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Adjuvant chemotherapy after neoadjuvant chemoradiation in esophageal cancer: A propensity score matched analysis

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Purpose: Patients with locally advanced esophageal cancer (EC) have poor long-term survival despite improvements in multi-modality care. Neoadjuvant chemoradiation (NCR) followed by surgical resection remains standard of care. However, the utilization of adjuvant therapy continues to be debated. Our study reviews the effectiveness of adjuvant therapy after neoadjuvant therapy in resected EC.

Methods: Utilizing the National Cancer Database (NCDB) we identified patients with esophageal cancer who underwent NCR followed by esophagectomy and compared patients who received adjuvant therapy to those who did not. Propensity score matched (PSM) analysis was performed. Baseline univariate comparisons of patient characteristics were made for continuous variables using both the Mann-Whitney U and Kruskal Wallis tests as appropriate. Pearson's Chi-square test was used to compare categorical variables. Unadjusted survival analyses were performed using the Kaplan-Meier method comparing survival curves with the log-rank test. All statistical tests were two-sided and α (type I) error <0.05 was considered statistically significant.

Results: We identified 1,816 patients with EC: adenocarcinoma n=1,664 (91.6%) and squamous cell carcinoma n=134 (7.4%). There were 1,596 (87.9%) males and 220 (12.1%) females. Location of the tumor was 121 (6.7%) middle, 1,267 (7.0%) lower, and 371 (20.4%) at the gastroesophageal junction. Both the adjuvant therapy group and the no adjuvant group had 908 patients after PSM with a median age of 60 years (26-83). Univariate analysis revealed age, R0 resection, T-stage, N-stage, grade, <10 lymph nodes removed and adjuvant therapy were predictors of survival. All patients who received adjuvant therapy revealed greater median and overall survival, 36.4 months and 34.5% versus 30.9 months and 33.2%, p=0.02. Node negative patients did not show a significance in survival with adjuvant therapy 57.2 and 55.4 months respectively, p=0.4. However node positive patients demonstrated improved median and overall survival with adjuvant therapy 31.1 months and 27% respectively compared to the no adjuvant therapy group 25.7 months and 24.3%, p=0.03. Multivariate analysis revealed LN+, T-stage (p=0.002), R0 resection (p<0.001), and number of lymph nodes removed (p<0.001) were predictors of survival.

Conclusion: Adjuvant therapy in all EC patients after neoadjuvant therapy does show improved median and overall survival. Similar to other studies, R0 resection and T-stage continue to influence survival. However, node negative EC patients were found to have no survival benefit with the addition of adjuvant therapy.

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