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The Endocrine Society

# Popular prostate cancer treatment associated with bone decay

## 'Virtual bone biopsies' may help identify men at risk for fractures

Chevy Chase, MD—Using novel technology allowing "virtual bone biopsies" researchers have found that a common treatment for prostate cancer called androgen deprivation therapy (ADT) is associated with structural decay of cortical and trabecular bone. The study has been accepted for publication in The Endocrine Society's *Journal of Clinical Endocrinology & Metabolism* (JCEM).

Prostate cancer is the second most common cancer in men worldwide and estimates suggest there are currently 600,000 men in the United States with the condition who are being treated with ADT. Prostate cancer relies upon male hormones for its growth and ADT is a common treatment because it suppresses or blocks the production or action of male sex hormones. This is the first study to examine changes in bone structure during ADT.

"We used a new technology that allows us to assess bone microarchitecture and we found ADT is associated with structural decay of corticol (hard outer shell) and trabecular (spongy inner mesh) bone," said Emma Hamilton, MBBS and Mathis Grossmann, MD, PhD, of the University of Melbourne in Australia and lead authors of the study. "This technology may be a useful test in predicting fractures in patients, but further research is needed in identifying individuals at greatest fracture risk as well as optimal therapeutic strategies."

In this study, researchers conducted a 12 month prospective observational study of 26 men with prostate cancer who began ADT. At several points during the study, measurements were taken for sex steroid levels, bone turnover markers and bone mineral density. Furthermore, researchers used three-dimensional high resolution peripheral quantitative computed tomography (HR-pQCT) to assess bone

microarchitecture. This technology allows researchers to take virtual bone biopsies, according to Grossmann.

"Sex steroid deficiency induced by ADT for prostate cancer results in microarchitectural decay," said Grossmann. "Bone fragility in these men may be more closely linked to testosterone than estradiol deficiency."

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Other researchers working on the study include: A. Ghasem-Zadeh, E. Gianatti, D. Lim-Joon, D. Bolton, R. Zebaze, E. Seeman and J.D. Zajac of the University of Melbourne in Australia.

The article, "Structural Decay of Bone Microarchitecture in Men with Prostate Cancer treated with Androgen Deprivation Therapy," will appear in the December 2010 issue of JCEM.

Founded in 1916, The Endocrine Society is the world's oldest, largest and most active organization devoted to research on hormones and the clinical practice of endocrinology. Today, The Endocrine Society's membership consists of over 14,000 scientists, physicians, educators, nurses and students in more than 100 countries. Society members represent all basic, applied and clinical interests in endocrinology. The Endocrine Society is based in Chevy Chase, Maryland. To learn more about the Society and the field of endocrinology, visit our site at www.endo-society.org.

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