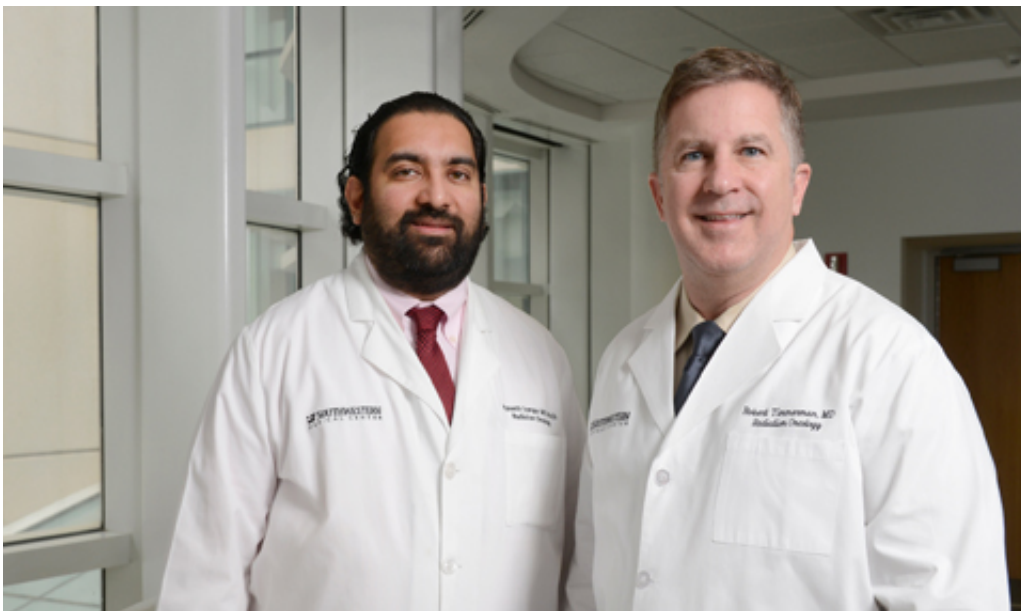


Stereotactic body radiation therapy plus chemotherapy improves survival among stage 4 lung cancer patients

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Dr. Puneeth Iyengar and Dr. Robert Timmerman

A clinical trial that combined stereotactic body radiation therapy with a specific chemotherapy regimen more than doubled survival rates for certain stage 4 lung cancer patients, UT Southwestern Medical Center cancer researchers report.

The combination of the [chemotherapy regimen](#), erlotinib, with stereotactic body radiation therapy, known as SBRT, improved overall

survival time to 20 months compared to historic 6- to 9-month survival times among erlotinib-only treated patients. The combination improved progression free survival – the time without the reappearance of cancer – from the historical two to four months to 14.7 months for similarly selected [lung cancer](#) patients.

"Our approach dramatically changed the pattern of relapse. We saw a shift in failure from existing, local sites to new, distant sites," said senior author Dr. Robert Timmerman, Director of the Annette Simmons Stereotactic Treatment Center, and Vice Chairman of Radiation Oncology at UT Southwestern. "This shift resulted in a surprisingly long remission from the reappearance of cancer in treated patients."

According to the National Cancer Institute, lung cancer will be diagnosed in an estimated 224,210 men and women during 2014. Five year relative survival rates remain low at just 16.8 percent from 2004-10. Of these cancer cases, about 85 percent fall into the category of non-small cell lung cancer.

Dr. Timmerman, holder of the Effie Marie Cain Distinguished Chair in Cancer Therapy Research, is a member of UT Southwestern's Harold C. Simmons Comprehensive Cancer Center, the only National Cancer Institute-designated cancer center in North Texas and a National Clinical Trials Network Lead Academic Site.

This Phase 2 clinical trial involved 24 patients with stage 4 non-small cell lung cancer (NSCLC) whose cancer has continued to spread during their initial therapy. Such patients typically have poor [survival rates](#), and SBRT is not typically used in these patients, said first author Dr. Puneeth Iyengar, Assistant Professor and Director of Clinical Research of Radiation Oncology, and co-leader of the Simmons Cancer Center Thoracic Oncology Group.

The revolutionary SBRT technique is a type of [radiation therapy](#) in which a few very high doses of radiation are delivered from multiple angles to small, well-defined tumors. The goal is to deliver a radiation dose high enough to kill the cancer, while minimizing exposure to surrounding healthy tissue and organs, explained Dr. Timmerman, who directs Clinical Research and the Image-Guided Stereotactic Radiation Therapy in the Department of Radiation Oncology.

SBRT has been shown to offer better cure rates in certain instances, particularly for cancers that have metastasized, said Dr. Timmerman, Professor of Radiation Oncology and Neurological Surgery, who was one of the first researchers in the world to use the SBRT techniques initially developed for brain tumors to treat cancer in the body.

"Technologies have developed in the last few years that have yielded game-changing, paradigm-shifting approaches, allowing us to reconsider how [radiation](#) is delivered in combination with surgery, chemotherapy, and other systemic therapies," said Dr. Timmerman, who served as the lead investigator in several national trials designed to evaluate the efficacy and safety of SBRT to treat [cancer](#) in the lung, liver, spine, and prostate. "I am motivated by the need I see every day in the clinic to provide better treatments for our patients."

The results are reported in the *Journal of Clinical Oncology* of the American Society of Clinical Oncology.

Provided by UT Southwestern Medical Center

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