

## Why bladder cancer is deadlier for some

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Bladder cancer is much more likely to be deadly for women and African-Americans, but the reasons long believed to explain the phenomenon account for only part of the differences for such patients compared to their white and male counterparts, according to results published in the Jan. 1 issue of the journal *Cancer*.

The results present a stark question for doctors and patients: If age, tumor type, and stage of the disease upon diagnosis don't account for all the increased lethality of the disease in women and African-Americans, then what does?

It's a gaping question facing researchers who have long confronted an irony of bladder cancer, the fifth-most-common type of cancer in America. The disease is more lethal in those patients who are less likely to get it.

Men are more than three times as likely as women to get the disease, and white people are nearly twice as likely to get the disease as African-Americans. Yet, once the disease is present, it's far deadlier in women and in African-Americans - anywhere from 73 percent to 114 percent more deadly in the first year after diagnosis, depending on the group.

In the *Cancer* paper, scientists and physicians at the University of Rochester Medical Center show for the first time that the factors traditionally thought to be responsible for the differing course are responsible for only about one-third of the difference between white men and women, and up to two-thirds of the difference between African-

Americans and their white counterparts.

"We've known that the disease is likely to be more advanced in women and African-Americans by the time they're diagnosed," said corresponding author Edward Messing, M.D., a surgeon well known for his expertise in treating patients with bladder cancer. "Like many doctors, I long assumed that the delay in diagnosis was the reason why the disease is more deadly for these patients.

"I was surprised to find that recognized factors like a delay in diagnosis explain only part of the difference. There are clearly other important factors at work that make these patients more likely to die from the disease. There could be something different about the cancer itself, or there could be differences in the ways these groups are treated," said Messing, who is professor of Urology and Oncology as well as leader of the Prostate Cancer and Genitourinary Oncology team at the James P. Wilmot Cancer Center.

To do the study, scientists analyzed the records of more than 100,000 patients who were diagnosed with bladder cancer from 1990 to 2003. Their records are part of a national cancer registry known as SEER (Surveillance, Epidemiology, and End Results). The 101,249 patients came from 16 different regions: Atlanta, rural Georgia, Connecticut, Detroit, Seattle, Hawaii, Iowa, New Mexico, San Francisco, Los Angeles, San Jose, rural California, Kentucky, Louisiana, New Jersey, and Utah.

The statistical analysis was done by first author Emil Scosyrev, a graduate student in epidemiology; Katia Noyes, Ph.D., associate professor of Community and Preventive Medicine; and Changyong Feng, Ph.D., assistant professor of Computational Biology and Biostatistics. The work was funded by the Ashley Family Foundation.

The team found that in the first year after diagnosis, women were anywhere from about 80 percent to 114 percent more likely to die from the disease than their male counterparts. That increase was a bit lower in year two, when women were about 52 to 55 percent more likely to die.

When it came to race, the researchers found that African-Americans were about 73 percent to 103 percent more likely than their white counterparts to die from the disease within the first two years after diagnosis, and about 40 percent to 117 percent more likely to die three or four years after diagnosis.

Then the team sifted through the data to try to uncover the reasons behind these differences. The team found that the factors traditionally thought to be responsible for the differences - stage of the disease upon diagnosis, tumor type, and age - accounted for only about 30 percent of the difference between the genders among white people, and about 50 to 70 percent of the differences between the races and between the genders among African-Americans.

"The current study by Scosyrev et al elegantly demonstrates that, even after controlling for tumor characteristics, inferior outcomes remain for African-American patients and women," write physicians Mark Katz, M.D., and Gary Steinberg, M.D., of the University of Chicago Medical Center in an editorial accompanying the findings.

The authors speculate about other factors that might be responsible for the differences, though they say that further study is necessary to know for sure. Some of the other issues that might play a role include the choice of treatment chosen, differences among tumors that were not taken into account in the study, and access to health care.

Messing believes that poorer access to health care is a clear cause of the higher mortality rates for African-Americans. He says African-

American patients and their doctors need to be aware of the increased chance of death for these patients, who should be treated as aggressively as possible.

When it comes to gender, some of the differences are likely caused by factors that are not currently understood, such as hormonal differences, says Messing. But a factor that is known to play a key role is people's reaction when they see blood in their urine. Men are more likely than women to notice blood in their urine, to think it's abnormal, and to report it to doctors - and even then, when it is reported, doctors are 65 percent more likely to refer men than women to urologists.

The authors say that women who find blood in their urine need to be vigilant about having the cause checked as quickly as possible. In women with bladder cancer, sometimes treatment is delayed while doctors investigate other potential causes of blood in the urine. While that is often a sign of a urinary tract infection or something other than cancer, Messing says it's crucial for doctors to consider bladder cancer as a potential cause right from the start.

"People need to be especially vigilant about blood in the urine," said Messing. "Be sure to report it to your doctor, and be sure the doctor investigates the cause thoroughly."

The American Cancer Society estimates that in 2007, 67,000 people in the United States were newly diagnosed with bladder cancer, and 13,700 patients died of the disease.

Source: University of Rochester

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