Men with coronary artery disease-induced congestive heart failure or heart attack who receive hormone therapy before or along with radiation therapy for treatment of prostate cancer have an associated increased risk of death, according to a study in the August 26 issue of *JAMA*.

Patients with localized prostate cancer have several options available for treatment. These options include brachytherapy, in which radioactive seeds are implanted in the prostate. Brachytherapy can be given either as monotherapy or with external beam radiation therapy before or after.

For men with large prostates who selected brachytherapy, hormonal therapy may be used in order to shrink the prostate and eliminate the special problem of pubic arch interference.This upfront, temporary use of hormonal therapy (HT) as an aid to primary therapy is called"neoadjuvant".

Previous research, the authors of this JAMA study write, has suggested that "hormonal therapy when added to radiation therapy (RT) for treating higher-risk prostate cancer leads to an increase in survival except possibly in men with moderate to severe comorbidities [co-existing illnesses]." However, it was unknown which if any co-existing illnesses might reduce the survival benefit from adding hormone therapy to radiation therapy.

Akash Nanda, M.D., Ph.D., of Brigham & Women’s Hospital–Dana-Farber Cancer Institute, Boston, and colleagues assessed whether neoadjuvant HT use in men with prostate cancer treated with brachytherapy affects the risk of all-cause death of men with known coronary artery disease–induced conditions, including congestive heart failure and heart attack.

The study included 5,077 men (median [midpoint] age, 69.5 years) with localized or locally advanced prostate cancer who were treated with or without a median of 4 months of neoadjuvant HT followed by RT between 1997 and 2006 and were followed up until July 2008.

During the study period, 419 men died. Of those, 200 had no underlying comorbidity, 176 had one coronary artery disease risk factor, and 43 had a history of known coronary artery disease resulting in congestive heart failure or heart attack.

The researchers analysed the data by comparing men with no co-exisiting illnesses with men who did have a heart condition.

They found:

- For men with no comorbidity who were followed up for median 5 years, hormonal therapy was not associated with an increased risk of all-cause mortality (9.6 percent vs. 6.7 percent).
- For men with a single coronary artery disease risk factor, after median follow-ups of 4.4 years, risk was not increased (10.7 percent vs. 7.0 percent) respectively.
- However, for men with coronary artery disease–induced congestive heart failure or heart attack, after a median follow-up of 5.1 years, **neoadjuvant HT use was associated with nearly twice the risk of all-cause mortality (26.3 percent vs. 11.2 percent).**

“It is also important to note that the population of men in whom the use of neoadjuvant HT may be detrimental was limited to 5 percent (256 of 5,077) in this community-based study cohort," the authors write. "This latter point may explain why there has been a survival benefit observed in the major randomized trials comparing HT plus external beam radiation therapy to external beam radiation therapy alone.”

“The clinical significance of this finding is that for men with favorable-risk prostate cancer and a history of congestive heart failure or myocardial infarction who require neoadjuvant HT solely to eliminate pubic arch interference, alternative strategies such as active surveillance or treatment with external beam radiation therapy or prostatectomy should be considered, " they conclude. "However, for men with unfavorable–risk prostate cancer who require HT in addition to radiation therapy to take advantage of its survival benefit, appropriate medical evaluation prior to initiation should facilitate clinicians in balancing the relative risks against the benefits of HT use.”

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