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Role of Prostate Specific Antigen as Biomarker in Diagnosing Prostate Cancer

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Introduction

The prostate gland produces prostate-specific antigen (PSA). High PSA levels could indicate prostate cancer, a noncancerous condition like prostatitis, or an enlarged prostate gland. There is no such thing as a normal PSA level for any man at any age, but the majority of men with prostate cancer have a higher than normal level. If your PSA levels are border line, the percent free PSA can help distinguish between prostate cancer and benign prostatic hyperplasia [1-3].The pattern is the inverse of that seen with PSA in that a high percent free PSA above 20% indicates BPH, whereas a percent - free PSA less than 10% indicates a higher likelihood of cancer.

High PSA levels could indicate prostate cancer or another condition such as prostatitis or an enlarged prostate. Other factors that can influence your PSA level include, Even if you have no prostate problems, your PSA will typically rise gradually as you age. Medications some medications may have an effect on PSA levels in the blood. If you are taking dutasteride or finasteride, inform your doctor. These medications may falsely reduce PSA levels to half of what they should be.

About the study

PSA levels in the blood do not have a specific normal or abnormal range, and levels can fluctuate over time in the same man. Previously, most doctors considered PSA levels of 4.0 ng/mL or lower to be normal. As a result, if a man's PSA level was higher than 4.0 ng/mL, doctors would frequently recommend a prostate biopsy to determine whether prostate cancer was present. However, in general, the higher a man's PSA level, the more likely he has prostate cancer [4,5]. Furthermore, a steady rise in a man's PSA level over time may be a sign of prostate cancer.

If a man with no symptoms of prostate cancer chooses to have a PSA test and is found to have an elevated PSA level, his doctor may recommend another PSA test to confirm the original finding. If the PSA level remains high, the doctor may advise the man to continue having PSA tests and DREs at regular intervals to monitor for any changes over time. If a man's PSA level continues to rise or a suspicious lump is discovered during a DRE, the doctor may suggest additional tests to determine the nature of the problem. To rule out a urinary tract infection, a urine test may be recommended. The doctor may also suggest imaging tests such as a transrectal ultrasound, x-rays, or MRIs.

If prostate cancer is suspected, the doctor will advise a biopsy. Multiple samples of prostate tissue are collected during this procedure by inserting hollow needles into the prostate and then withdrawing them. Typically, the needles are inserted through the rectum wall (transrectal biopsy). The collected tissue is then examined under a microscope by a pathologist. During the biopsy, the doctor may use ultrasound to view the prostate, but ultrasound cannot be used to diagnose prostate cancer on its own.

Conclusion

The PSA test, when used in screening, can help detect small tumours that do not cause symptoms. Finding a small tumour, on the other hand, may not reduce a man's chances of dying from prostate cancer. Many PSA-positive tumours grow so slowly that they are unlikely to endanger a man's life. Overdiagnosis refers to the detection of non-life-threatening tumours, and overtreatment refers to the treatment of these tumours.

Overtreatment subjects men unnecessarily to the potential complications and harmful side effects of early prostate cancer treatments such as surgery and radiation therapy. Urinary incontinence (inability to control urine flow), bowel problems, erectile dysfunction (loss of erections or having erections that are insufficient for sexual intercourse), and infection are all possible side effects of these treatments.

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