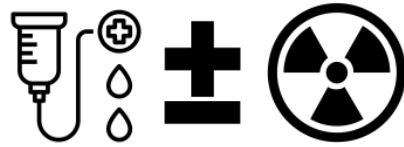


# Real-World Analysis of Patients Receiving Neoadjuvant Chemotherapy with and without Chemoradiation for Locally Advanced Rectal Cancer

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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:



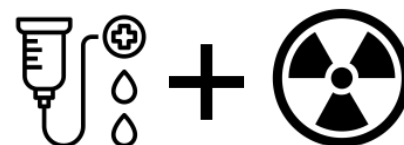
CRT alone

vs.



NAC alone

vs.



NAC followed by CRT

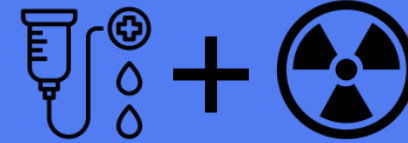
- Mixed-effects logistic regression assessed the **association of NAT with R0 resection and pathologic complete response (PCR)**
- Kaplan-Meier and mixed-effects cox proportional hazard regression assessed the **association of NAT with overall survival (OS)**
- Sensitivity analyses assessed OS only in patients who received adjuvant chemotherapy (AC)



NAC alone had worse pathologic outcomes



NAC and CRT alone had similar OS



NAC with CRT showed improved OS



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

Additional large-cohort studies are needed to evaluate the benefits of NAC versus CRT.

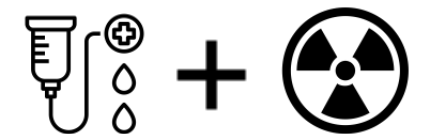
**RESULTS:** Of 18,892 patients



16,126 (85%)



1,018 (5%)



1,748 (9%)

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

		HR	95% CI
NAT	CRT alone	1.00 (REF)	
	NAC alone	0.86	0.75 – 1.00
	NAC with CRT	<b>0.71</b>	<b>0.61 – 0.82</b>
Tumor Grade	Well Differentiated	1.00 (REF)	
	Moderately Differentiated	0.96	0.85 – 1.08
	Poorly Differentiated	<b>1.43</b>	<b>1.23 – 1.66</b>
	Unknown	0.94	0.84 – 1.07
R0 Resection	No	1.00 (REF)	
	Yes	<b>0.38</b>	<b>0.34 – 0.43</b>
AC	No	1.00 (REF)	
	Yes	<b>0.76</b>	<b>0.70 – 0.81</b>
Clinical Stage	Stage II	1.00 (REF)	
	Stage III	<b>1.07</b>	<b>1.00 – 1.15</b>

- 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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