

Noninvasive Test Shows Promise in Early Bladder Cancer Diagnosis

A new tool may help diagnose bladder cancer earlier in people with blood in their urine and reduce unnecessary procedure costs.

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Bladder cancer is the sixth most common cancer in the world and, when [detected early](#), has a five-year [survival](#) rate of over 80%. This rate significantly declines as the cancer progresses to advanced stages. A noninvasive way to diagnose bladder cancer early could be a game changer—and a lifesaver. A study published in the [Journal of Molecular Diagnostics](#) reports on a promising new diagnostic tool that may do exactly that.

Using a urine sample, the test detects the biomarker aberrant PENK methylation (mePENK), which is associated with bladder cancer. The test could reduce the number of invasive cystoscopies (cystoscopies involve inserting a camera into the bladder via the urethra for examination) currently performed to diagnose the cancer.

One of the most common symptoms of [bladder cancer](#) is hematuria, or [blood](#) in the urine. In fact, hematuria is seen in about 85% of bladder cancer patients—it also accounts for up to 20% of all urological visits—according to a [press release from Elsevier](#), which spearheads scientific research including development of this test. But hematuria is not uncommon among adults and may have other causes.

This new diagnostic tool would be used to detect bladder cancer in people who notice blood in their urine.

Lead study investigators Sungwhan An, PhD, and Ju Hyun Shin, MD, note that early diagnosis in bladder cancer is critical and can increase patient survival rates and reduce health care costs.

“Current guidelines recommend cystoscopy and imaging examinations for almost all patients presenting with hematuria for initial diagnosis of bladder cancer, but it is invasive, inconvenient, economically burdensome for patient, and frequently fails to detect early-stage bladder cancer,” An and Shin said in the news release. “There is therefore an urgent need for a sensitive and precise technique to diagnose early bladder cancer effectively among patients with hematuria.”

In two independent studies, the detection of mePENK was found to be effective in diagnosing

bladder cancer in patients with hematuria. What's more, the test was successful in detecting high-grade and advanced-stage bladder cancer.

Specifically, when researchers compared the results of the urine test with those of cystoscopy findings involving 366 patients, the scientists found that "overall sensitivity of the test in detecting 38 cases of bladder cancer at all stages was 84.2%, while the specificity reached 95.7%. Notably, the test demonstrated a sensitivity of 92.3% in detecting high-grade and advanced-stage bladder cancer."

The study "showcases a breakthrough in diagnosing bladder cancer through a simple and effective diagnostic test that eliminates the need for unnecessary cystoscopy procedures," An said. "The results demonstrate high sensitivity and accuracy in detecting bladder cancer... The test has the potential to significantly reduce bladder cancer-related deaths and medical expenses."

The next steps in the process include implementing the test in larger-scale clinical trials.

For more information, click [#Bladder Cancer](#) or read Cancer Health's [Resources for Bladder Cancer](#).