Men at 'high' skeletal risk prior to prostate cancer hormone therapy likely to have more fractures after treatment

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In what is believed to be the first study to describe the impact on men with a 'high' risk of bone fracture who are receiving long-term androgen deprivation therapy (ADT) for prostate cancer, new research from The Cancer Institute of New Jersey shows this population to have a higher fracture incidence following treatment completion. The findings, published in the latest online version of *BJU International*, also show that men who experienced a fracture had a 1.38-fold higher mortality risk than those who did not. The Cancer Institute of New Jersey is a Center of Excellence of the University of Medicine and Dentistry of New Jersey-Robert Wood Johnson Medical School (RWJMS).

Men with localized prostate cancer who have underlying health conditions often receive this type of therapy with the hope to shrink or delay growth of their cancer, because they are considered inappropriate candidates for more aggressive therapies such as surgery or radiation. Previous studies have shown an association between the receipt of ADT for prostate cancer and an increased risk of bone fracture and other skeletal complications, such as a decrease in bone mineral density. The investigators at The Cancer Institute of New Jersey further explored the impact of this treatment on men already deemed to be at high risk for fracture prior to receiving therapy.

Using the population-based Surveillance, Epidemiology, and End Results (SEER)-Medicare linked database, researchers reviewed information on

demographics and tumor characteristics from 75,994 men aged 66 and older who were diagnosed as having localized prostate cancer from 1992 to 2007. All of the SEER registries hold the highest level of certification of data quality. A risk assessment scale for baseline skeletal complications - including fracture - was created, utilizing the presence of certain conditions within one year prior to cancer diagnosis. These conditions included diabetes, alcohol and cigarette use, paralysis, and liver disease.

Investigators found that during a 12-year follow up, more than 58 percent of men deemed at high fracture risk prior to treatment and 38 percent considered at low risk developed at least one fracture following ADT. The research also showed that men with a high baseline risk had a higher probability of receiving ADT (52.1 percent) compared to those with a low baseline risk (38.2 percent). It was also determined that those men receiving ADT by itself were likely to have a stronger dose than those who received ADT in combination with other treatments for their prostate cancer. Mortality risk was found to be 40 percent higher within two years after experiencing a fracture.

"Our findings suggest that treating men having a high baseline risk of fracture with long-term androgen deprivation therapy may have serious adverse consequences," said senior author Grace Lu-Yao, PhD, MPH, cancer epidemiologist at The Cancer Institute of New Jersey and professor of medicine at Robert Wood Johnson Medical School and of epidemiology at UMDNJ-School of Public Health. "We anticipate the results of this study will prompt further examination of a patient's baseline-risk of fracture and skeletal complications prior to administering this course of therapy."

The authors note the use of bisphosphonates, which are effective in preventing bone loss in patients with prostate cancer receiving ADT, was not available in the SEER-Medicare linked data. Information regarding a

patient's height and weight, which can be considered risk factors for skeletal complications, also was not available. Data on men younger than 66 were not examined. Despite these limitations, Dr. Lu-Yao, says their investigation shines new light on a large subset of men who commonly receive ADT.

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