PSA levels. All PSA measurements were performed in the laboratory using ELISA test. All participants gave written informed consent. The range of the patients age included

A questionnaire form was filled for each patient by direct interview. The data requested included demographic data and past medical history as well as medical treatment.

Chi-square and Yates correction were used to determine an association between the prevalence of PSA levels and prostate cancer and other independent variables. P value equal or less than 0.05 was considered as statistically significant.

Results & Discussion::

Table (1) shows the percentages of PSA levels in the study and control groups , a

It is normal for men to have a low level of PSA in their blood; prostate cancer can increase the man's PSA concentration. These results are usually reported as nanograms (ng) of PSA per milliliter of blood and PSA level below or equal to 4.0 ng/ml is considered within a normal limit for normal people ⁽¹⁰⁾.

The result of this study found that the patients with prostate cancer had a higher PSA concentration (more than 4.0 ng/ml) than in apparently healthy people (PSA concentration below 4.0 ng/ml). This

finding indicated a positive correlation between prostate cancer development with increasing PSA than 4.0 ng/ml. In one of the first study reported evaluations of PSA screening (in 1633 men), prostate cancer was detected in 22% of the men who underwent biopsy because of a PSA level of 4.0 to 9.9 ng/ml and in 67% of the men who underwent a biopsy because of a PSA concentration of more than 10.0 ng/ml ⁽¹¹⁾. A study conducted by Thompson et al. ⁽¹⁰⁾ reported that prostate cancer was diagnosed in 15.2% of men with a PSA concentration at or below 4.0 ng/ml and 15% of these men, or 2.3% overall, had high-grade cancers. In another study, 25-35% of men who had a PSA concentration between 4.1 ng/ml and 9.9 ng/ml who underwent a prostate biopsy were found to have prostate cancer, meaning that 65 to 75 % of the remaining men did not had prostate cancer⁽¹²⁾. However, prostate cancer can also be present in the complete absence of an elevated PSA level, in which case the test result would be a false negative ⁽¹⁰⁾. Thus, there is no specific normal or abnormal PSA concentration. Various factors such as infection (prostitis), benign prostate hyperplasia, irritation, and variation in the readings of PSA values from one laboratory to another ⁽¹³⁾. In general, however, the higher a man's PSA concentration, the more likely that the prostate cancer is present.

Concerning the age of the patients in this study, our finding indicated that PSA levels tend to increase with age. Several risk factors increase a man's chances of developing prostate cancer. These factors may be taken into consideration when PSA test screening is recommended. Age is the most common risk factor with nearly 63% of prostate cancer cases occurring in men whose age was 65 and older ⁽¹⁴⁾. Welch and Albertsen⁽⁹⁾ reported that the relative incidence rate of prostate cancer after introducing PSA screening was 0.56 in men aged 80 years and older, 1.09 in men aged 70-79 years, 1.91 in men aged 60-69 years, 3.64 in men aged 50-59 years, and 7.23 in men younger than 50 years.

From this study, we can conclude that men with older age group should be encouraged to participate in early detection studies to define personalized PSA screening that may diagnose prostate cancer at a curable point. in this study was 42 -84 years with a mean age of 52 ± 13.7 years. It was had significantly higher with prostate cancer who had a percentages of patients PSA level of more than 4.0 ng/mL (79.6%)

than those among apparently older age groups had higher percentage of PSA level of more than 4.0 ng/mL than in younger age groups. This indicates that there is an association between high PSA levels and the increase of age.

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Table (1): Percentages of serum PSA concentration in the study and control groups

Group	Total no. tested	PSA conc. <4 ng/ml		PSA conc. ≥4 ng/ml	
		No.	%	No.	%
Study group	162	33	20.4	129	79.6
Control group	50	42	84	8	16
	SN	P value=0.0218			

SN= significant

Table (2): Percentages of serum PSA concentration in the study group according to age.

Age group (Years)	Total no. tested	PSA conc. <4 ng/ml		PSA conc. ≥4 ng/ml	
40-49	21	8	39.1	13	61.9
50-59	36	10	28.8	26	72.2
60-69	71	11	21.2	56	78.9
≥70	34	6	17.7	28	82.3
Total	162	33	20.4	129	79.6
	SN	P value=0.0389			

SN= Significant

مستويات المستضدات الخاصة بالبروستات للرجال المصابين بسرطان البروستات في مدينة الرمادي

جليل ابراهيم صالح عباس عبيد الجنابي ياسين طه سرحان ايهاب جاسم

الخلاصة

يعتبر سرطان البروستات من أهم وأكثر السرطانات الغير جلدية شيوعا في الرجال. وفحص المستضدات الخاصة بالبروستات قد يساعد في انخفاض معدلات الإصابة والموت عند الرجال في محافظة الأنبار المرض وطرق العمل : مائة وأثنان وستون مريض بسرطان البروستات أخذوا كمجموعة وخمسون من الأصحاء أخذوا كمجموعة سيطرة للفترة من 1-حزيران-2007 ولغاية 1-تشرين الأول 2010 كل المرضى فحصوا وشخصوا سريريا ومختبريا وكانوا تحت العلاج من قبل الأخصائيين .أخذت نماذج الدم من كلتا المجموعتين للدراسة وتم قياس مستويات المستضدات للبروستات بواسطة جهاز الـ ELISA .النتائج: كانت النتائج ذات أهمية إحصائية للـ(4.0) (79.6%) على الأصحاء (0.05)(16%) الرجال في المجموعة ذات الأعمار الكبيرة أكثر أصابة من الشباب والتي هي (أكبر من أو تساوي) 4ng/ml (%4) الخلاصة : مجموعة الأشخاص للأعمار الكبيرة أكثر عرضة للسرطان من فئة الشباب لذا ننصح بالأكثر من الدراسات المستقبلية في هذا الجانب ولتشخيص الحالة مختبريا.