

# NSCLC patients who never smoked or who quit smoking have lower risk of developing secondary cancers

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Non-small cell lung cancer (NSCLC) survivors who never smoked or who are former smokers at the time of diagnosis have a lower risk of developing secondary primary lung cancers (SPLC) compared to those who are current smokers, suggesting that increased tobacco exposure is associated with a higher risk of SPLC, according to research presented today at the American Society for Radiation Oncology's (ASTRO's) 56th Annual Meeting.

The analysis studied the association between [patients'](#) smoking histories and their risks of developing SPLC, which is defined as a new [lung cancer](#) unrelated to the initial tumor based on histology and location in the lung.

The study analyzed 1,484 patients (372 current smokers, 1,014 former smokers and 98 never smokers) who underwent surgery, with or without adjuvant chemotherapy or radiation therapy, for stage I-IIIa NSCLC at Duke University Medical Center between 1995 and 2008. Baseline covariates and oncologic outcomes including local control (LC), development of distant metastases (DM), overall survival (OS) and rates of SPLC were assessed. SPLC were distinguished from metastases based on histologic evaluation supplemented with clinical presentation, including the anatomic site and chronological onset of diagnosis. Hazard ratios (HR) were calculated with 95 percent confidence intervals, and multivariate analysis (MVA) were performed using a Cox regression

model.

The study found that five years after the initial diagnosis, current smokers were more likely to develop SPLC. The five-year incidence of SPLC was 13 percent for current smokers, seven percent for former smokers, and zero percent for patients who had never smoked. In the follow-up period, only one patient who had never smoked developed an SPLC, seven years after surgery for the first cancer.

Furthermore, when restricting the analysis to continuing smokers with pack-years (PY) as a continuous variable, the risk of SPLC increased with the number of years of [tobacco exposure](#), corresponding to an 8 percent increased risk per 10 PY.

For all patients, there were no differences in LC or DM based on smoking status. When comparing patients who were current smokers to those who had never smoked or had quit smoking more than five years prior to surgery, OS was significantly worse for current smokers.

"In conducting the study, which is one of the largest of its kind, we were particularly interested in how smoking history related to the risk of developing a second lung cancer," said John Michael Boyle, MD, lead author of the study and a [radiation oncology](#) resident at the Duke Cancer Institute in Durham, N.C. "While we believed those who have never smoked would have a low risk of developing a second lung cancer, which was confirmed, we were encouraged to find that [smoking cessation](#) led to a lower risk of developing a second lung cancer and overall survival rates similar to nonsmokers. These findings confirm that [smoking](#) cessation is crucial and should be an integral component of patient care for patients without a prior cancer diagnosis as well as for cancer survivors."

**More information:** The abstract, "Tobacco Use and Secondary Lung

Malignancies after Surgery for Non-Small Cell Lung Cancer," will be presented in detail during a scientific session at ASTRO's 56th Annual Meeting at 2:45 p.m. Pacific time on Tuesday, September 16, 2014.

Provided by American Society for Radiation Oncology

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