Early stage NSCLC patients with low tumor metabolic activity have longer survival

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Low pre-surgery uptake of a labeled glucose analogue, a marker of metabolic activity, in the primary tumor of patients with stage I non-small cell lung cancer (NSCLC) is associated with increased overall survival and a longer time before tumor recurrence. Patients with high labeled glucose uptake may benefit from additional therapy following surgery.

Surgery is the standard of care for patients with stage I NSCLC but not all patients are cured, as demonstrated by a 5-year survival rate of less than 60% in these patients. There is a clear need for a diagnostic test to identify which patients should receive post-surgical therapy, such as chemotherapy, and which patients don't need further treatment, thus avoiding unnecessary treatment related toxicity and complications. Fluorodeoxyglucose (FDG) is radiolabeled analogue of glucose whose concentration within a tumor can be measured with a positron emission tomography (PET) imaging scanner.

Researchers from Duke University Medical Center reviewed 336 patients diagnosed between 2005 and 2010 with stage I NSCLC who underwent FDG/PET within 90 days of surgery to determine if FDG uptake, as measured by maximum standard uptake value (SUVmax) with PET, was associated with overall survival or time to recurrence. The median follow-up was 5.1 years.

The results published in the *Journal of Thoracic Oncology*, the official journal of the International Association for the Study of Lung Cancer

(IASLC), show that the risk of dying and recurrence decreased significantly as SUVmax decreased (p=0.0008 and p=0.24, respectively). It was estimated that 22.5% of the patients with SUVmax above the median will have recurrent disease at 2 years, compared to 8% in the lowest SUVmax quartile and at 5 years 41% of the patients in the 3rd quartile of SUVmax will be alive compared to 77% in the lowest SUVmax group.

The authors conclude "FDG/PET SUVmax of stage I NSCLC at diagnosis is predictive of survival and time of recurrence. This parameter may serve as a biomarker to guide selection of patients for post-surgical chemotherapy or other more aggressive therapies." However, Dr Edward Patz, senior author of the study and member of IASLC, points out "there is a need for prospective clinical trials to further examine the prognostic utility of tumor SUVmax in early stage lung cancer".

More information: *Journal of Thoracic Oncology*, journals.lww.com/jto/Abstract/ … omography.98968.aspx

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