PSA testing, combined with other relevant patient data can reduce unnecessary prostate biopsies

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Prostate cancer screening that combines an adjusted blood test with other factors including the size of the gland, the patient's overall weight and family history, can help up to one-quarter of men avoid biopsies and the risks associated with them, a Beth Israel Deaconess Medical Center-led research team says.

Writing in a study published online by the journal *Cancer*, the team led by Martin G. Sanda, MD, Director of the Prostate Center at Beth Israel Deaconess Medical Center and Professor of Urology at Harvard Medical School, suggests that instead of using "one-size-fits-all" levels of PSA to determine who should have a biopsy, considering other factors such as prostate size can substantially improve the ability of PSA testing to identify aggressive prostate cancers for which treatment is warranted, while avoiding detection of indolent cancers that are better undiagnosed because they do not require treatment.

A second study led by Sanda, and published online in the journal Urologic Oncology, suggests the presence or absence of genes commonly found in the urine of men, when combined with a PSA test, can also be used to determine whether a biopsy is necessary.

The new suggested approaches come as the United States Preventive Services Task Force expert panel concluded that current PSA-based prostate cancer screening saves few or no lives, but causes harm through

treatment or further invasive testing such as biopsies.

That's because prostate cancers can vary in aggressiveness and more men die of other causes aside from that cancer – and because the PSA test alone cannot determine how dangerous any particular cancer may be.

"The US Preventative Services Task Force threw the baby out with the bathwater by their blanket recommendation against prostate cancer screening," says Sanda, noting that PSA screening can instead be refined to more selectively identify only aggressive cancer for which treatment is indicated by adjusting PSA results for other considerations such as family history, obesity, and prostate size.

Results from the multi-center study that suggest that PSAD levels of less than 0.1 – in contrast to the unadjusted level of between 2.5 and 4 – can be a better benchmark of a potential cancer. The density, determined by a digital rectal exam, enables physicians to take into account other factors like benign prostatic hyperplasia, an enlargement of the gland that affects all men as they age.

Combining the PSAD with the digital exam, a look at the patient's family history and a body mass index of 25 of less – the calculation used to define obesity – would avoid biopsy in approximately one-quarter of biopsy-eligible men, the researchers found.

"Urological practice, patient outcome and cost-effectiveness of health care would each benefit from new targeted strategies, such as nomograms (a predictive tool) that improve prediction of aggressive cancers, to enable selective identification of candidate for prostate biopsy that would improve the yield of clinically significant, histologically aggressive cancers warranting subsequent definitive treatment," researchers wrote.

In a separate multicenter study published in Urologic Oncology, researchers said a test looking for two specific genetic biomarkers – TMPRSS2:ERG and PCA3 – taken after a digital rectal exam, could help limit biopsies to men who possess both genes and whose PSA readings range between 2 and 10, potentially sparing one-third of men from biopsies.

"Urine testing for prostate cancer is in its infancy," says Sanda, noting next steps are underway as a result of study funded by a $3.1 million grant from the National Institutes of Health , that is evaluating new urine and blood test for prostate cancer in more 2,400 men over the next five years with a goal of improving upon the problems of over-diagnosis and over-treatment.

A focal point of the proposed work involves a community outreach effort led by BIDMC primary care physician J. Jacques Carter, MD, MPH, Medical Director of the Dana Farber Cancer Institute Prostate Cancer Screening and Education Program and an Assistant Professor of Medicine at Harvard Medical School. A key component of this study will be African-American men, who appear to develop prostate cancer more frequently, and who are at increased risk of dying from prostate cancer.

Provided by Beth Israel Deaconess Medical Center