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New therapy extends life for prostate cancer patients

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Prostate cancer patients with advanced tumors that have spread to bone have a poor chance of surviving. Patients with the disease may now live longer with a new line of radioisotope therapy, say researchers at the Society of Nuclear Medicine's 2012 Annual Meeting.

The skeletal systemis the number one metastatic site in patients with prostate cancer. Bone metastases occur when the primary cancer is transmitted through the blood and develops in the bone.This is a phase III study for the radioisotope therapy Radium-223 chloride, or Ra-223, which seeks out bone metastases with very potent alpha particles that are deadly to tumors. The powerful drug has a short range of penetration of alpha particles, sparing nearby healthy tissues and essential bone marrow. It is initially being studied for the treatment of castration-resistant prostate cancer, a late-stage form of cancer that is typically characterized by extensive skeletal metastases that are resistant to treatment.

"This is a pivotal study of a new treatment that potentially offers a better standard of care for patients with advanced prostate cancer," says Val Lewington, professor of clinical therapeutic nuclear medicine at King's College and Guy's and St Thomas' Hospital in London, United Kingdom. "Radium-223 offers a completely new approach to the treatment of bone metastases. It systemically treats multiple sites of disease simultaneously and is usually very well tolerated. Serious side effects are unusual, and the risk of bone marrow suppression is low even in patients who have been heavily pretreated with chemotherapy."

According to the U.S. National Cancer Institute, 241,740 new cases of prostate cancer are expected to be diagnosed and 28,170 to die from the disease this year in the United States. In the past 25 years, many bone targeted drugs have been developed to treat the disease, but they have more of a palliative effect, treating pain, but not necessarily prolonging the lives of patients.

Men with castration-resistant prostate cancer generally live three to five years after diagnosis. This double-blind and randomized study was able to show that of the 921 patients treated with either Ra-223 or a placebo, patients who received the drug lived an average of three months longer. Therapy was administered in six injections at four-week intervals. In addition to prolonged survival, those treated with Ra-223 also experienced delayed onset of complications due to bone metastases. Therapy monitoring is made possible with molecular imaging techniques called scintigraphy and positron emission tomography, which provide information about biological processes, including those involved in cancerous tumors.

An expanded access program is already underway in the United States and a similar program is expected to open in Europe in 2012. Further clinical trials are also being considered. Formal regulatory approval will be sought in mid-2012 in both the United States and Europe.

Provided by Society of Nuclear Medicine