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**Tumor measurements predict survival in advanced
non-small cell lung cancer, UT Southwestern study suggests**

DALLAS – Aug. 16, 2013 – For the two-thirds of lung cancer patients with locally advanced or metastatic disease, tumor size is not used currently to predict overall survival times. A new study, however, led by UT Southwestern Medical Center researchers has shown that even in advanced stages total tumor size can have a major impact on survival.

Using data from a National Cancer Institute-sponsored Phase 3 trial involving 850 patients with advanced lung cancer, Dr. David Gerber, assistant professor of internal medicine at UT Southwestern, and colleagues from other academic medical centers reviewed the recorded total tumor dimensions – which may include not only the primary tumor, but also those in lymph nodes and other sites of metastatic disease. Dr. Gerber’s team found that total tumor measurements greater than 3 inches predicted shorter survival times.

“The traditional view is that once a cancer has spread to the lymph nodes or to other organs, tumor dimensions are unlikely to affect patient outcomes,” explained Dr. Gerber, a member of the Harold C. Simmons Comprehensive Cancer Center and lead author of the study. “However, the survival differences we found are not only statistically significant, but also clinically meaningful.”

In the study, published online in the *British Journal of Cancer*, the average total tumor dimension was 7.5 centimeters, or roughly 3 inches. Patients with total tumor dimensions above this size lived an average of 9.5 months. Patients with total dimensions below 7.5 centimeters lived an average of 12.6 months, representing a 30 percent increase in survival.

When total tumor dimension was further divided into quartiles, the survival differences were even greater, ranging from 8.5 months to 13.3 months. These differences persisted even when multiple prognostic factors, such as age, gender, and type of treatment, were included in the analysis.

Dr. Gerber explained that, if confirmed in other populations, these findings could affect future clinical trials and patient care.

“Ultimately, clinical researchers might consider this information as they review outcome data, making sure survival differences are attributed to treatment effects and not to baseline differences in total tumor dimensions,” he said. “Practicing physicians may also use the information to estimate prognosis.”

(MORE)

Lung cancer tumors – 2

Precise measurements of lung cancer tumors can be used in tailoring therapy and helping doctors steer patients to the best clinical trials, he added.

While the study did not seek to explain the biological reasons why this size association may hold true, a number of preclinical observations link tumor size with therapeutic resistance. It is generally thought that as tumors grow, the proportion of cells resistant to chemotherapy increases. Larger cancers may also have relatively poor blood supply and more pronounced gradients in interstitial pressure, hypoxia, and acidity, which may influence tumor cell sensitivity to chemotherapeutics and radiation treatments.

Other UT Southwestern investigators involved in this study were Dr. David Johnson, chairman of internal medicine and senior author; Dr. Joan Schiller, chief of hematology/oncology and deputy director of the Simmons Cancer Center; and Daniel H. Ahn, a former internal medicine resident and palliative care fellow. Researchers from the Dana Farber Cancer Institute, Johns Hopkins University, and the Oregon Health Sciences University also contributed.

This analysis was completed with support from the National Institutes of Health and the Department of Health and Human Services. This work was also supported in part by a National Cancer Institute Cancer Clinical Investigator Team Leadership Award and the North and Central Texas Clinical and Translational Science Initiative.

Visit the [Harold C. Simmons Cancer Center](#) to learn more about cancer research, screening, and therapy at UT Southwestern, including highly individualized treatments for cancer at the region's only National Cancer Institute-designated center.

About UT Southwestern Medical Center

UT Southwestern, one of the premier academic medical centers in the nation, integrates pioneering biomedical research with exceptional clinical care and education. The institution's faculty has many distinguished members, including five who have been awarded Nobel Prizes since 1985. Numbering more than 2,700, the faculty is responsible for groundbreaking medical advances and is committed to translating science-driven research quickly to new clinical treatments. UT Southwestern physicians provide medical care in 40 specialties to nearly 90,000 hospitalized patients and oversee more than 1.9 million outpatient visits a year.

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