The Rule of Degital Rectal Examination and Prostatic Specific Antigen in Diagnoses of Prostate Carcenoma

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Abstract

25 treated in urology department in al hilla teaching hospital in a period 2004-2007 all of them had prostatic nodule, all of them send for PSA ,and all of them undergone prostatic biopsy from the nodule only 15 patients had prostatic carcinoma, 6 patients had BPH, 4 patients had chronic non specific nodule.

17 patients of all suspicious DRE had PSA more than 10ng/ml, an 5patients had PSA range 4ng/ml to less than 10ng/ml , and only 3 patients had PSA less than 4ng/ml.

12 patients from a patients with carcinoma of prostate had PSA more than 10ng/ml , tow patients with prostate carcinoma had PSA (4-10ng/mle), only one patient had PSA less than 4 ng/ml.

So we must recommend combination of PSA and DRE in diagnoses of prostatic carcinoma.

الخلاصة

شملت الدراسة٢٥ مريضا يعانون من علامات انسداد عنق المثانة ادخلوا إلى ردهة الجراحة البولية في مستشفى الحلة التعليمي العام للفترة من كانون الثاني ٢٠٠٤ إلى كانون الثاني ٢٠٠٧.

كل المرضى أجريت لهم تحليل نسبة إلPSA وكل المرضى تم فحصهم سريريا متضمنا فحص الإصبعي للمستقيم DRE كل هؤلاء المرضى كان لديهم عقدة في البروستاتا إثناء فحص المستقيم ،جميعهم أجريت لهم اخذ عينة من عقدة البروستاتا ومن خلال الدراسة تبين انه ليست كل هذه العقد سرطانية بل أن قسما منها هو التهاب البروستاتا المزمن أو تضخم البروستاتا الحميد.

من خلال الدراسة تبين أيضا أن العقد التي تبين أنها سرطانية بالفحص النسيجي ترافقت مع نسبة كبيرة من المرضى بزيادة في PSA . وكذلك قسم من العقد الحميدة ترافقت بزيادة PSA .لذلك يتبين أن ال PSA دو قيمة تشخيصية لسرطان البروستاتا كلما زادت نسبته في الدم.

Introduction:

Prostatic cancer is one of the most common cancers .Statically it has overtaken lung and colonic cancer to be the most common cancer in the males, comprising 32% of all cancers.(1)

Even though its incidence is high, there are many more prostate cancers that occur without benign clinically apparent during patients life(1).

Prostatic cancer is also a disease of aging. It rarely occurs in men under age of 40. and its incidence increase progressively until it reaches a peak in the 8^{th} decade

Current studies suggest that BPH and prostatic cancer are independent

entities. (2)

There are current studies to determine their inter relationship(2) prostate cancer is more common in patients with BPH than those without it (2).

It is important to rule out cancer in patient with BPH ..The best way to do this currently is by serum PSA determination and DRE.(2) .

Serum PSA is sensitive tumor marker in patient with prostatic disease (3) . However no PSA serum level exist to distinguish benign from malignant lesion.(3) . PSA can appear to be elevated in patients with prostate cancer as well as in those with benign prostatic hyperplasia (BPH) and acute bacterial prostatitis.(3)
Moreover a normal serum PSA concentration dose not exclude the possibilities. of prostate cancer.(4).

Serum PSA is useful for detecting early carcinoma of prostate in asymptomatic men of the age range at risk for developing this malignancy (5,6).
DRE ,although unacceptable to some patients, it is safe ,simple ,and easily incorporated into routine physical examination if it is done properly.(1)

During DRE the prostate gland should be assessed for the presence of asymmetry, indurations, irregularity or nodularity.As a screening tool for prostate cancer, DRE has been shown to have low sensitivity, and low specificity and low positive predictive value.(7,8)
The combination of DRE and serum PSA measurement is the most useful mean of predicting the likelihood of malignancy on prostate biopsy. The chance of prostate cancer is proportional to the degree of PSA elevation and is higher for men with suspicious finding on DRE as compared with men with normal DRE.(9

AIM OF THE STUDY

The aim of the study is to evaluate the validity of digital rectal examination and serum prostatic specific antigen in detection of prostate cancer in patients complaining from symptoms of bladder outlet obstruction.

