

Another potential mechanism links androgen deprivation therapy to cardiovascular mortality

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Prostate cancer is the most common cancer in men in the US. As the prostate is a testosterone-responsive gland, androgen deprivation therapy (ADT) is the cornerstone of treatment in these men, with approximately 50 percent of prostate cancer patients starting ADT within a year of diagnosis. This therapy works by suppressing testosterone production, which in turn slows the growth of the cancer. Although ADT results in improved survival in a subset of these patients, it has many side effects, including increased risk of cardiovascular disease and sudden death. The mechanisms by which ADT may lead to an increased risk of sudden death were unclear. Now, a team of researchers from BWH has shed some light on this issue and their findings are published in the *Journal of the Endocrine Society*.

"We showed that ADT results in electrophysiological changes in the heart," said first author Thiago Gagliano-Jucá, MD, Ph.D., a research fellow in the Section on Men's Health at BWH. "The time it takes for these cells to be able to contract again after each beat increased following ADT, and prolongation of this time is a known risk factor of ventricular arrhythmias. We are trying to piece together how ADT might be resulting in sudden deaths in some men".

Testosterone is known to shorten the time necessary for the cardiac cells (cardiomyocytes) to be able to contract again after a previous contraction. Reduced testosterone levels as a result of ADT prolongs this

time, which is known as the QTc interval on the electrocardiogram. This prospective study of over 70 men found that men receiving ADT experience a prolongation of their QTc interval duration compared with those men with [prostate cancer](#) who were not receiving ADT. QTc prolongation is well established to be associated with a higher risk of arrhythmia, suggesting that the prolongation of the QTc interval during ADT might be the mechanism behind some of these cardiac events.

"Oncologists should monitor QTc interval in [patients](#) receiving ADT, especially those patients who are taking medications that also prolong QTc interval" said Gagliano-Jucá.

More information: Thiago Gagliano-Jucá et al, Androgen Deprivation Therapy Is Associated With Prolongation of QTc Interval in Men With Prostate Cancer, *Journal of the Endocrine Society* (2018). [DOI: 10.1210/js.2018-00039](#)

Provided by Brigham and Women's Hospital

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