Stereotactic Ablative Radiotherapy achieves better overall survival than surgery for early lung cancer

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Patients with operable stage I non-small cell lung cancer (NSCLC) could achieve better overall survival rates if treated with Stereotactic Ablative Radiotherapy (SABR) rather than the current standard of care—invasive surgery—according to research from a phase III randomized international study from The University of Texas MD Anderson Cancer Center.

The findings, published today in *The Lancet Oncology*, are from the first randomized clinical trials comparing SABR and surgery.

"For the first time, we can say that the two therapies are at least equally effective, and that SABR appears to be better tolerated and might lead to better survival outcomes for these patients," said the first author and principal investigator Joe Y. Chang, M.D., Ph.D., professor, Radiation Oncology. "Stereotactic radiation treatment is a relatively new approach for operable early stage lung cancer, while surgery has been the standard for a century. This study can give physicians confidence to consider a non-invasive option."

The researchers analyzed overall survival, recurrences and toxicity in 58 patients. Estimated three-year survival rates were 79 percent in the surgery group and 95 percent in the SABR group, while recurrence-free survival rates at three years were 80 percent and 86 percent, respectively. Six patients in the surgery group died versus one death within the SABR

group. None of the patients treated with SABR had high-grade toxicity.

The authors suggest that the lower survival rate following surgery could be attributed to other simultaneous conditions that were worsened by the surgical reduction of lung function. As such, the findings support SABR as a non-invasive alternative, especially for elderly patients and for those with significant comorbidities.

According to the Centers for Disease Control and Prevention, lung cancer is the leading cancer killer in both men and women in the United States. The American Cancer Society reports that over half of people with lung cancer die within one year of being diagnosed, and, according to the National Cancer Institute, an estimated 158,040 Americans are expected to die from the disease in 2015.

"The findings of our study provide strong support for a large clinical trial to investigate the potential superiority of SABR for patients with early-stage disease," said senior author Jack A. Roth, M.D., Professor and Bud Johnson Clinical Distinguished Chair Department of Thoracic & Cardiovascular Surgery. "While we wait for more data, physicians can consider SABR an effective treatment for these patients, especially for those whom surgery brings high risk."

Over the last decade, SABR has been used to treat patients with inoperable NSCLC, showing outcomes that are better in some cases than traditional radiation. However, there has been no data on SABR for patients with operable early-stage NSCLC because of concerns about the risk of recurrence after SABR. Surgery on the other hand, lobectomy (removal of half of a lung) with dissection of the lymph nodes, was thought to have less chance for cancer to recur.

However, lung cancer surgery is a major operation with a high complication rate and while recurrence rates are low, there is a 10-20

percent chance of the cancer coming back in the other lobes, regional lymph nodes and distant organs, noted Chang. In this study there was no difference between SABR and surgery for tumor recurrence.

He added that these findings should be interpreted with some caution, due to the small patient sample size and limited follow up time. Two new randomized studies are in preparation and expected to be opened in 2015: VALOR (Veterans Affairs Lung cancer surgery Or stereotactic Radiotherapy trial) in the U.S., and, in the U.K., SABRtooth, a multicenter pilot study of SABR versus surgery in patients with peripheral stage I NSCLC considered at higher risk of complications from surgical resection.

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