SUVmax provides valuable indicator of progression-free survival in stage I NSCLC patients

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SUVmax (Maximum Standardized Uptake Value) may be a significant and clinically independent marker to indicate progression-free survival in stage I non-small cell lung cancer (NSCLC) patients treated with stereotactic body radiation therapy (SBRT), according to research being presented at the 2013 Cancer Imaging and Radiation Therapy Symposium. This Symposium is sponsored by the American Society for Radiation Oncology (ASTRO) and the Radiological Society of North American (RSNA).

SUVmax is measured via PET/CT scan after patients have been injected with radioactive sugar (glucose). Quantifying the SUV of suspicious lesions can aid the identification of early stage tumors because cells that take in greater than normal amounts of radioactive glucose have a higher likelihood of being tumor cells. The highest concentration of radioactive glucose represents SUVmax. Previous studies have been able to correlate SUVmax to the growth rate of tumors, which indicates that tumors with higher SUVmax will more likely be more rapidly growing and will therefore be tumors that are more difficult to treat, may recur or may metastasize more frequently.

This study included 95 medically inoperable NSCLC patients from October 2005 through May 2011, with a median age of 77 years. All patients had peripheral tumors, and no patient had been previously treated for lung cancer. Prior to SBRT treatment, all patients had an

PET/CT scan with documented pretreatment SUVmax assessment. SBRT fractionation was 60 Gy in three (3) fractions with a median treatment time of six days (range of three to 21 days). With a median follow-up of 15 months, median overall survival was 25.3 months and progression-free survival was 40.3 months. Tumor control, overall and progression-free survival were derived utilizing the Kaplan-Meier method, and Cox proportional hazards regression was performed to determine whether SUVmax, age, Karnofsky Performance Status, gender, tumor size/T-stage or smoking history influenced outcomes.

"If SUVmax is assessed prior to radiation therapy, specific strategies could be developed to tailor treatments for patients, which would, in turn, provide them with the best chance at a longer and disease-free survival," said Zachary Horne, a 2013 MD candidate at the George Washington University School of Medicine in Washington, D.C., the lead study author and a researcher in the radiation oncology department at the University of Pittsburgh Cancer Institute. "Accurate anatomical and functional imaging and assessment, such as SUVmax, can help us achieve improved outcomes for patients."

More information: The abstract, "Pretreatment SUVmax as a Marker for Progression-Free Survival in Stage I NSCLC Treated with SBRT," will be presented in detail during a scientific session at 8:00 a.m. Eastern time on Saturday, February 9, 2013.

Provided by American Society for Radiation Oncology