

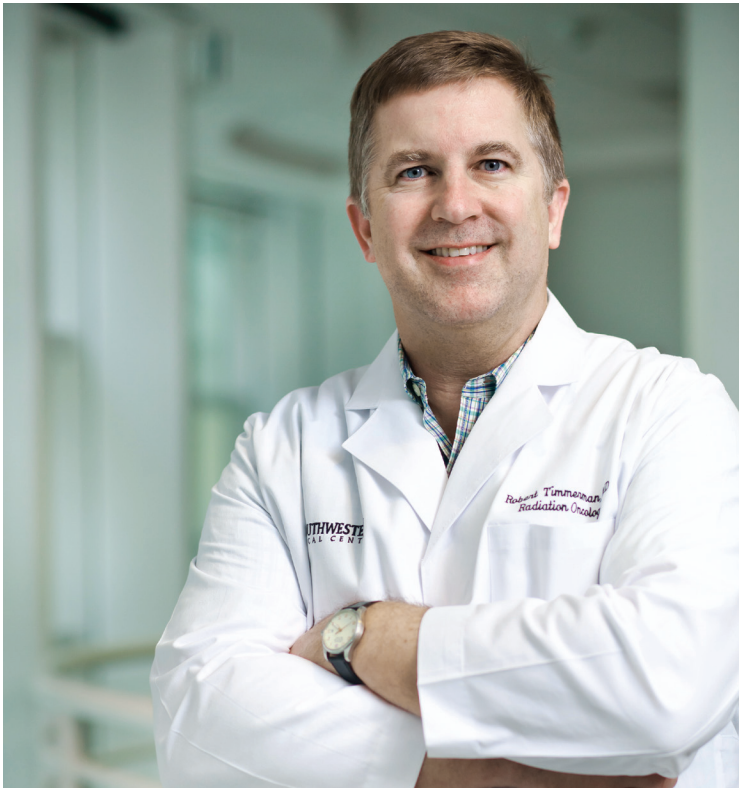
UT SOUTHWESTERN
THE TARGET

News from the Department of Radiation Oncology

VOLUME 2, FALL 2011

Seeking a better cure for lung cancer

UT Southwestern to extend advanced radiation therapy techniques statewide



Dr. Robert Timmerman will lead a clinical trial for Texas patients with advanced-stage lung cancer

Investigators from UT Southwestern will lead an \$8.8 million initiative from the Cancer Prevention Research Institute of Texas (CPRIT) to extend a sophisticated new form of radiation treatment to lung cancer patients across the state, with the hope of improving cancer cure rates.

Hypofractionated radiation treatment is a type of radiation therapy that uses advanced imaging to deliver treatments at much higher doses—and with more precision—than with conventional treatment. Such treatments include stereotactic body radiation therapy (SBRT), image-guided radiation therapy (IGRT), and intensity-modulated radiation therapy (IMRT). Clinical trials utilizing hypofractionated treatment for early-stage lung cancer have shown excellent control rates compared to traditional radiation therapy.

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In the first part of the project, UT Southwestern will train physicians and other health professionals across the state in the delivery of IGRT to advanced-stage lung cancer patients.

Concurrently, a clinical trial with participating institutions, including Texas A&M and University of Texas campuses at MD Anderson, UT Health Science Center in San Antonio, and Dallas, will offer IGRT to those advanced-stage lung cancer patients with poor performance (inoperable) status, with the aim of improving cure rates as well as demonstrating the economic impact and overall benefit of using the newer technology.

The second arm of the project will focus on developing new imaging techniques to enhance the delivery of hypofractionated therapy.

We want to provide advanced treatment using better mobilization, better motion control, and better image guidance, all aimed at safely delivering this more potent form of radiation.

Lung cancer is the second-most common type of cancer and the number one cause of cancer death in the United States. Patients with lung cancer may be treated with surgery, radiation therapy, chemotherapy, or a combination of these therapies. Radiation therapy for lung cancer, which continues to be the primary treatment for 60 percent of lung cancer patients, aims to treat the visible tumor and involved lymph nodes effectively while avoiding healthy tissues.

