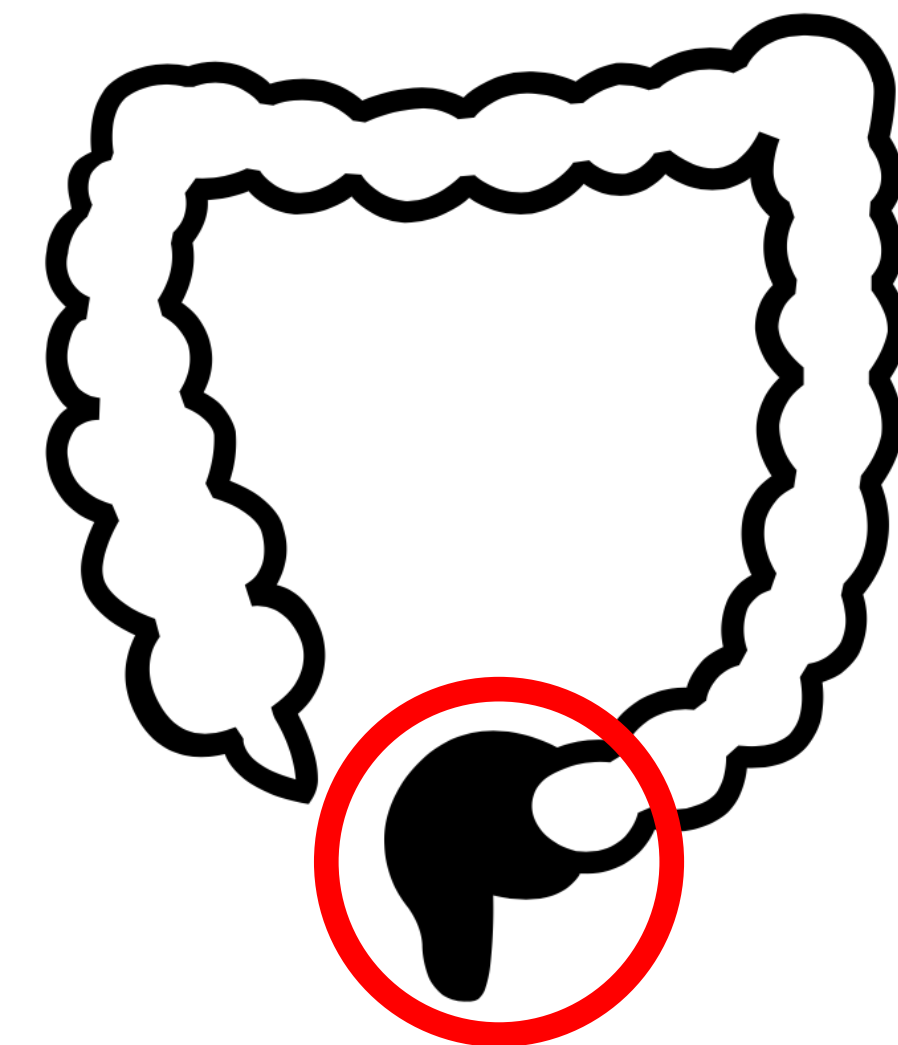


Background

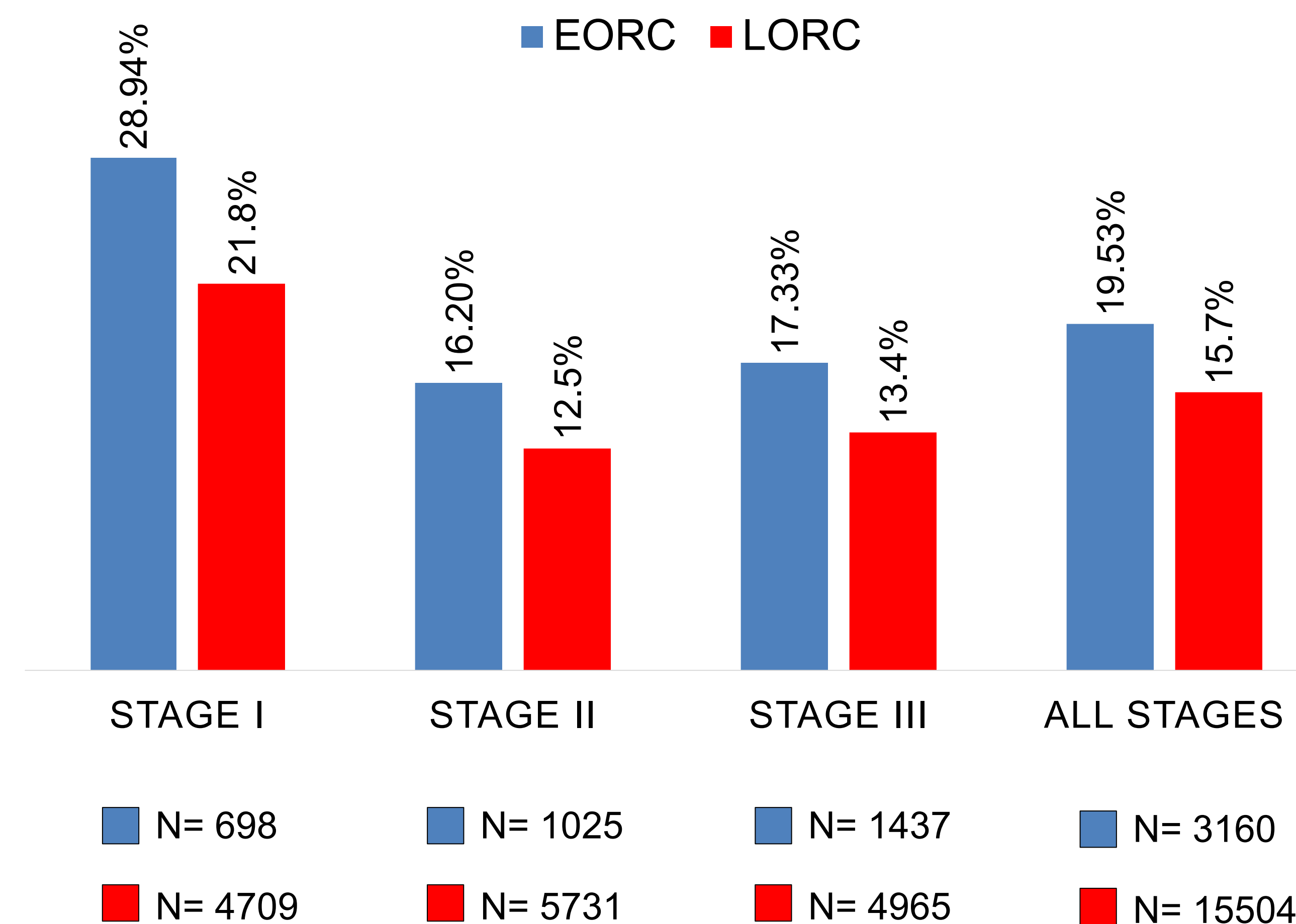
- Patients with early-onset rectal cancer (EORC) receive higher than recommended doses of neoadjuvant radiation.
- Use of radiation outside of NCCN guidelines may lead to worsened outcomes and patient harm.
- Aim: evaluate for predictors of aggressive neoadjuvant radiation therapy (A-XRT) in EORC and late-age onset rectal cancer (LORC) patients.

