Factors Associated with Not Undergoing Surgery for Locally Advanced Rectal Cancers and its Impact on Survival: An NCDB Propensity Matched Analysis

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Background:
The traditional treatment paradigm for patients with stages II/III rectal cancers has been neoadjuvant chemoradiation followed by curative intent surgery and adjuvant chemotherapy.

Objective:
The aims of this study were: 1) to assess factors associated with not undergoing surgery for locally advanced rectal cancers (LARCs) and 2) to compare survival outcomes of patients who underwent neoadjuvant+surgery+/-adjuvant therapy with those who underwent non-surgical therapy.

Methods:
Adult patients with stage II/III rectal cancer who underwent chemotherapy only, radiation only, chemoradiation only, or neoadjuvant+surgery+/-adjuvant therapy were retrospectively analyzed from the National Cancer Database (2004-2019). Patients who did not undergo surgery because it was not a planned course of treatment were excluded from the study. Factors associated with not undergoing surgery were identified using multivariable logistic regression. Propensity score matching was applied and produced well-balanced groups on all baseline characteristics. Kaplan-Meier and log-rank test were used for 5-year overall survival analysis stratified by stage and treatment type.

Results:
A total of 72,653 patients were identified, with 64,396 (88.6%) patients undergoing neoadjuvant+surgery+/-adjuvant therapy, 579 (0.8%) chemotherapy only, 916 (1.3%) radiation only, and 6762 (9.3%) chemoradiation only. The proportion of patients who underwent surgery declined over the study period (95.6% in 2006 to 92.3% in 2019, p-trend <0.001) while the proportion of patients who refused surgery despite recommendations increased (1.5% to 4.5%, p-trend <0.001). On adjusted analysis, factors associated with not undergoing surgery for LARCs include older age (age >=70: OR 3.79, 95% CI 3.40-4.21, p<0.001), Black race (OR 1.47, 95% CI 1.35-1.60, p<0.001), higher Charlson/Deyo score (score >=3: OR 1.79, 95% CI 1.58-2.04, p<0.001), stage II cancer (OR 1.22, 95% CI 1.17-1.28, p<0.001), lower median household income, and non-private insurance. Chemotherapy only, radiation only, and chemoradiation only were associated with worse 5-year overall survival compared to neoadjuvant+surgery+/-adjuvant therapy, regardless of stage in both unmatched and propensity score matched cohorts (Figure).

Conclusion:
Surgery remains an integral component in the management of LARCs. Providers should engage in discussions with patients to understand patient perspectives, guide them towards surgery if deemed appropriate candidates, and address barriers to undergoing or refusing surgery. As organ preservation strategies continue to advance, providers should tread with caution and ensure that patients receive optimal treatment in rectal cancer care.