

Gene test shows which bladder cancer patients may have cancer spread

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Cancer scientists have designed the first molecular test to predict which bladder cancer patients may have cancer involvement in their lymph nodes at the time of surgery—which could help doctors determine which patients are good candidates for pre-surgical, or neo-adjuvant, chemotherapy.

The test analyzes 20 genes on tumor biopsies, according to a paper published online Jan. 20, 2011, in *Lancet Oncology*.

"Randomized clinical trials have shown that giving neo-adjuvant chemotherapy extends patient lives, but only 5 to 15 percent of patients benefit," says urologic surgeon Dan Theodorescu, MD, PhD, director of the University of Colorado Cancer Center and lead author of the study. "Patients who have cancer in the lymph nodes at time of diagnosis are likely to benefit the most."

The study analyzed patient tumor samples from the United States, Canada and Germany. It was funded by the National Cancer Institute.

"Today, only about 2 percent of people with invasive bladder cancer have pre-surgical chemotherapy because it's quite difficult to get through and there is fear of delaying surgery," Theodorescu says. "We need a better way to predict who will benefit, and that's what this test does by identifying patients with a high likelihood of lymph node involvement before surgery."

By the time a third of people are diagnosed, bladder cancer has invaded from the bladder lining into the bladder muscle. Gold-standard treatment includes surgical removal of the bladder and the surrounding lymph nodes; some people also undergo radiation treatment. Even with these treatments, the cancer will recur and spread in about half the people—which is almost always fatal.

[Bladder cancer](#) is diagnosed during a procedure called a transurethral resection—essentially a biopsy of the bladder. Using the new test, pathologists can determine the levels for the 20 genes in the diagnostic tissue sample and indicate whether the patient has cancer in the [lymph nodes](#).

"We validated the test's ability to predict lymph node spread of the cancer in a large sample of patients from a randomized trial," said Theodorescu. "The predictive ability held up. If this new test is used to guide neo-adjuvant chemotherapy, we hope it will both help people with positive nodes live longer and keep people with negative nodes from being overtreated."

A clinical trial of using the test as a treatment guide is being planned.

Provided by University of Colorado Denver

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