Methods

- 2004-2014 National Cancer Database patients with rectal adenocarcinoma undergoing resection.
- Exclusion criteria: Stage 0 or 4 disease, positive margins, missing radiation data, radiation dosed outside of pelvis
- Patients < 50 years = EORC
- Patients ≥ 50 years = LORC
- NCCN neoadjuvant XRT guidelines:
 - Stage I = none
 - Stage II/III = 45 to 50.4 Gy
- Excess radiation considered A-XRT



% PATIENTS DOSED WITH A-XRT BY STAGE
(P<0.001)



- A-XRT is dosed more frequently among the EORC population in every stage

Results

Multivariable Logistic Regression: Receipt of A-XRT

	OR	P Value	95% CI	
Sex (Ref: Female)				
Male	1.26	<0.001	1.15	1.38
Age group (Ref: 50 plus)				
Under 50	1.20	0.006	1.053	1.36
Race (Ref: White)				
Black	0.98	0.851	0.82	1.18
Other	0.90	0.299	0.73	1.10
% Population Without High school Degree (Ref: ≥21%)				
13% - 20.9%	1.00	0.97	0.86	1.17
7% - 12.9%	1.23	0.011	1.05	1.45
<7 %	1.20	0.054	1.00	1.45
Charlson-Deyo Score (Ref: 0)				
1	0.99	0.87	0.88	1.12
2	0.87	0.238	0.70	1.09
Insurance Type (Ref: None)				
Private	0.89	0.375	0.70	1.14
Medicare/Medicaid/Gov	0.80	0.088	0.63	1.03
Clinical Stage (Ref: Stage III)				
Stage I	5.83	<0.001	5.09	6.68
Stage II	1.05	0.421	0.94	1.17
Histology (Ref: Adenocarcinoma)				
Mucinous	1.31	0.005	1.08	1.59
Signet Ring Cell	0.97	0.931	0.54	1.76
Grade (Ref: Well differentiated)				
Moderately differentiated	0.88	0.104	0.75	1.03
Poorly differentiated	1.04	0.688	0.85	1.27
Undifferentiated	0.69	0.22	0.38	1.25
Indeterminate	1.25	0.025	1.03	1.52
Receipt of Neoadjuvant Chemotherapy (Ref: No)				
Yes	6.79	<0.001	6.01	7.66

Cox Proportional Hazards Model for Mortality

	Hazard Ratio	P Value
Sex (Ref: Male)		
Female	0.84	<0.001
Age Group (Ref: EORC)		
LORC	1.34	<0.001
Charlson-Deyo Score (Ref: 0)		
1	1.36	<0.001
2	1.99	<0.001
Clinical Stage (Ref: Stage I)		
II	1.92	<0.001
III	2.95	<0.001
Histology (Ref: Adenocarcinoma)		
Mucinous	1.15	0.005
Signet Ring Cell	1.85	<0.001
Grade (Ref: Well differentiated)		
Moderately differentiated	0.96	0.411
Poorly differentiated	1.26	<0.001
Undifferentiated, anaplastic	1.26	0.115
Indeterminate	0.91	0.152
Receipt of A-XRT (Ref: No)		
Yes	1.06	0.109

Conclusions

- EORC patients are more likely to receive A-XRT without survival benefit.
- A-XRT use is associated with factors other than tumor characteristics, suggesting disparity in care.
- Better data is needed to direct treatment, especially in the EORC population.
- A-XRT outside of NCCN guidelines may contribute to greater morbidity and mortality without benefit.