Texas radiation trial network opens with lung study

Sixteen doctors representing institutions across the state of Texas gathered at UT Southwestern recently—the first meeting of a new radiation trial network created for the purpose of improving lung cancer treatment in Texas.

The physicians received training in image-guided radiation therapy (IGRT) in preparation for the group’s first study, a phase III study of accelerated hypofractionated IGRT in patients with stage II-III non-small cell lung cancer and poor performance status.

Robert Timmerman, M.D., and Hak Choy, M.D., are driving the initiative to spread the use of sophisticated cancer treatment technology statewide.

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Lung cancer is the second-most common type of cancer and the number one cause of cancer death nationally. Radiation therapy continues to be the primary treatment for 60 percent of lung cancer patients. “New technological developments—including IGRT—have allowed improvement in the accuracy and precision of radiation delivery, allowing higher doses to be delivered in fewer treatments with fewer side effects,” says Robert Timmerman, M.D., Professor of Radiation Oncology and principal investigator of what has been named the State of Texas through integrated Therapy (START) trial.

The recent half-day training session required a total of 226 patients (113 for each arm). The program is funded by an $8.8 million grant from the Cancer Prevention and Research Institute of Texas (CPRIT), first awarded in 2011. Led by Department Chairman Hak Choy, M.D., the grant also includes development of new imaging and tracking technologies to improve lung cancer radiation treatments.

First training, first patients
The recent half-day training session for participating institutions was directed by UT Southwestern Assistant Professor Jeffrey Meyer, M.D. “There are different solutions for the motion problem, so we want to make sure we do it consistently,” Dr. Meyer says. “We want to have as level a playing field as possible.”

The training session also provided a good opportunity for individual investigators to meet face to face. “We are excited about this study, and also excited about establishing a novel, Texas-based collaborative group,” Dr. Meyer says. “We are very optimistic about the future of this group and our potential to collaborate on an ongoing basis.”

Two patients at UT Southwestern were the first to be enrolled to the IGRT study in December. The phase III study requires a total of 226 patients (113 for each arm). •

First training, first patients

Susie Chen, M.D., has become part of the physician staff of the Department of Radiation Oncology as Assistant Professor. Born in Memphis, Tenn., Dr. Chen earned her medical degree at the University of Miami and completed a residency in radiation oncology at Emory University.

Dr. Chen’s cancer research has been published in notable medical journals, including Cancer and the International Journal of Radiation Oncology · Biology · Physics. She has also made national presentations of her work at the annual meeting of the American Society of Therapeutic Radiology and Oncology (ASTRO).

In the UT Southwestern Department of Radiation Oncology, Dr. Chen will be part of the treatment team that focuses on the care of head and neck cancer patients. “I love the bond that I have with my patients,” Dr. Chen says. “In other specialties, a doctor may see his or her patient only once or twice for a medical problem, but I see my patients many times over the course of their treatment, which may last for several weeks. We really get to know each other, and I find that there is something different in each case that I see, even if the type of cancer being treated is the same. Everyone’s journey is unique.”

“... We are optimistic about our potential to collaborate on an ongoing basis.”
—Jeffrey Meyer, M.D.
First human study combining radiation with bavituximab

Improved tumor downstaging may allow for more sphincter-preserving surgeries in patients with low-lying rectal tumors.

A new UT Southwestern study of rectal cancer patients is the first to combine radiation treatment with an experimental drug—bavituximab—that selectively cuts off abnormal tumor vasculature, depriving cancer of the blood supply it needs to flourish.

Although conventional chemoradiation/surgery treatment is quite successful in controlling rectal adenocarcinoma, a new tumor sensitization approach could make further improvements, particularly in treating advanced-stage cancer and in increasing the complete response rate to chemoradiation alone.

The study may also help pave the way for determining the usefulness of combining the drug with radiation in other, more difficult to treat cancers.

An in-house discovery

Bavituximab was initially developed by UT Southwestern Professor of Pharmacology Philip Thorpe, Ph.D., and has already been tested in clinical trials for breast and lung cancer.

"Rectal cancer is a good site to study in combination with radiation because every patient will go to surgery, and therefore we can study their tissue pre- and post-treatment," says Assistant Professor of Radiation Oncology Jeffrey Meyer, M.D., the study’s principal investigator.

The phase I study will establish the safety of adding bavituximab to the current standard therapy of capectabine and radiation therapy for stage II and III rectal adenocarcinoma. Bavituximab will be given once a week combined with a standard course of external beam radiation therapy (50.4-54 Gy) plus chemotherapy for five-and-a-half to six weeks, followed by two weeks of bavituximab alone. Surgery will follow this regimen after four to eight weeks.

