Post-operative radiation therapy improves overall survival for patients with resected non-small cell lung cancer

According to analysis of more than 2,100 patients treated from 2004 to 2006

Chicago, October 30, 2014—Patients who received post-operative radiation therapy (PORT), radiation therapy after surgery, lived an average of four months longer when compared to the patients who had the same disease site, tumor histology and treatment criteria and who did not receive PORT, according to research presented today at the 2014 Chicago Multidisciplinary Symposium in Thoracic Oncology. The Symposium is sponsored by the American Society of Clinical Oncology (ASCO), the American Society for Radiation Oncology (ASTRO), the International Association for the Study of Lung Cancer (IASLC) and The University of Chicago Medicine.

This study reviewed the records of non-small cell lung cancer patients treated from 2004 to 2006 from the National Cancer Data Base (NCDB), a joint endeavour of the Commission on Cancer of the American College of Surgeons and the American Cancer Society. The study authors acquired the data for patients who had surgically resected non-small lung cancer with pathologically involved N2 (pN2) lymph nodes (tumors had spread to the lymph nodes in the center of the chest (the mediastinum)) and

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who received chemotherapy. The database was further queried to exclude patients with positive margins, incomplete survival data, those who did not receive adjuvant chemotherapy, histology other than NSCLC, and patients treated with Cobalt-60, non-beam radiotherapy or neoadjuvant radiotherapy. Two thousand one hundred and fifteen patients (2,115) met all of the study criteria. Forty-three percent of patients (918) received PORT; 56.6 percent of the patients (1,197) were not treated with PORT.

Factors associated with overall survival (OS) were assessed through a multivariable Cox proportional hazards model. Inverse probability of treatment weighting (IPTW) using the propensity score was also implemented to reduce biased treatment selection. Using an adjusted Kaplan-Meier estimator and the weighted log-rank test based on the IPTW, patients treated with PORT had an improved overall survival (median survival time) of 42 months compared to 38 months for the patients not treated with PORT (p=0.048).

Multivariable analysis revealed that female gender, adenocarcinoma histology, higher income, urban/rural setting vs. metropolitan setting, lower T state, 1-2 involved lymph nodes vs. ≥3 examined and involved lymph nodes, and younger age correlated to better OS (p<0.05). No direct relation was found between the effects of PORT and the number of involved lymph nodes.

“These results reinforce the value of PORT for non-small cell lung cancer patients with involved mediastinal lymph nodes. Our data indicates that with modern radiotherapy equipment and treatment techniques, PORT can improve survival for these patients,” said John L. Mikell, MD, lead study author and chief resident in the Department of Radiation Oncology at Emory University Winship Cancer Institute in Atlanta. “The data in this study, the largest, most recent cohort of patients with involved mediastinal nodes treated with chemotherapy reinforce that PORT should be considered in addition to chemotherapy following resection of non-small cell lung cancer.”

The abstract, “Post-Operative Radiotherapy (PORT) is Associated with Better Survival in Non-Small Cell Lung Cancer with Involved N2 Lymph Nodes,” will be presented in detail during a poster session at 5:00 p.m. Central time on Thursday, October 30, 2014. To speak with Dr. Mikell, please call
Michelle Kirkwood on October 30-October 31, 2014, in the Press Office at the Chicago Marriott Downtown Magnificent Mile at 312-595-3150, or email: michellek@astro.org.

The 2014 Chicago Multidisciplinary Symposium in Thoracic Oncology will provide a clinically relevant, multidisciplinary update on the scientific progress in treating thoracic malignancies. The symposium brings together physician specialists and practicing clinicians of the multidisciplinary care team to discuss the evolving management of thoracic cancers. The Symposium integrates scientific abstract presentations with accompanying discussions, poster abstract presentations, as well as “challenging case” presentations in interactive tumor board-style forums. The two keynote speakers for the Symposium are Kenneth Rosenzwieg, MD, FASTRO, of Mount Sinai School of Medicine in New York, and Corey J. Langer, MD, of Abramson Cancer Center in Philadelphia. Dr. Rosenzwieg will discuss the use of mutational analysis to guide systemic therapy; and Dr. Langer will review the cutting edge, lung cancer research presented at recent national meetings – ASCO, ASTRO and STS (Society of Thoracic Surgeons).

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2014 Multidisciplinary Symposium in Thoracic Oncology  
News Briefing, Friday, October 31, 2014, 7:00 a.m. Central time

Poster Presentation: Thursday, October 30, 2014, 5:00 p.m. Central time, Chicago Ballroom, Chicago Marriott Downtown Magnificent Mile

128 Post-Operative Radiotherapy (PORT) is Associated with Better Survival in Non-Small Cell Lung Cancer with Involved N2 Lymph Nodes

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Purpose/Objective(s): The use of PORT for resected non-small cell lung cancer (NSCLC) remains controversial. Limited data indicate that PORT may be beneficial for patients with involved N2 nodes. The present study evaluates this hypothesis in a large retrospective cohort of patients treated with adjuvant chemotherapy and contemporary radiation techniques.

Materials/Methods: The National Cancer Data Base (NCDB), a prospectively-acquired database and joint endeavor of the Commission on Cancer of the American College of Surgeons and the American Cancer Society, was queried for patients with resected NSCLC with pathologically involved N2 (pN2) nodes treated between 2004-2006. Patients with positive margins, incomplete survival data, no receipt of adjuvant chemotherapy, histology other than NSCLC, and those treated with cobalt-60, non-beam radiotherapy, or neoadjuvant therapy were excluded. A multivariable Cox proportional hazards model was used to assess factors associated with overall survival (OS). Inverse probability of treatment weighting (IPTW) using the propensity score was also used to reduce treatment selection bias. OS was compared between patients treated with PORT vs. those not treated with PORT using the adjusted Kaplan-Meier estimator and the weighted log-rank test based on IPTW.

Results: Between 2004-2006, 2115 patients were eligible for analysis. 918 (43.4%) received PORT, while 1197 (56.6%) did not. PORT was associated with better OS (median survival time (MST) 42 months with PORT vs. 38 months without, p=.045). This effect was significant in multivariable and IPTW Cox models (HR 0.87, 95% CI 0.78-0.98, p=.026, and HR 0.89, 95% CI 0.79-1.00, p=.046, respectively). On multivariable analysis, female gender, adenocarcinoma histology, higher income, urban/rural setting vs. metro area, lower T stage, 1-2 involved lymph nodes (LN) vs. ≥3, higher number of examined LN, and younger age were associated with better OS (all p<.05). No interaction was seen between the effects of PORT and number of involved LN (p=.615).

Conclusions: PORT was associated with better survival for patients with pN2 nodes also treated with adjuvant chemotherapy. No interaction was seen between the benefit of PORT and number of involved LN. Despite the limitations of retrospective analysis and of the NCDB, including potential data miscoding, limited survival data, and inclusion of patients treated 10 years ago, these findings reinforce the benefit of PORT for N2 disease in modern practice using the largest, most recent cohort of chemotherapy-treated pN2 patients to date.


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