Real-World Analysis of Patients Receiving Neoadjuvant Chemotherapy with and without Chemoradiation for Locally Advanced Rectal Cancer

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BACKGROUND
• The PROSPECT trial showed non-inferiority of:
  - neoadjuvant chemotherapy (NAC) with selective neoadjuvant chemoradiation (CRT)
  vs. standard chemoradiation (CRT)
• Randomized trials are often not reproducible with real-world data

RESEARCH OBJECTIVE:
Evaluate the association of neoadjuvant strategy with pathologic and survival outcomes in patients with locally advanced rectal adenocarcinoma in a national database

METHODS:
• Inclusion criteria: Patients with clinical T2N1, T3N0 & T3N1 rectal adenocarcinoma who had a definitive resection (NCDB 2012-2020)
• Exclusion criteria: Patients with palliative-intent treatment
• We compared patients by neoadjuvant treatment (NAT) with:
  - CRT alone
  - NAC alone
  - NAC followed by CRT
• Mixed-effects logistic regression assessed the association of NAT with R0 resection and pathologic complete response (PCR)
• Kaplan-Meier and mixed-effects cox proportional hazard regression assessed the association of NAT with overall survival (OS)
• Sensitivity analyses assessed OS only in patients who received adjuvant chemotherapy (AC)

RESULTS:
Of 18,892 patients
16,126 (85%) NAC alone had worse pathologic outcomes
1,018 (5%) CRT alone
1,748 (9%) NAC with CRT

More Likely: stage III disease, private insurance and treated at an academic or high-volume facility (all p<0.001)

• Patients who received NAC alone had:
  • Lower adjusted odds of an R0 resection (OR 0.72; 95% CI 0.54-0.95)
  • Lower adjusted odds of a PCR (OR 0.77; 95% CI 0.64-0.93)

Table. Mortality by NAT, adjusted for age, sex, race/insurance, insurance, comorbidities, grade, R0 resection, receipt of AC, and facility type and volume

Additional large-cohort studies are needed to evaluate the benefits of a total neoadjuvant strategy.

Real-world analyses of a national database highlight the benefits of a total neoadjuvant strategy.

• Low AC rates: 28% of CRT, 44% of NAC and 6% of NAC + CRT
• Among those with AC: no significant differences in OS by NAT

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