Has the Survival for Patients with Non-Small Cell Lung Cancer Treated with Radiotherapy Improved Over Time? An Analysis of the SEER Database.

Brian E. Lally¹, Jean L. Wright¹, Leonidas Koniaris², Charles R. Thomas, Jr. ¹, Dao Nguyen², Jorge Gomez³, and Matthew C. Abramowitz¹

University of Miami Miller School of Medicine Departments of Radiation Oncology, Surgery, and Medicine³
Knight Cancer Institute, Oregon Health Sciences University, Department of Radiation Medicine⁴

Purpose
Over time the management of patients with non-small cell lung cancer (NSCLC) has significantly changed. Technological advances, including improved staging modalities, radiotherapy techniques and the use of chemotherapeutic agents for radio-sensitization, have been shown to improve the outcome of these patients. Here we attempted to document the improvement in survival over time in all patients as well as the subset receiving radiotherapy.

Materials and Methods

We used the Surveillance, Epidemiology, and End Results (SEER) database to examine the outcomes of patients with NSCLC over time and to determine if any trends were present.

We assembled a cohort of patients aged 21 years and older with NSCLC diagnosed from 1988 to 2002 and followed through 2007.

Potential covariates included patient age at diagnosis, sex, race, year of diagnosis and histology.

To reduce the effect of unequal follow-up, all patients were censored at 5 years survival.

Cox proportional hazard model was used. Patients were required to have complete information on staging.

Results

There were a total of 140,307 patients selected for our analysis. On multivariate analysis, we looked at the effect of the year of diagnosis, adjusting for age, sex, tumor location, histology, and treatment. Subset analysis was performed for Stage I, Stage II/III/IIb, and Stage IV; separate analysis were performed for with respect to the use of surgical or non-surgical therapy, except for Stage IV.

Abbreviations: NOS= Carcinoma not otherwise specified; BAC=Bronchioalveolar Carcinoma, AWMST= Adenocarcinoma with mixed subtypes

Conclusions

The survival for patients with NSCLC has improved with time. We hypothesize that the benefit seen in stage I and IV NSCLC, represent a primarily and improved in staging. The benefit seen in stage II/IIIA/IIIB represent not only an improved in staging, but also improvements in radiotherapy as well as the integration of chemotheraphy for radiosensitization.

References