“This clinical trial is one of our first attempts to introduce hypofractionated radiation into ‘bread-and-butter’ indications like advanced lung cancer,” said Robert Timmerman, MD, Professor of Radiation Oncology and Neurological Surgery. Of the 250,000 cases of lung cancer diagnosed each year, the majority (75 percent) are advanced stage and most of those will also be metastatic.

“This protocol aims to use this advanced technology to treat a large patient population—the kind doctors are most likely to see in their clinics—and that has not previously been done,” said Dr. Timmerman, who directs clinical trials

for radiation oncology at UT Southwestern. “They’ve been historically treated with simpler, more conventional treatments. We want to provide advanced treatment using better mobilization, better motion control, and better image guidance, all aimed at safely delivering this more potent form of radiation.”

Without specific training, he said, “I think some centers would be justifiably nervous about delivering the therapy, but with it I think they’ll all be more comfortable and excited about using the technology to deliver treatments that they know are more apt to control the tumor.”

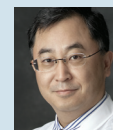
UT Southwestern’s Department of Radiation Oncology is modeling its training course on its current SBRT training course, which has been

well-received in the two years of its existence. Physicians, dosimetrists, therapists, and others involved in the delivery of radiation treatment spend two days at the UT Southwestern campus and observe actual treatments and simulations in addition to receiving didactic instruction.

The IGRT course will take place inside the department’s new treatment facility, which opens this fall and was designed to facilitate professional training along with patient treatment.

“This is taxpayers’ dollars [funding the program], and I think it’s appropriate that it will be given back to improve the quality of care in many cities in Texas, by introducing people to these technologies and how to use them appropriately,” said Dr. Timmerman. “Our goal is to improve the cure rate of cancer.”

NEWS BRIEFS



Hak Choy, MD, Chair of the Department of Radiation Oncology,

was elected Vice Chair of the **Radiation Therapy Oncology Group (RTOG)**, the leading national organization for cooperative clinical trials involving radiation therapy. In his new position, Dr. Choy will also chair the RTOG Data Safety Monitoring Board and co-chair the group’s Research Strategy Committee.



A \$6.4 million, multi-investigator study led by **David Chen, PhD**,

Professor of Radiation Oncology, was recently funded by **CPRIT**. The goal of the program is to understand one of the major unresolved questions in the field of DNA repair: What molecular events underlie the selection of one of two major pathways that exist for double-strand break repair?

UT Southwestern launches clinical trial for treatment of breast cancer using robotic CyberKnife technology



CyberKnife patient Dr. Kristin Wiginton (center) with radiation oncologist Dr. Dan Garwood (left) and chief therapist Stella Stevenson (right).

Breast-cancer patient Kristin Wiginton, PhD, is the first to be treated at UT Southwestern Medical Center with high-beam radiation using the Accuray CyberKnife System, which offers improved cosmetic results, less radiation exposure to surrounding tissue, and a shorter treatment period.

Dr. Wiginton is among 45 eventual participants in a UT Southwestern-based clinical trial—the first of its kind in the Southwest—investigating use of the radiation delivery system for breast cancer. Her post-lumpectomy therapy lasted one-third the duration of a typical radiation session for a breast-cancer patient.

While CyberKnife has been used at UT Southwestern since 1997, it primarily has been targeted for tumors of the brain and spine.

“If this had not worked out for me, I would have gone with six and a half weeks of traditional radiation,” said Dr. Wiginton, 45, an Associate Professor of Health Studies at Texas Woman’s University.

Instead, her treatment took less than two weeks and consisted of five, 90-minute sessions every two to three days. Her final treatment

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The CyberKnife system at UT Southwestern

was February 3 at UT Southwestern University Hospital—Zale Lipshy.

Radiation therapy following a lumpectomy is commonly recommended to remove potential residual cancer, said Robert Timmerman, MD, Professor of Radiation Oncology and Neurological Surgery, who is leading the study. Current radiation protocols for breast cancer, however, can be long and uncomfortable. Shorter courses treating smaller breast volumes, called “partial breast irradiation,” have shown considerable promise in clinical studies, he said.

