UT SOUTHWESTERN MEDICAL CENTER NEWS

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UT Southwestern researchers prove higher doses of radiation in fewer treatments are safe, effective for low-risk prostate cancer

DALLAS – June 2, 2011 – In a multicenter clinical trial, UT Southwestern Medical Center researchers have found that higher doses of stereotactic radiation therapy requiring fewer treatments are safe and effective for patients with low-to-intermediate-risk prostate cancer.

Results of the trial, available in the *Journal of Clinical Oncology,* showed that stereotactic body radiation therapy (SBRT), which delivers ultra-precise radiation, was effective in treating patients with localized prostate cancer in five 30-minute sessions every other day over two weeks. That compares to the typical radiation protocol for prostate cancer of 42 to 45 daily treatments administered over eight to nine weeks.

"We were trying to develop a fast, convenient, outpatient, non-invasive treatment," said Dr. Robert Timmerman, vice chairman of radiation oncology and professor of neurological surgery and senior author of the study. "In the low-risk population, there are a lot of good options, but none of them are altogether convenient. The most convenient treatment would finish quickly without the need for a prolonged recovery."

SBRT has been used in the last decade to treat patients with lung, liver and brain cancers. The current study tested whether high-potency treatments would work in a moving target like the prostate, which moves considerably due to normal bladder and bowel filling.

"We're trying to kill the prostate cancer, but without injuring the urethra, the bladder or the rectum," Dr. Timmerman said. "Each treatment had to be very potent in order to get the full radiation effect in only five treatments."

To avoid injury to healthy tissue, researchers used beams of radiation that were just millimeters larger than the target itself. That narrow scope helped avoid consequences such as rectal injury, impotence and difficulty urinating.

Prostate cancer is the most common cancer in men, with some 200,000 diagnosed each year in the U.S. About half of those who are treated undergo radiation therapy, typically for eight weeks. Not everyone is cured, however, because some tumors are resistant to radiation.

In the current clinical trial, researchers tested escalating doses for safety levels in 45 patients

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enrolled from November 2006 to May 2009. In a 90-day follow-up procedure, they looked at how much injury occurred in adjacent areas, including the rectum or urethra, and any changes to the patients' quality of life.

"There were a few more complications associated with higher doses, but they were fairly predictable and rarely severe," said Dr. Yair Lotan, associate professor of urology and a co-author of the study. "By giving these higher doses, we might be able to kill more resistant tumors with shorter treatments."

In the next stage of the clinical trial, a larger group of patients will be treated at one dosage level, and follow-up will be 18 months.

Other UT Southwestern researchers involved in this study were Dr. Paul DeRose, radiation oncology resident; Dr. Xian-Jin Xie, associate professor in the Harold C. Simmons Comprehensive Cancer Center; Jingsheng Yan, statistician; Dr. Ryan Foster, assistant professor of radiation oncology; Dr. David Pistenmaa, professor of radiation oncology; and Susan Cooley, senior research nurse in radiation oncology.

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