

## Study suggests adjusting PSA scores for obese men or cancers may be missed

November 20 2007

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Doctors may be missing cancers in obese men because the telltale blood marker used to detect the disease can be falsely interpreted as low in this population, according to a new study led by Duke Prostate Center researchers.

“Obese men have more blood circulating throughout their bodies than normal weight men, and as a result, the concentration of prostate-specific antigen, or PSA, in the blood -- the gold standard for detecting prostate cancer -- can become diluted,” said Stephen Freedland, M.D., a Duke urologist and senior researcher on a study appearing in the November 21, 2007 issue of the Journal of the American Medical Association.

“We’ve known for a while that obese men tend to have lower PSA scores than normal weight men, but our study really proposes a reason why this happens, and points to the need for an adjustment in the way we interpret PSA scores that will take body weight into account. If not, we may be missing a large number of cancers each year.”

The study was funded by the Department of Veterans Affairs, the Duke Department of Surgery and Division of Urology, the Department of Defense Prostate Cancer Research Program, the American Urological Association Foundation, the Georgia Cancer Coalition, and the National Institutes of Health.

Researchers compared the medical records of almost 14,000 patients

who had undergone radical prostatectomy surgery for the treatment of prostate cancer between 1988 and 2006 at Johns Hopkins, Duke, or at one of five Veterans Affairs hospitals making up the Shared Equal Access Regional Cancer Hospital (SEARCH) cohort. They analyzed the relationship between body mass index -- which is a measure of obesity -- and PSA concentration levels, while also examining the blood volume in the patients' bodies and the total amount of PSA protein found in the blood, known as PSA mass, Freedland said.

“We found that a higher body mass index directly correlated with higher blood volume and lower PSA concentrations,” said Lionel Bañez, M.D., a prostate cancer researcher in the Duke Prostate Center and lead author on the publication. “Men in the most obese group had PSA concentrations that were 11 to 21 percent lower than those of normal weight men.”

In this study, PSA mass across all groups was comparable despite differences in body weight, leading the researchers to believe that the larger blood volume is responsible for lowering the concentration of PSA, which is what doctors typically measure when looking for prostate cancer, Freedland said.

“It’s as if you dissolve a tablet in a cup of water versus a tub of water,” he said. “The concentration of the drug in the cup will be much higher than that in the tub, even though the amount is the same.”

These findings are very important because of the sheer number of people they affect, Freedland said.

“One in three Americans is obese, and it’s not just the very large people that you think of who fall into this category,” he said. A man who is 5’11” and weighs 215 pounds is considered obese.

"Our study shows yet another potentially serious consequence of this country's growing epidemic of obesity," said Carmen Rodriguez, MD, an American Cancer Society epidemiologist and co-author of the study.

"Previous studies have linked obesity to more aggressive prostate cancers. Our finding that prostate cancer may also be more difficult to detect in this population generates a dangerous 'one-two punch' for men who are overweight or obese."

If their prostate cancers are being detected later because of the dilution of PSA, this may help, in part, to explain why obese men tend to have more aggressive cancers, Freedland said.

Source: Duke University Medical Center

Citation: Study suggests adjusting PSA scores for obese men or cancers may be missed (2007, November 20) retrieved 2 May 2024 from <https://medicalxpress.com/news/2007-11-adjusting-psa-scores-obese-men.html>

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