

SO-21 **Impact of timing of perioperative chemotherapy on survival outcomes among patients with colorectal liver metastases: A propensity score matching of the national cancer database**F. Baidoun¹, Z. Merjaneh¹, R. Nanah¹, O. Abdel-Rahman²¹Cleveland Clinic Foundation, Cleveland, United States; ²Cross Cancer Institute and University of Alberta, Edmonton, Canada

Background: Colorectal cancer (CRC) is the third most common diagnosed malignancy and the second leading cause of cancer-related death in the US. About 20% of patients with CRC present with metastatic disease, with the liver being one of the most common metastatic sites. While surgical resection for primary tumor and distant metastases is recommended among individuals with resectable metastases, the role and timing of perioperative systemic therapy is not yet defined.

Methods: The National Cancer Database was queried for patients diagnosed with metastatic colorectal adenocarcinoma (with isolated liver metastases) between 2004 and 2016. After including only patients who received chemotherapy and excluding patients with unknown time from diagnosis to surgery and time from diagnosis to chemotherapy, we evaluated the overall survival (OS) between patients who were treated with adjuvant chemotherapy and patients who were treated with neoadjuvant chemotherapy. We studied the OS using Kaplan-Meier estimates and multivariate cox regression analyses to evaluate factors associated with OS. Additionally, propensity score matching (accounting for age, clinical T stage, clinical N stage, and Charlson-Deyo score) was used for more robust results.

Results: A total of 5646 patients with metastatic CRC and liver metastases were included for analysis, of which 3432 (60.8%) were treated with adjuvant chemotherapy and 2214 (39.2%) were treated with neoadjuvant chemotherapy. We found that patients who received neoadjuvant chemotherapy had a statistically significant better OS compared to patients who received adjuvant chemotherapy (median OS was 48.6 months vs 38.6 months, *P* Propensity score matching yielded 4428 patients for analysis of which 2214 (50%) patients received adjuvant chemotherapy and 2214 (50%) patients received neoadjuvant chemotherapy. We found patients who received neoadjuvant chemotherapy had statistically significant better OS compared to patients who received adjuvant chemotherapy (median OS was 48.6 months vs 35.1 months, *P* < 0.001).

Conclusions: Patients with CRC with isolated liver metastases who were treated with neoadjuvant chemotherapy had statistically significant improvement in OS compared to patients who were treated with adjuvant chemotherapy. These results are hypothesis-generating and indicate the need for confirmation of these results in the setting of prospective randomized studies.

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