The most common partial breast irradiation approach, brachytherapy, requires a catheter implant via a surgical procedure. Another

method delivers the treatment using conventional radiotherapy equipment but may lead to less-pleasing cosmetic results.

Dr. Wiginton described her first CyberKnife session as painless. Though a bit tired, she said the treatment was not uncomfortable and she spent most of the time listening to music on her iPod.

Patients preparing for CyberKnife radiation treatments have minute gold seed markers called fiducials implanted around the affected breast tissue. The CyberKnife’s image-guided system tracks the fiducials to deliver radiation to the area, including moving with each breath taken by the patient.

The CyberKnife uses a light linear accelerator on a robotic arm to focus multiple beams of radiation with millimeter precision, while leaving surrounding healthy tissue unharmed.

“The impetus for this protocol is to avoid the invasiveness [of a typical brachytherapy procedure], while still achieving excellent cosmetic

results,” said Dr. Timmerman. “This gives the same amount of radiation but in a noninvasive way. Each [CyberKnife-delivered] beam is very weak, so it causes very little entry damage as it moves around to 200 different positions.”

To qualify for participation in the clinical trial, patients must have localized early-stage breast cancer, must have successfully undergone a lumpectomy, and must be at least 18 years old. Patients will be evaluated over the next 10 years to check if they remain cancer-free, for potential cosmetic changes in the breast, and for any unanticipated effects that may develop from radiation treatment.

Because heart disease ran in her family, traditional radiation therapy wasn’t a good choice for Dr. Wiginton due to potential damage to surrounding tissues, including the heart. CyberKnife’s precision greatly lessened that risk.

“If they’re willing to use it on brain cancer, I think it’s a fairly safe bet to use in a breast,” Dr. Wiginton said.

Visit utsouthwestern.org/simmons-cancer-center, or call Laurin Loudat at 214-633-1751 to learn more about this UT Southwestern clinical trial in radiation oncology. ☺

The CyberKnife uses a light linear accelerator on a robotic arm to focus multiple beams of radiation with millimeter precision, while leaving surrounding healthy tissue unharmed.

Study shows most patients with brain metastases don't need whole-brain radiation



Patient Gerard Hennessy and wife, Kathleen

Gerard Hennessy, 76, and his wife, Kathleen, were concerned when they first started researching his metastatic cancer two years ago. On the eve of chemotherapy for a lung tumor, a routine scan had shown that his disease had spread to form two, large (two-inch) tumors in the brain, which might have warranted whole-brain radiation (WBR).

The scientific papers they found online warned of the sometimes-severe side effects of this treatment. One, from MD Anderson Cancer Center in Houston, stated that 50 percent of WBR patients in a particular study suffered severe Alzheimer's-like symptoms of memory loss following WBR treatments.

Most patients with limited brain metastases are just as likely to survive after having limited, targeted, stereotactic treatments to their lesions as they are to survive after WBR.

"Catastrophic was the word," said Mrs. Hennessy. "We also found people online who said they had whole-brain radiation and now are suffering from other permanent side effects." When they came to UT Southwestern's Department of Radiation Oncology, they were adamant about finding an alternative to WBR.

Lucien Nedzi, MD, Professor of Radiation Oncology, provided them with one. Dr. Nedzi was adding patients with brain metastases to a phase II clinical trial comparing the results of treating patients with surgery, stereotactic radiosurgery (using the Gamma Knife), and stereotactic radiotherapy, or a combination of methods.

The outcome of the study, presented this spring in Paris at the International Stereotactic Radiosurgical Society, was that most patients with limited (four or less) brain metastases are just as likely to survive after having limited, targeted, stereotactic treatments to their lesions as they are to survive after WBR.

Had they been treated with the best available conventional therapy (solitary metastases treated surgically and multiple metastases treated with WBR), historical median controls would have predicted 27 out of the 47 patients enrolled in the trial to be alive at six months. In fact, 26 out of 47 patients survived.

