

Smoking intensity and cancer markers predict seriousness of bladder cancer

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it also affects its course, in that people who smoke more have greater likelihood of developing more aggressive and deadly disease. That is one of the conclusions of a new study published early online in *Cancer*, a peer-reviewed journal of the American Cancer Society. The study also found that a panel of bladder cancer markers can predict which particular cases are at the highest risk for a fatal outcome.

Researchers have known that smoking is one of the most common causes of bladder cancer, but they've wondered whether it also affects how the disease progresses. To investigate, Richard J. Cote, MD, of the University of Miami Miller School of Medicine, and Anirban Mitra, MD, PhD, of the Keck School of Medicine of the University of Southern California, led a team that analyzed bladder tumors and smoking history in 212 multi-ethnic patients recruited through the Los Angeles County Cancer Surveillance Program between 1987 and 1996.

The researchers found that the bladder cancers that developed in individuals who smoked intensely were more likely to be deadly than bladder cancers that developed in those who never smoked, or who smoked less. The study also revealed that changes in particular proteins are often present in bladder cancers that have become deadly. "We have identified a panel of nine molecular markers that can robustly and reproducibly predict bladder cancer prognosis independent of standard clinical criteria and smoking history," said Dr. Mitra. Patients with alterations in six to nine markers had a very poor outcome, raising the hypothesis that these individuals could have benefited from more

[aggressive treatments.](#)

Because the number of changes in these proteins was directly proportional to patients' health outcomes in a progressive fashion, the findings confirm the theory that an accumulation of changes is more important than individual changes in determining the characteristics of a given cancer. The link between smoking intensity and prognosis found in this study points to the incrementally harmful effects of [smoking](#).

"The study's findings are extremely clinically relevant as [bladder cancer](#) is one of the most expensive malignancies to treat," said Dr. Cote, who is Director of the Genitourinary Malignancies Program at University of Miami's Sylvester Comprehensive Cancer Center. "Personalized patient management is urgently needed for this disease as current clinical stratification cannot predict outcomes of individual patients."

More information: "Combination of molecular alterations and smoking intensity predicts bladder cancer outcome: a report from the Los Angeles cancer surveillance program." Anirban P. Mitra, Jose E. Castelao, Debra Hawes, Denice D. Tsao-Wei, Xuejuan Jiang, Shan-Rong Shi, Ram H. Datar, Eila C. Skinner, John P. Stein, Susan Groshen, Mimi C. Yu, Ronald K. Ross, Donald G. Skinner, Victoria K. Cortessis, and Richard J. Cote. CANCER; Published Online: January 14, 2013 ([DOI: 10.1002/cncr.27763](#)).

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