

Combination of blood test and imaging improves detection of prostate cancer

July 10 2018

New research from Karolinska Institutet shows that the blood test Stockholm3 together with magnetic resonance imaging and targeted prostate biopsies may lead to a significant decrease in the number of biopsy procedures and diagnoses of harmless disease. The study is published in *European Urology*.

The study compares traditional detection of [prostate cancer](#) with a novel practice using a blood [test](#), the Stockholm3 test, in combination with [magnetic resonance imaging](#) (MRI) and targeted [prostate biopsies](#).

More men get a correct diagnosis and treatment

The results show that the suggested diagnostic strategy decreased the number of [biopsy](#) procedures with 38 per cent and the number of men getting a diagnose with harmless disease by 42 per cent. At the same time, the number of men diagnosed with potentially harmful cancer increased with 10 per cent. The study was performed in collaboration with Swedish (Stockholm) and Norwegian (Oslo, Tönsberg) urology practices and includes 532 men.

"We show that a combination of the Stockholm3 test and targeted [prostate](#) biopsies might increase the number of men with potentially dangerous disease that get a diagnosis. At the same time, we can spare many men from unnecessary prostate biopsies. This means that more men get a correct diagnosis and treatment, and that we can decrease

unnecessary discomfort and risks, says Tobias Nordström, researcher at the Department of Medical Epidemiology and Biostatistics, Karolinska Institutet and urologist at Danderyd Hospital.

Need for improved diagnosis

In the European Union, prostate cancer is the most frequently diagnosed cancer among men, with around 365,000 new cases yearly and 77,000 men dying from prostate cancer. Current practice includes a so called PSA test and systematic prostate biopsies where 10-12 samples are taken from the prostate. The PSA test has been controversial because it only poorly differentiates between lethal and harmless prostate cancer.

The Stockholm3 test is an alternative test method that combines five biomarkers, over 100 genetic markers and clinical data such as age, previous biopsies and family history of prostate cancer to better assess the risk of potentially harmful prostate cancer.

"The current study confirms our previous findings showing the value of the Stockholm3 test as part of the diagnosis of prostate [cancer](#). Studies of this type have been requested by the National Board of Health and Welfare in Sweden," says Tobias Nordström.

The research was funded by the Swedish Cancer Society, the Swedish Research Council, the Swedish Research Council for Health, Working Life and Welfare, The Strategic Research Programme in Cancer at Karolinska Institutet (StratCan), Karolinska Institutet och The Swedish e-Science Research Centre (SeRC).

The Stockholm3 test was developed by researchers at Karolinska Institutet in collaboration with Thermo Fisher Scientific. Professor Henrik Grönberg, lead author of this study, has patent applications for the Stockholm3 test licensed to Thermo Fisher Scientific, and might

receive royalties from sales related to these patents. Co-author Martin Eklund is named on some of these patent applications.

More information: Henrik Grönberg et al. Prostate Cancer Diagnostics Using a Combination of the Stockholm3 Blood Test and Multiparametric Magnetic Resonance Imaging, *European Urology* (2018). [DOI: 10.1016/j.eururo.2018.06.022](https://doi.org/10.1016/j.eururo.2018.06.022)

Provided by Karolinska Institutet

Citation: Combination of blood test and imaging improves detection of prostate cancer (2018, July 10) retrieved 2 May 2024 from <https://medicalxpress.com/news/2018-07-combination-blood-imaging-prostate-cancer.html>

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