More May Not Be Better: Comparison of Oncologic Outcomes Following Induction Chemotherapy Plus Chemoradiation and Chemoradiation Alone for Esophageal Adenocarcinoma

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Introduction: The oncologic benefit of induction chemotherapy (IC) before chemoradiation (CRT) compared to CRT alone for locally advanced esophageal and gastroesophageal junction (GEJ) adenocarcinoma is not well defined. We hypothesized that IC with CRT would improve survival and pathologic complete response rate compared to CRT alone.

Methods: A retrospective review of patients with biopsy proven esophageal or GEJ adenocarcinoma treated with preoperative CRT and IC + CRT and surgical resection from 2007 to 2023 at a single institution was performed. First order outcomes were overall survival and pathologic complete response rate; secondary outcomes included disease-free survival and distant metastasis failure. Subgroup analyses were conducted based on baseline characteristics and tumor-specific features. Survival analysis was performed with Kaplan-Meier curves with log-rank tests and Cox regression analysis.

Results: Of 205 patients that met inclusion criteria, 76 (38%) patients underwent IC + CRT. There were no significant differences in demographic or tumor-specific characteristics between the two cohorts. There were no differences in the median overall survival between CRT and IC + CRT groups (47 months vs. not reached, $p = 0.194$). The rate of pathologic complete response in the overall cohort was 22%; IC + CRT was not associated with higher complete tumor response than CRT alone (20% vs. 23%, $p = 0.557$). There were no significant differences in any of the secondary outcomes between the two treatment paradigms.

Conclusions: We could not detect added oncologic benefit in survival or pathologic complete response with IC over CRT alone for resectable esophageal and GEJ cancer.

Biomarker driven prospective studies exploring the optimal perioperative treatment regimens are warranted.

Keywords: chemoradiation; esophageal adenocarcinoma; induction chemotherapy; perioperative therapy.