

## 10-minute consultation

## High result in prostate specific antigen test

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A 52 year old man has been advised to see you after having had a prostate specific antigen test. He is worried that he may have prostate cancer, as his 75 year old father died of the disease a year ago. His company offers an annual medical examination, and he had asked for a prostate specific antigen test to be done as well as his other tests. The test result was a concentration of 5.7 ng/ml.

## What issues you should cover

Although it is common for men to be worried about prostate cancer, it is best that you explore the issues before ordering a prostate specific antigen test.

**History**—Focus on the lower urinary tract. Ask about symptoms of bladder outflow obstruction, such as hesitancy, poor flow, and post-micturition dribbling, and symptoms of irritation, such as dysuria, frequency, and urgency.

**Family history**—Between 3% and 5% of cases of prostate cancer are thought to have a genetic cause. Although no specific gene has been identified, a generally accepted definition of familial prostate cancer is a nuclear family with two cases, two first degree relatives who had a diagnosis before the age of 55 years, or prostate cancer in three successive generations.

**Interpretation of test result**—Many urologists still define the "normal" concentration of prostate specific antigen as <4 ng/ml. Concentrations tend to rise with age, even in men with benign disease, and age specific ranges have been adopted to improve cancer detection (table). The prostate specific antigen test is neither very specific nor very sensitive for prostate cancer. A high concentration of the antigen may also be due to benign prostate enlargement, any urinary tract infection, urinary retention, or urinary tract instrumentation or prostatic massage (but not a rectal examination).

**What the urologist may do**—After consultation and examination the urologist may, if there is another abnormality such as evidence of a urinary tract infection, investigate and treat this before repeating the prostate specific antigen test. If there is no other abnormality to explain the high concentration of the antigen the urologist should recommend transrectal ultrasound guided needle biopsy as a day procedure. Between 6 and 12 cores of prostate tissue are then sent for histological examination.

Normal ranges of prostate specific antigen

Age (years)	Concentration (ng/ml)
40-49	0 to 2.5
50-59	0 to 3.5
60-69	0 to 4.5
70-79	0 to 6.5

## Useful reading

Cancer Research UK Primary Care Education Research Group. *Prostate cancer risk management programme: an information pack for primary care*. [www.dphpc.ox.ac.uk/crcpcerg/resources/pcrmpack.htm](http://www.dphpc.ox.ac.uk/crcpcerg/resources/pcrmpack.htm) (accessed 9 July 2003).

Michael K Brawer, Roger Kirby. *Fast facts: prostate specific antigen*. 2nd ed. Oxford: Health Press, 1999.

US Preventive Services Task Force. Screening for prostate cancer: recommendation and rationale. *Ann Intern Med* 2002;137:915-6.

Prostate Cancer Charity. *Diagnosing prostate cancer*. <http://www.prostate-cancer.org.uk/learn/prostatecancer/diagnosis.asp> (accessed 9 July 2003)

**Chance of detecting cancer**—The probability of prostate cancer being detected on needle biopsy in a patient with an antigen concentration of between 4.0 and 9.9 ng/ml is 22%. The figure rises to 67% for concentrations above 10 ng/ml.

**Treatments**—Treatment depends on the grade and stage of the cancer as well as other factors such as the patient's general health and fitness. Options include radical prostatectomy, conformal radiotherapy or brachytherapy, hormone treatment, and active monitoring.

## What you should do

- Explore the patient's concerns and expectations. Find out how much he knows and understands about prostate cancer and prostate specific antigen.
- When examining him include the abdomen and external genitalia to exclude other conditions such as urinary retention and epididymitis, which can be associated with urinary infection.
- Do a digital rectal examination. An asymmetrical prostate, a nodule, or a hardened area are common abnormal findings. Abnormal findings of digital rectal examination have a positive predictive value of 20% for prostate cancer. Up to 12.5% of men with a prostate specific antigen concentration of <4 ng/ml and an abnormal finding on digital rectal examination are found to have prostate cancer on biopsy.
- Do a urinalysis and urine culture to exclude urinary tract infection. Treat him if the culture is positive, then repeat the prostate specific antigen test if after eight weeks his midstream urine is clear.
- Give him written information about prostate specific antigen and prostate cancer if possible.
- Refer him to a urologist.

This is part of a series of occasional articles on common problems in primary care

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