Improving outcomes

Currently, a minority of rectal cancer patients already have a complete response to chemotherapy and radiation alone but still undergo surgery. Says Dr. Meyer, "At minimum, improved tumor downstaging may allow for more sphincter-preserving surgeries in patients with low-lying rectal tumors. There is also room for improvement in pelvic tumor control rates for the most advanced of rectal cancers (T4 tumors and tumors with multiple involved lymph nodes)."

"Ultimately, if the pathologic complete response rate improves dramatically through the development of better combination therapies, select patients may undergo chemoradiation therapy alone as their treatment, eliminating the need for surgery," Dr. Meyer adds.

"We were very impressed," recalls Dr. Story. "All of their team members trained in the U.S. at some point, and they are trying to use the most sophisticated technology and protocols in clinical practice. They are very forward-thinking in terms of developing regional facilities and trying to build standards, including a central data storage system for patients and biomathematics."

Piotr Widlak, Ph.D., COG’s Deputy Director of Scientific Affairs and Chairman of the Center for Translational Research and Molecular Biology of Cancer, visited UT Southwestern the following year with a colleague, Dr. Rafal Suwinski, M.D., Ph.D. It was not his first time on campus: Dr. Widlak completed his post-doc training at UT Southwestern in 1997 before joining COG and has returned several times as a visiting professor in the Department of Molecular Biology.

In September 2012, Drs. Choy and Story went to Gliwice, where they toured COG and has returned several times as a visiting professor in the Department of Molecular Biology.

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"We can also benefit from the sheer volume of patients they treat at their extremely large facility. COG has been very forward-thinking in the banking of thousands of clinical samples, which provides the opportunity for collaboration, particularly for the identification and screening for cancer biomarkers."

UT Southwestern, meanwhile, can provide advanced training in physics, nursing, and radiation therapist skills.

The city of Gliwice in southwestern Poland was once part of Germany. While it is now a major science hub for Poland, historically it is known as the site where World War II began—the place where German secret police, dressed as Poles, attacked a radio tower in 1939, providing Hitler with an excuse to invade.

But Gliwice is quickly making another international name for itself in cancer treatment and research.

"Translational cancer research will be among the priorities of the Polish-U.S. cooperation," Dr. Widlak says. "We anticipate joint studies on lung cancer, head and neck cancer, prostate cancer, breast cancer, rectal cancer, and glioblastoma.

COG can contribute to these planned projects by participating in validation of the clinical relevance of research concepts. Our strength is the ability to analyze large amounts of clinical material using the genomics and proteomics tools available here.

"Ultimately, the major goal of the partnership is to provide better standards of health care for cancer patients."
New breath-hold treatment for breast cancer patients uses video surveillance to spare heart

In the Clinic

UT Southwestern has added high-tech video surveillance to the treatment of breast cancer patients who receive radiation while using the deep inspiration breath-hold technique. The result is a treatment that requires no invasive fiducial implants or assisted breathing devices and that reduces the radiation dose to the heart.

Deep inspiration breath hold is a cardiac-sparing or minimizing technique to treat left-sided breast cancer. Prior studies indicate that patients with left-sided breast cancer are at greater risk for developing heart problems from radiation delivered to the left breast. By taking a deep breath during radiation treatment, the chest wall and breast tissue move away from the heart, reducing the radiation dose to the heart and lung.

Occasionally, the deep inspiration breath-hold technique may require an assisted breathing control (ABC) device to maintain inflation of the lungs for the breath hold. This system is not always well-tolerated by patients. Now, as an alternative, UT Southwestern physicians are using a video surveillance system involving two, ceiling-mounted 3-D cameras to beam the patient’s left medial portal film showing radiation portal (blue solid line) and anterior heart (outlined in pink). In this deep breath-hold position, the heart is completely out of the primary radiation beam.

Deep inspiration breath hold is a treatment that requires no invasive fiducial implants or assisted breathing devices and that reduces the radiation dose to the heart.

Jada Jung is the first patient treated with Vision RT at UT Southwestern.