PATIENTS AND METHODS:

Twenty five patients with suspicious DRE finding, that had been selected from patients admitted to urology department in al hilla teaching hospital in the period between Jan. 2004-jan 2007 all complaining from symptoms of bladder outlet obstruction.
All patients send for serum PSA level and all the patients underwent prostatic biopsy by true cut needle(digitally guided biopsy via perineal approach).
All patients had trans abdominal U/S examination. Covering bladder prostate and upper tract.
TRUS study where not don because of un availability in our department.
Other investigation include blood biochemistry, renal function test liver function test, and complete blood picture.

RESULT:

Twenty-five patient were admitted to urology department in al hilla teaching hospital between jan 2004-jan2007.
Mean age range from 60-75 years and median PSA value was (14.7ng/ml)ranging from 2.5 to 30.6ng/ml
Patient .with suspicious DRE finding showed 60%(15 patients) have carcinoma of prostate proved by histopathological examination, and 40%(10patients) had negative histopathology (no malignancy) (table 1).

24%(6 patients) out of 40%(10 patients) with negative histopathology for malignancy had BPH had chronic non –specific inflammatory nodule(prostatitis) (table2)

From those 25 patients 17 (68%) had serum PSA level>_ 10ng/ml and 5(20%) patients had serum PSA level(.4-10 ng/ml), and only 3 (12%) patients had normal PSA level (0-4 ng/ml).(table 3).

In 15 patients with carcinoma of prostate proved by histopathology, 12(80%) patients had serum PSA level._> 10 ng/ml and 2 (13.3%) patients had serum PSA level(>4-10 ng/ ml) and one (6.6%) having normal serum PSA level.

Six out of 10 patients with negative histopathology for malignancy had BPH. 3(50%) of them had PSA more than 10ng/ ml, one (16.6%) patient had a serum PSA level of > 4_10 ng /ml.

4 out of 10 patients had chronic non _specific inflammatory nodule.2(50%) of them with PSA _>10 ng/ml, one (25%) patient with serum PSA of >4_10 ng/ml, one (25%) patients with serum PSA of 0_4 ng/ml. (table 5).

Regarding PSA level for a level of > 4ng/ml, the sensitivity is high with 93.3% and drop to 80% for a level of _>10 ng/ml, while specificity for a level of >4 ng/ml is 20% will rise to 50% for a level of _> 10ng/ml. On the other hand, for a level of .>4ng/ml the positive predictive value is 63.6% will rise to 70.5% for a level of _> 10ng/ml.(table 6).

Discussion:

During routine physical examination of patients with symptoms of bladder outlet obstruction, abnormal DRE finding can be detected in our study all the patients with suspicious DRE were included in the study. Not all suspicious finding on DRE are malignant " jewett in 1986 reported that approximately 50% of suspicious lesion on DRE actually represented cancer on prostatic biopsy" (10)

While in our study about 60% of the patients with suspicious DRE finding had positive histopathology for carcinoma of the prostate, and the remaining 40% of patients are negative for carcinoma, where they include 24% having BPH and 16% chronic non –specific inflammatory nodule.

Actually most of benign prostatic hyperplasia are nodular , but it is difficult to assess this nodularity by DRE .In BPH nodularity is often not palpable because these nodules are located in the transitional zone and covered by a smooth compressed peripheral zone .But asymmetric enlargement of one side or the other is common. The consistency of gland may be soft or firm depending on predominance of glandular or fibro muscular element. (11).