Only the Karnofsky performance status of the patients was significantly associated with overall survival—neither number of metastases, steroid dose, extracranial disease, or other

factors influenced cancer recurrence at the original tumor site, recurrence elsewhere in the body, or survival.

Dr. Nedzi interprets the results to mean that stereotactic treatment for brain metastases offers similar survival results to WBR, while providing significantly superior quality-of-life benefits.

"For those patients who develop a lot of new metastases after stereotactic treatment, WBR would be indicated," Dr. Nedzi said. "But it turns out that most of the patients we treated did not develop a lot of new metastases afterwards, which is an interesting result in itself. So they can be salvaged with additional stereotactic treatments instead of WBR."

Mr. Hennessy is one of those patients who has returned for additional stereotactic treatments. The British native and retired business owner said he is glad he was able to preserve his mental faculties while undergoing cancer treatment.

Said his wife, "For a little over two years UT Southwestern has kept us going. They help us through each step and give us options." ☺

Clinical Trials Listing

BRAIN

082009-040 Phase I study of the combination of vorinostat and radiation therapy for the treatment of patients with brain metastases

BREAST

042010-052 A phase I study of CyberKnife® partial breast irradiation (PBI) for early-stage breast cancer

GASTROINTESTINAL

052010-013 Dose-escalating study of single fraction stereotactic body radiation therapy (SBRT) for patients with hepatic metastases

082010-335 A pilot and phase II study of altered chemotherapy sequencing during neoadjuvant therapy for patients with stage II or III rectal adenocarcinoma

GYNECOLOGIC

GOG 0249 A phase III trial of pelvic radiation therapy versus vaginal cuff brachytherapy followed by paclitaxel/carboplatin in patients with high-risk, early-stage endometrial cancer

GOG-0724 Phase III randomized study of concurrent chemotherapy and pelvic radiation therapy with or without adjuvant chemotherapy in high-risk patients with early-stage cervical carcinoma following radical hysterectomy

GOG-0239 A randomized trial of pelvic irradiation with or without concurrent weekly cisplatin in patients with pelvic-only recurrence of carcinoma of the uterine corpus

HEAD AND NECK

BMS CA 225314 A phase II multicenter study of concomitant cetuximab and cisplatin with re-irradiation using intensity-modulated radiotherapy (IMRT) in patients with recurrent squamous cell carcinoma of the head and neck

A phase I/II study of nab-paclitaxel, cisplatin, and cetuximab with concurrent radiation therapy for local/regionally advanced head-and-neck squamous cell carcinoma

RTOG 0920 A phase III study of postoperative radiation therapy (IMRT) +/- cetuximab for locally advanced resected head and neck cancer

LUNG (THORACIC)

Small Cell Lung Cancer

CALGB 30610/RTOG 0538 A phase III comparison of thoracic radiotherapy regimes with cisplatin and etoposide in limited small cell lung cancer

RTOG 0937 Randomized phase II study comparing prophylactic cranial irradiation alone to prophylactic cranial irradiation and consolidative extracranial irradiation for extensive disease small cell lung cancer (ED-SCLC)

Non-Small Cell Lung Cancer

—Locally Advanced (III) or Inoperable (I/II)

RTOG 0617 A randomized phase III comparison of standard-dose (60 Gy) versus high-dose (74 Gy) conformal radiotherapy with concurrent and consolidation carboplatin/paclitaxel +/- cetuximab in patients with stage IIIA/IIIB non-small cell lung cancer

RTOG 0813 Seamless phase I/II study of stereotactic body radiotherapy (SBRT) for early-stage, centrally located non-small cell lung cancer (NSCLC) in medically inoperable patients

072009-061 Phase I study of accelerated hypofractionated image-guided radiation therapy (IGRT) in patients with stage II-IV non-small cell lung cancer and poor performance status

—Metastatic (2 or more)

42007003 A phase II trial of erlotinib (Tarceva®) in combination with stereotactic body radiation therapy (SBRT) for patients with locally advanced or metastatic non-small cell lung cancer (NSCLC)

