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Prostate cancer At-home saliva test for prostate cancer better than blood test, study suggests

Researchers say 'relatively simple, inexpensive' means of assessing genetic risk offers hope of better screening

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An at-home spit test appears to perform better at predicting prostate cancer risk than the current frontline test, a study suggests.

The test assesses 130 genetic variants to provide a risk score for prostate cancer, which is the second most common cause of cancer deaths in men in the UK.

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This so-called polygenic risk score was found to be a more powerful predictor of aggressive prostate cancer than the standard blood test used in the <u>NHS</u>, which measures levels of a protein called prostate-specific antigen (PSA).

Prof Ros Eeles, who led the research at the Institute of Cancer Research, London, said: "With this test, it could be possible to turn the tide on prostate cancer. We have shown that a relatively simple, inexpensive spit test to identify men of European heritage at higher risk due to their genetic makeup is an effective tool to catch prostate cancer early."

Since carrying out the trial, called Barcode 1, the team has developed an updated version of the test based on more recently identified risk variants for men of Asian and African ancestry and are assessing this in a new study.

Routine PSA testing is not currently offered on the NHS but patients may be offered a PSA test if a GP suspects they have prostate cancer. Men over the age of 50 can ask their GP for a PSA test, even if they do not have symptoms. Men with a high PSA result will be sent for further tests, such as an MRI scan and biopsy, to detect cancer.

Chris Hoy, who has been diagnosed with terminal cancer, has called for the tests to be made available to younger men with a family history of the disease and to black men, who are twice as likely to be diagnosed as white men. This week, the health secretary, Wes Streeting, suggested that he would support a screening programme for men at higher risk if it were backed by the evidence. Recent studies have concluded that universal screening would not greatly help prevent deaths and would be very likely to lead to unnecessary treatment.

The problem is that PSA tests falsely indicate prostate cancer in men three out of four times, and can detect cancers that grow so slowly they are unlikely to ever be life-threatening – meaning that men may undergo unnecessary MRI scans, invasive biopsies and treatments whose side effects can include urinary incontinence and sexual dysfunction.

The latest study, published in the New England Journal of Medicine, calculated the polygenic risk score (PRS) of more than 6,000 men of white European heritage recruited from their GP surgeries, aged between 55 and 69 years old - the period of life at which risk of prostate cancer is increased. The men with the highest 10% of risk scores, based on 130 gene variants linked to prostate cancer, were invited to further testing. After an MRI and prostate biopsy, 40% of these men were diagnosed with prostate cancer. By contrast, 25% of men with a high PSA level will actually have prostate cancer.

The PRS saliva test also identified a higher proportion of aggressive cancers. Of the 187 cancers detected, 55.1% were aggressive cancers, compared with 35.5% identified by a

PSA test, in a recent study.

The polygenic test, if used in combination with existing methods, could help doctors more precisely identify men who would benefit from more aggressive treatments and could tip the balance in favour of screening those at greatest genetic risk. However, the team behind the work said it would be necessary to track outcomes to assess the risk-benefit trade-offs.

"We can identify men at risk of aggressive cancers who need further tests and spare the men who are at lower risk from unnecessary treatments," said Eeles, who is also a consultant in clinical oncology and cancer genetics at the Royal Marsden NHS foundation trust.

Prof Kristian Helin, the chief executive of the Institute of Cancer Research, London, said: "The current PSA test often leads to unnecessary treatments and, more worryingly, fails to detect some cancers. There is an urgent need for a better screening test. This research represents a promising advancement towards that goal and underscores the life-saving potential of genetic testing."

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