Resection Status, Age and Nodal Involvement Determine Survival among Patients Receiving Adjuvant Chemoradiotherapy in Pancreatic Adenocarcinoma

Drew Moghanaki1, Rosemarie Mick2, E Elizabeth Furth3, Davendra Sohal4, Patricia M Salmon1, Ali Behbahani1, Alicia K Morgans1, Seth M Miller1, Bruce J Giontonio4, Richard W Whittington6, Daniel G Haller4, Ernest F Rosato5, John P Plastaras1

Departments of 1Radiation Oncology, 2Biostatistics and Epidemiology, 3Pathology, 4Medical Oncology, and 5Surgery, University of Pennsylvania; 6Philadelphia Veterans Administration Medical Center. Philadelphia, PA, USA

ABSTRACT

Objectives Pancreas cancer can potentially be cured by resection, but the role of adjuvant chemotherapy and/or chemoradiation has been controversial. Clinicopathologic factors that may serve as predictive and/or prognostic variables are not well-defined. Methods Between 1984 and 2006, we retrospectively analyzed 91 patients with pancreas cancer treated with pancreaticoduodenectomy or total pancreatectomy followed by adjuvant 5-fluorouracil-based chemoradiation at the University of Pennsylvania. Final pathological coding including margin status was confirmed by a pathologist. The prognostic significance of demographic factors, stage, year of surgery, tumor location, grade, resection status, and number of positive lymph nodes on overall survival were examined. Results Patients were treated with 48.6 to 63 Gy, and 97% completed their prescribed radiation dose. With a median follow-up of 6.5 years, the overall median survival was 2.3 years (95% CI: 1.5-3.2 years), and the 5-year overall survival was 28.9%. In multivariate analysis, completeness of resection (P<0.001), fewer number of positive lymph nodes (0 vs. 1-2 vs. 3 or more) (P=0.004), and age less or equal to 60 year (P=0.006) were all independently associated with improved overall survival. The overall survival reported in this study compares favorably with the results of other single-institution studies and with RTOG 97-04. Conclusions Adjuvant 5-fluorouracil-based chemoradiation following radical pancreatectomy can be delivered safely and results in comparatively good overall survival. The results of this analysis underscore the importance of resection status, number of involved lymph nodes and patient age as prognostic characteristics. These factors may be considered stratification variables for future post-pancreatectomy adjuvant therapy trials.