—Non-Therapeutic

SCCC-01508 Bold contrast magnetic resonance imaging (MRI) of lung tumors: physiological characterization of lung cancer

PROSTATE AND BLADDER

62006010 A phase I and II study of stereotactic body radiation therapy (SBRT) for low- and intermediate-risk prostate cancer

062009-014 Hypoxia assessment in localized prostate cancer: a companion protocol to a phase II study of stereotactic body radiation therapy (SBRT) for low- and intermediate-risk prostate cancer

RTOG-0534 A phase III trial of short-term androgen deprivation with pelvic lymph node or prostate bed only radiotherapy (SPPORT) in prostate cancer patients with a rising PSA after radical prostatectomy

RTOG 0815 A phase III prospective randomized trial of dose-escalated radiotherapy with or without short-term androgen deprivation therapy for patients with intermediate-risk prostate cancer

RTOG 0524 A phase I/II trial of a combination of paclitaxel and trastuzumab with daily irradiation or paclitaxel alone with daily irradiation following transurethral surgery for non-cystectomy candidates with muscle-invasive bladder cancer

SPINE

SCCC-03Z08 A phase II study of stereotactic body radiation therapy and vertebroplasty for localized spine metastasis

RTOG 0631 A phase II/III study of image-guided radiotherapy/SBRT for localized spine metastasis

Social workers ease the burden of cancer through empowerment



—by Sharon Tavenner, LMSW

The Department of Radiation Oncology and The Harold C. Simmons Cancer Center both utilize master-degreed social workers to address the various needs of their cancer patients and families. So, what do social workers in health care actually do?

Specifically, we are trained to address social, legal, and ethical dilemmas for individuals, families, and health care providers, and provide a broad perspective on the range of physical, emotional, and environmental factors that have an effect on the well-being of individuals and their families.

In the Department of Radiation Oncology, I interview cancer patients (and family members) on an “as-needed” basis to identify psychosocial needs and determine a course

People need to feel self-sufficient, independent, and capable, especially when faced with cancer.

of action. The scope of services may include education, supportive counseling and information, or referrals to community resources. My primary objective is to provide the confidential support and resources people want to manage their cancer in a way that is respectful of their individual needs and wishes.

A psychosocial assessment (the tool used to guide the social worker’s interview) takes into account the whole person and his or her environment. Elements include the patient’s living arrangements and family situation, support network, financial and employment status, activities of daily living (ADLs), psychiatric history (includes history of substance abuse), coping abilities, and concurrent stressors.

After fully assessing the patient’s challenges, the social worker implements a “strengths perspective” model, which recognizes an individual’s strengths and abilities to cope with problems, while encouraging use of past successful choices and behaviors, skills, and insights to resolve or “work through” the current crisis. Essentially, the social worker is looking at the patient’s ability to recover or bounce back from problems.

The most common psychosocial stressors identified among radiation oncology patients include a lack of support (familial and social), financial issues (job loss or pay reduction), transportation problems, lodging and/or housing issues, home care needs, and coping with the illness itself.

The social worker implements a range of interventions to address these problems, including exploring and educating the patient as to available resources, making referrals, and providing supportive counseling (identifying and validating feelings, affirming strengths and positive actions).

The social worker then enlists the patient’s help to come up with a plan and mutual tasks to address the problems, all within an environment of encouragement and support.

People need to feel self-sufficient, independent, and capable, especially when faced with cancer. As a social worker, my goal is to harness those elements by giving the patient mutually identified tasks that they feel comfortable handling. It’s extremely gratifying and heartwarming to see a patient feeling content with actions they’ve taken to resolve their problems.

Within this framework the patient becomes the master of his or her journey through cancer, with the social worker taking a supportive role and providing ongoing guidance. ☺

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Physicians who would like to make a referral may call the department's main clinic number or UT Southwestern's physician referral line at 214-645-8300 (toll-free 866-645-5455) for adult patients, or 877-445-1234 for pediatric patients.

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