While carcinoma of prostate mostly affect peripheral zone in about 70% (12) , "which is outside the transition zone and closer to the rectal finger, therefore, palpable nodular abnormality usually suggest prostate cancer and warrant further investigation" (11)

In our study ,the patients were included are only those with suspicious DRE have no carcinoma because DRE will completely miss stage T1 cancer (non- palpable disease) and can not detect 10-20% of patients who have prostate cancer. within the transition zone and miss ductal adenocarcinoma of prostate" (10)

Again DRE as performed in an out-patient setting can lead to increase in serum PSA .The change in PSA after DRE , however would not appear to

be clinically significant because the change is within the error of the assay and rarely cause false positive test result.(13).

The prostate carcinoma ,benign prostatic hyperplasia and prostatitis are the most important factors affecting serum level of PSA. PSA elevation may indicate the presence of prostatic disease , but not all men with prostate disease have elevated PSA level.. Furthermore, PSA elevations are not specific for cancer (14) As showen in table 6.

In BPH gland, PSA elevation is proportional to the size of transition zone , and 1 gm of BPH is thought to elevate PSA by 0.3 ng/ml (15) .

In spite of that in some patients who have cancer of prostate diagnosed by histopathology , but they have normal or suspicious serum PSA levels, these are mostly due to organ confined prostate cancer , undifferentiated disease and ductal adenocarcinoma of prostate and this explain finding in table 4.

PSA is the single test with highest positive predictive value for cancer. If serum PSA is elevated. Greater proportion of men actually have cancer found at biopsy when compared to an abnormality on DRE (14) , as shown in table 6.

" So the most effective method for early detection of prostate cancer is combined use of DRE, and PSA to assess prostate cancer risk" (14)

CONCLUSION AND RECOMMENDATION

We found that proper evaluation of patients who are at risk of prostate cancer must include measurement of serum PSA level plus DRE as part of routine examination.

We must recommend also the use of PSA and DRE in combination as a diagnostic procedure for prostate cancer . Since these are complementary method which allow for detection of population at high risk of suffering prostate cancer and the cancer detection rate was highest for combination of suspicious rectal and PSA value =>10ng/ml.

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TABLE 1; RESULTS OF HISTOPATHOLOGY

No .of patients with suspicious DRE finding	No. of patients with malignancy on histopathology	No of patients with no Malignancy on histopathology
٢٥	١٥	١٠
%١٠٠	%٦٠	%٤٠

TABLE 2 PATIENTS WITH NO MALIGNANCY ON HISTOPATHOLOGY

Patients with no malignancy on histopathology	NO.	%
BPH	٦	٢٤
Chronic nonspecific inflammatory nodule	٤	١٦
total	١٠	٤٠

TABLE3 PATIENTS WITH SUSPECIOUS DRE REGARDINIG PSA LEVEL

No. of patients with suspicious DRE finding	PSA_>10ng/ml	PSA>4-10 ng/ml	PSA=0-4 ng/ml
٢٥	17(68%)	5(20%)	3(12%)

TABLE 4 PATIENTS WITH CARCINOMA REGARDING PSA LEVEL

Patients with malignancy on histopathology	PSA=>10 ng/ml	PSA>4-10 ng/ml	PSA=0-4ng/ml
15	12(80%)	2(13.3%)	1(6.6%)

TABLE 5; No. of patients with no malignancy on histopathology in correlation with serum PSA level

No. of patients with no malignancy on histopathology	PSA=>10 ng/ml	PSA>4-10 ng/ml	PSA=0-4ng/ml
BPH(6)	3(50%)	1(16.6%)	2(33.3%)
Chronic non-specific inflammatory nodule (4)	2(50%)	1(25%)	1(25%)

TABLE 6;Sensitivity, specificity and positive predictive value of PSA for prostate cancer screening.

PSA level	Sensitivity	Specificity	Positive predictive value
>4ng/ml	93.3	20%	63.6%
=>10 ng/ml	80%	50%	70.5%