Clinical Trials Listing

Brain

052012-056 A randomized, double-blind, phase II dose-escalating study to evaluate the safety and efficacy of veliparib and whole brain radiation therapy versus placebo and whole brain radiation therapy in subjects with brain metastases from non-small-cell lung cancer

042011-075 Interstitial radioisotope implants for the treatment of pain-invasive uterine malignancies

042011-050 Phase II trial of hippocampal-avoiding whole brain irradiation with simultaneous integrated boost for treatment of brain metastases

032011-035 Phase II trial of study radiation therapy with or without temozolomide for symptomatic or progressive low-grade gliomas

Breast

072010-015 A phase I study of CyberKnife® partial breast irradiation (PBI) for early stage breast cancer

RTG 1014 A phase II study of repeat breast preserving surgery and 2D-conformal partial breast re-irradiation (PRI) for local recurrence of breast carcinoma

RTG 1005 A phase II trial of accelerated whole breast irradiation with hypofractionation plus concurrent boost versus standard whole breast irradiation plus sequential boost for early-stage breast cancer

Gastrointestinal

032010-025 Phase randomized trial of bevacizumab in combination with capcitabine and radiation therapy for the treatment of stage II and III rectal adenocarcinoma

072010-003 Dose escalating study of single fraction stereotactic body radiation therapy (SBRT) for patients with hepatic metastases

RTG 1010 A phase II trial evaluating the addition of trastuzumab to trastuzumab treatment of Her2 overexpressing esophagogastric adenocarcinoma

Gynecologic

GOG 0129 A phase III trial of pelvic radiation therapy versus vaginal cuff brachytherapy followed by pelvic/conservatism in patients with high-risk, early stage endometrial cancer

GOG 0138 A randomized phase III trial of cisplatin and tumor volume directed irradiation followed by carboplatin and paclitaxel vs. carboplatin and paclitaxel for optimally debulked, advanced endometrial carcinoma

GOG 0174 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

Head and Neck

RTG 3501 A phase II randomized, double blind, placebo-controlled study of lapatinib (Tykerb®) for non-HPV locally advanced head and neck cancer with concurrent chemoradiation

032012-041 A phase I dose escalation study to investigate the safety and pharmacokinetics of intravenous CUDC-101 with concurrent cisplatin and radiation therapy in subjects with locally advanced head and neck cancer

072010-048 A phase II multi-center study of concurrent cetuximab and cisplatin with re-irradiation using intensity-modulated radiotherapy (IMRT) in patients with recurrent aqueous cell carcinoma of the head and neck

072010-046 A phase I/Ib study of nab-paclitaxel, cisplatin and cetuximab with concurrent radiation therapy for local-regionally advanced head-and-neck squamous cell carcinoma

032010-030 A phase II trial of postoperative radiation therapy (IMRT) versus cetuximab for locally-advanced head and neck cancer

032008 A randomized phase II study of sublobar resection with or without concurrent chemoradiation for patients with BMI > 35, T1-3 N0-1M0 NSCLC

Lung (Thoracic)

072010-134 A randomized phase IIA trial comparing thoracic radiation regimes with cisplatin and etoposide in limited small cell lung cancer

072010-057 Randomized phase II trial comparing prophylactic cranial irradiation alone to prophylactic cranial irradiation and consolidative extracranial irradiation for extensive disease small cell lung cancer (E-SCLC)

GOG 0147 Non-Small Cell Lung Cancer

062012-03 A randomized phase II trial of nab-paclitaxel, or paclitaxel, plus carboplatin with concurrent radiation therapy followed by consolidation in patients with favorable prognosis inoperable stage IIA/IB NSCLC

032010-341 A randomized phase II trial of etoposide (VePesid®) in combination with stereotactic body radiation therapy (SBRT) for patients with locally advanced or metastatic non-small cell lung cancer (NSCLC)

Prostate

062012-058 A phase III prospective randomized trial of dose-escalated radiation therapy with or without short-term androgen deprivation therapy for patients with intermediate-risk prostate cancer

032012-034A A phase II trial of short-term androgen deprivation therapy and surgical lymph node dissection (ADT) for Gleason 5 prostate cancer patients with a rising PSA after radical prostatectomy

062011-013 A phase II trial of dose-escalated radiation therapy and standard androgen deprivation therapy (ADT) with a DHRT agonist vs. dose-escalated radiation therapy and enhanced ADT with a DHRT agonist and TAK-700 for men with high-risk prostate cancer

Spine

072010-134 A phase II study of stereotactic body radiation therapy and vertebroplasty for localized spine metastases

042011-001 A phase IIb-II study of image guided radiosurgery/SRT for localized spine metastases

For more information, please contact Clinical Research Manager Jean Wu at 214-433-1753 or jean.wu@utsouthwestern.edu
Physicians who would like to make a referral may call the Department's main clinic number 214-645-8525 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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