Toxicity Data Reported for the Use of SBRT in the Treatment of Patients With Early-Stage and Centrally Located Non-Small Cell Lung Cancer Tumors Show the Treatment is Well Tolerated

SAN ANTONIO—Toxicity results of the phase II/II NRG Oncology/RTOG 0813 trial evaluating the use of stereotactic body radiotherapy (SBRT) for treating patients who are not surgical candidates and have lung cancer tumors that are located centrally in the chest were reported today at the 57th Annual Meeting of the American Society for Radiation Oncology (ASTRO). The trial’s principal investigator, Andrea Bezjak, M.D., M.Sc., F.R.C.R. S.C., a professor of radiation oncology at the University of Toronto in Ontario, Canada, presented data showing that overall the treatment was well tolerated and that the highest dose level allowed by the protocol (12 Gy delivered x 5 fractions over 1.5–2 weeks, total dose 60 Gy) was reached. The trial is the first to implement a phase II/II continuous reassessment design employed to collect toxicity and efficacy data safely and expeditiously in the evaluation of dose-escalating SBRT treatment.

SBRT is widely used in the treatment of patients with non-small cell lung cancer (NSCLC) tumors located in the periphery of the lung. “What has remained unclear are the dose and fractionation schedule of SBRT that are safe and efficacious for treating patients with early-stage, inoperable NSCLC tumors that are located more centrally in the chest, close to critical organs and structures. So we planned this trial to establish a dose standard for these patients who are being treated for cancer cure,” says Bezjak.

The starting radiation dose was 10 Gy delivered x 5 fractions over 1.5 to 2 weeks (total dose 50 Gy). As part of the continuous reassessment study design, the dose level for the next patient was determined based on all dose-limiting toxicity (DLT) reported as of the time of patient registration. DLT was defined as any grade 3 or worse toxicity occurring within the first year that was related to SBRT. “Rather than as with a classical phase I study holding accrual while awaiting toxicity reporting on the cohort of patient at a given dose, and then proceeding to a phase II study, once the maximum tolerated dose was achieved, this seamless phase II/II study allowed all patients to contribute to determining the maximally tolerated dose levels and to the information about dose efficacy within one trial,” explains Bezjak, who notes that such a trial design requires a concerted effort on the part of research sites to rapidly report toxicity data as it may influence the dose that next patient will be assigned.

Bezjak reported that the highest dose level allowed by the protocol was associated with a 7.2 percent probability of DLT. The phase II efficacy analysis is expected to begin early in 2016.

“These results are especially important in light of the new lung cancer screening guidelines, which are likely to lead to significantly more early-stage lung cancers being detected,” says Walter J. Curran Jr., M.D., an NRG Oncology Group Chairman and Executive Director of the Winship Cancer Institute of Emory University in Atlanta.
NRG Oncology conducts practice-changing, multi-institutional clinical and translational research to improve the lives of patients with cancer. Founded in 2012, NRG Oncology is a Pennsylvania-based nonprofit corporation that integrates the research strengths of the National Adjuvant Breast and Bowel Project, the Radiation Therapy Oncology Group, and the Gynecologic Oncology Group. The research organization seeks to carry out clinical trials with emphases on gender-specific malignancies, including gynecologic, breast, and prostate cancers, and on localized or locally advanced cancers of all types. NRG Oncology’s extensive research organization comprises multidisciplinary investigators, including medical oncologists, radiation oncologists, surgeons, physicists, pathologists, and statisticians, and encompasses more than 1300 research sites located world-wide with predominance in the United States and Canada. NRG Oncology is supported primarily through grants from the National Cancer Institute (NCI) and is one of five research groups in the NCI’s National Clinical Trials Network.