Utilization of Adjuvant Radiotherapy for Resected Colon Cancer and Its Effect on Outcome

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Background:

Adjuvant radiation is typically not recommended for colon cancer. There are some instances where radiation is considered: such as advanced local disease (pT4) and/or positive margins. Guidelines in this area are lacking; thus we analyzed the National Cancer Database (NCDB) for patterns of care in this regard and any co‐variates predictive of outcome.

Methods:

We queried the NCDB from 2004-2016 for patients with resected adenocarcinoma of the colon that were pT4 and/or had positive margins on final pathology followed by multi-agent chemotherapy. Multivariable logistic regression was used to identify predictors of adjuvant radiation. A propensity score was used to perform a matched Kaplan Meier analysis. A propensity adjusted Cox regression was used to identify predictors of overall survival.

Results:

We identified 23,325 patients meeting criteria, of which 1,711 (7%) received adjuvant radiation. The median follow up was 36 months. The majority of patients were pT4 alone (65%). Predictors of adjuvant radiation were lower comorbidity score, younger age, more remote year of treatment, and both pT4 and positive margins. Kaplan Meier analysis revealed improved survival in patients with both pT4 and
positive margins treated with radiation (median survival of 66 months with radiation vs. 47 months without, p=0.02). Cox regression identified radiation as a predictor of improved survival [HR: 0.86 (0.80-0.93) p=0.0002]. Increased age, higher comorbidity score, lower income, government insurance, and combined pT4/positive margins were indicative of worse survival.

Conclusions:

The use of adjuvant radiation in patients with both pT4 and positive margins was associated with improved survival outcomes; however patients should be properly selected.