Real-World Adoption, Disparities and Impact of Neoadjuvant Chemoimmunotherapy (NACT-IO) in Early-stage, High-Risk Triple Negative Breast Cancer (TNBC)

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BACKGROUND

- The real-world adoption and impact of NACT-IO on high-risk early-stage BC outcomes are not clearly understood.
- We examined the trends and factors associated with NACT-IO use and pathologic complete response (pCR) in a large cohort of patients.

METHODS

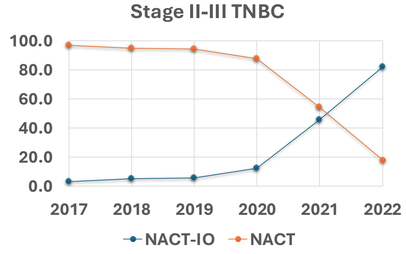
- Patients ≥18 years with clinical stage II-III TNBC diagnosed between 2017-2022 who received NACT and underwent surgery were identified in the National Cancer Database.
- Trends in NACT with and without IO use and pCR over time were evaluated using the Cochran-Armitage test for time trend.
- Multivariable logistic regression was used to assess factors associated with receipt of NACT-IO and likelihood of pCR.
- Cox proportional hazards regression with propensity score matching was used to examine the impact of pCR on overall survival.

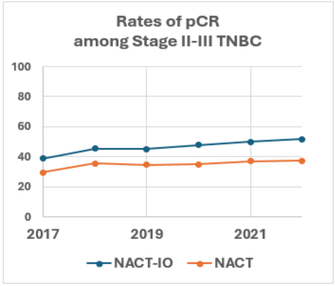
Covariates	Total N (%) N = 41,339	NACT N (%) N = 29,862	NACT-IO N (%) N = 11,477	P value
Age at diagnosis (years, median)	53	54	53	
Race and ethnicity				
Black	9566 (23.1)	7142 (23.9)	2424 (21.1)	<0.001
Hispanic	4023 (9.7)	2837 (9.5)	1186 (10.3)	
White Non-Hispanic	24981 (60.4)	18032 (60.4)	6949 (60.5)	
Other	2769 (6.7)	1851 (6.2)	918 (8.0)	
Clinical stage				
II	23359 (56.5)	17395 (58.3)	5964 (52.0)	<0.001
III	17980 (43.5)	12467 (41.7)	5513 (48.0)	
Comorbidity Score				
0	34849 (84.3)	25094 (84.0)	9755 (85.0)	0.03
1	4758 (11.5)	3478 (11.6)	1280 (11.2)	
2+	1732 (4.2)	1290 (4.3)	442 (3.9)	

RESULTS

Of 41,339 patients with TNBC who received neoadjuvant chemotherapy, **27.8%** received NACT-IO.

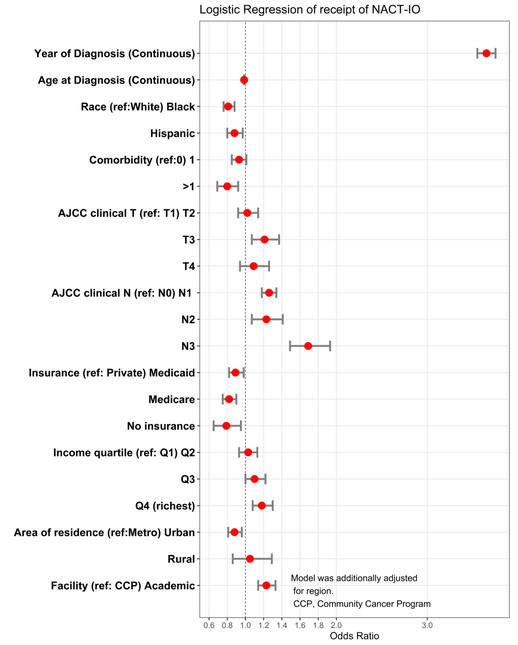
The rate of NACT-IO receipt increased from 2.9% in 2017 to 81.9% in 2022 (p<0.001)



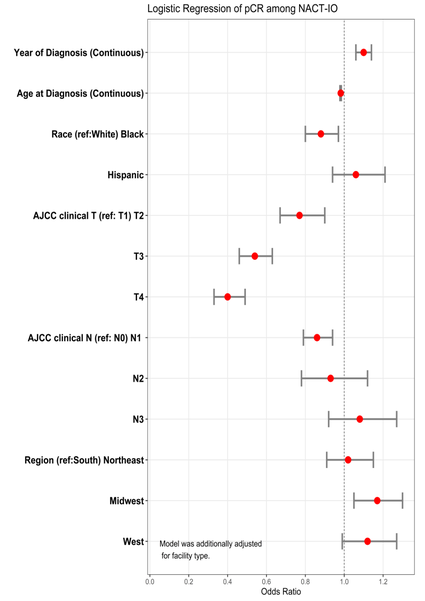


Having a pCR was associated with significantly lower risk of death **(aHR=0.21; 95%CI 0.16–0.27)**

Factors associated with NACT-IO among patients who received NACT



Factors associated with pCR among patients who received NACT-IO



CONCLUSIONS

- Since the approval of NACT-IO for early-stage high-risk TNBC, its use has substantially increased, accompanied by rising pCR rates.
- However, significant disparities persist as Black and Hispanic patients and those with public or no insurance were less likely to receive NACT-IO. Having pCR was associated with improved OS.
- These findings highlight the need for equitable access to innovative therapies and ongoing real-world evaluation of their impact to maximize benefit for all eligible patients.