Screening for Prostate Cancer with PSA in 2016

Editorial

Volume 3 Issue 2 - 2016

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Received: April 27, 2016 | **Published:** April 28, 2016

Editorial

Thirty-five years following the discovery of prostate specific antigen or PSA we now have level 1 evidence that screening men for prostate cancer using PSA saves lives. PSA has recently come in for a lot of criticism due to its lack of complete sensitivity and specificity for detecting prostate cancer. Indeed, it is elevated by many non-cancerous conditions (increased age, increased size of prostate, urinary infection, urinary obstruction, prostate trauma and ejaculation) as well as being normal in a fifth of men with prostate cancer. However, urologists have always accepted this limitation and have used it only to identify men in whom we should take a greater interest to investigate the possibility of prostate cancer. Over the past decades there has been considerable uncertainty about the value of screening for prostate cancer but the following points constitute real game-changers in this debate and should prompt all middle-aged men to get their PSA checked.

The european randomised study of screening for prostate cancer (ERSPC).

This trial recruited 182,000 men and randomised (allocated to either group randomly) them to be screened for prostate cancer or not. Screened men had PSA tests every 2-4 years and a prostate biopsy (sampling prostate tissue using a thin, hollow needle) if their PSA exceeded 3 ng/ml. In these patients, who have now been followed up for an average of 11 years, there was a 29% lower death rate due to prostate cancer than in non-screened patients. However, in the 20,000 Swedish patients in this study who had an average follow-up of 14 years, the reduction in the prostate cancer specific death rate was 44% with a 42% reduction of rate of metastasis (distant spread). The number of patients necessary to treat (NNT) to save one life from prostate cancer in this group was 12, which compares very favorably to the NNT for cancers that we already screen for: breast cancer (18); bowel cancer (29) and cervical cancer (10).

The prostate lung colorectal & ovarian cancer screening (PLCO) study has been discredited.

This smaller American study, whose results are routinely used to counter the evidence from the ERSPC, found 17% more cancers in screened men but no survival advantage. However, the study has since been discredited and it was heavily contaminated (44% of men in it had already had their PSA checked, so many prostate cancers had already been removed from this population) and there was poor adherence to randomised groups: 15% of men allocated to have their PSA checked didn't attend for the test, 52% of men allocated to no PSA testing continued to have their PSA checked and only 31% of patients with a PSA over 4 ng/ml had a prostate biopsy.

Active surveillance (AS) is now the default option for men with low-risk prostate cancer.

Evidence from several studies on both sides of the Atlantic now confirm that low-risk prostate cancers (PSA less than 10 ng/ml, Gleason grade of 6 and cancer limited to only one side of the prostate) usually grow slowly and are safe to monitor, only intervening if surveillance tests show progression of the cancer. For instance, a study of 450 men with low-risk prostate cancer on AS that was published in 2010 showed that the men in the study were almost 19x more likely to die of a cause unrelated to prostate cancer, which was the cause of death of only 2.8% of men seven years after starting AS.

Prostate biopsy is no longer the first investigation for men with a raised PSA in many units.

Many urologists now request a multiparametric MRI scan as the first investigation of a man with a raised PSA. This allows men with a normal scan to be monitored, if other tests concur that this is a sensible plan, knowing that MRI scanning, which has a negative predictive value of 80-90% will detect most biologically significant prostate cancers. Men with an abnormal scan can have the abnormality specifically targeted, increasing the sensitivity of prostate biopsy.

Prostate biopsy has been improved.

Transrectal prostate biopsy has given way to MRI-targeted transperineal template biopsy under general anaesthetic, typically in a day surgery setting, in many forward-thinking urology departments. In addition to enhancing the prostate cancer detection rate this technique is also safer in that it reduces the risk of biopsy-related infections and by doing this should discourages the growing and concerning emergence of antibiotic-resistant strains of coliform bacteria colonizing rectums around the world.

A PSA level before the age of 50 accurately predicts the future risk of prostate cancer.

Several studies have shown that a baseline PSA test before the age of 50 is a stronger predictor of prostate cancer risk than race or family history. This information could be used to guide the frequency of future PSA testing: 'adaptive' screening. A man aged 45 with a PSA level of less than 1 ng/ml would be advised that his next PSA test should be done in 5 years' time, whereas a similar man with a PSA of 1.5 ng/ml would be advised to have it re-checked in a year.

Key points

i. Screening for prostate cancer using the PSA blood test saves lives.

ii. Not all prostate cancers need treatment.

iii. Not all men with a raised PSA need a prostate biopsy thanks to MRI scanning.

iv. Prostate biopsy is now more accurate, safer and more comfortable for patients.

v. As a man, having your PSA checked before the age of 50 accurately predicts your future risk of developing prostate cancer.

Citation: Eden C (2016) Screening for Prostate Cancer with PSA in 2016. Urol Nephrol Open Access J 3(2): 00076. DOI: 10.15406/unoaj.2016.03.00076