



# 174P - Breast Cancer (BC) and Severe COVID-19 (C-19) Outcomes: A Matched Analysis

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## BACKGROUND

- Patients with cancer, particularly those receiving anticancer treatment, have been reported to have higher risk of severe COVID-19 (C-19) outcomes.
- Objective:** To examine the association between breast cancer (BC), recent treatment, and adverse C-19 outcomes.

## METHODS

- Using the Optum® de-identified COVID-19 Electronic Health Record dataset, we included patients diagnosed with C-19 between 01/01/2020 and 12/20/2021.
- Patients were categorized in 3 groups and matched (1:1:10) based on age, comorbidity score, and date of C-19 diagnosis:
  - Group 1:** Patients with BC & recent cancer treatment (BC Rx)
  - Group 2:** Patients with BC & no recent treatment (BC no Rx)
  - Group 3:** Patients with no cancer (no cancer)
- Recent treatment was defined as surgery, radiation, chemotherapy, immunotherapy or endocrine therapy within the 3 months prior to C-19 diagnosis.
- We analyzed the risk of 30-day severe outcomes using Multivariable logistic regression models.

- A composite ordinal outcome was evaluated. The following outcomes within 30-days of C-19 diagnosis were included:
  - Score 1:** Hospitalization
  - Score 2:** Intensive care unit (ICU) stay
  - Score 3:** Mechanical ventilation
  - Score 4:** Mortality

## RESULTS

We matched 2200 triplets (1:1:10) of BC treated, BC not treated, and non-cancer patients. Median age was 65 years (IQR 55-74 years). In total, 3.6%, 5.8%, 5.5% non-cancer, BC treated, BC not treated received vaccine before their COVID-19 diagnosis.

Except for hospitalization, rates of adverse outcomes in 2021 dropped precipitately from 2020 (mortality: 2.9% to 0.2%; mechanical ventilation: 3% to 0.1%; ICU stay: 4.5% to 0.2%; hospitalization: 23.6% to 22.4%).

**Table 1.** Adjusted matched group 30-day and composite outcomes<sup>a</sup>

Matched Cohort	Mortality		Mechanical ventilation		ICU stay		Hospitalization		Composite Ordinal Outcome	
	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P
No cancer	1		1		1		1		1	
BC no Rx	0.83 (0.6 to 1.16)	0.28	0.81 (0.58 to 1.13)	0.22	0.71 (0.53 to 0.94)	0.018	0.64 (0.57 to 0.73)	<0.001	0.66 (0.59 to 0.74)	<0.001
BC Rx	0.8 (0.57 to 1.13)	0.21	0.88 (0.63 to 1.22)	0.43	1.07 (0.84 to 1.37)	0.57	0.98 (0.88 to 1.1)	0.74	1.02 (0.93 to 1.11)	0.67

<sup>a</sup>Variables in model include: diagnosis period, age, race and ethnicity, severe obesity (BMI≥40), Charles-Dely comorbidity index score, recent skilled nursing facility stay, insurance type, and region.

**Table 2.** Subgroup analysis of 30-day and composite outcomes according to systemic treatment<sup>a</sup>

Systemic Therapy	Mortality		Mechanical ventilation		ICU stay		Hospitalization		Composite Ordinal Outcome	
	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P
No	1		1		1		1		1	
Chemotherapy	1.35 (0.65 to 2.82)	0.42	1.86 (0.88 to 3.93)	0.11	1.81 (1.02 to 3.23)	0.044	2.3 (1.76 to 2.99)	<0.001	2.11 (1.64 to 2.72)	<0.001
Immunotherapy	1.49 (0.43 to 5.16)	0.53	0.63 (0.08 to 4.87)	0.65	2.6 (1.1 to 6.17)	0.03	1.26 (0.77 to 2.08)	0.36	1.3 (0.8 to 2.09)	0.29
Chemo-immunotherapy	1.95 (0.85 to 4.5)	0.12	1.06 (0.34 to 3.31)	0.92	3.21 (1.68 to 6.13)	<0.001	1.51 (1.04 to 2.19)	0.028	1.67 (1.18 to 2.37)	0.004
Endocrine therapy	0.52 (0.27 to 0.98)	0.043	1.17 (0.68 to 1.99)	0.57	1.05 (0.67 to 1.64)	0.84	1.39 (1.16 to 1.66)	<0.001	1.28 (1.07 to 1.52)	0.006

<sup>a</sup>Variables in model include: diagnosis period, age, race and ethnicity, severe obesity (BMI≥40), Charles-Dely comorbidity index score, recent skilled nursing facility stay, insurance type, and region.

## MAIN FINDINGS

- Patients that received the C-19 vaccine were less likely to experience severe outcomes.
- Sensitivity analysis showed that, compared to patients who did not receive systemic treatment, patients who received systemic treatment had significantly higher risk of ICU stay and hospitalization.

## CONCLUSIONS

- Patients with BC have similar risk of adverse C-19 compared to non-cancer patients.
- Subgroup analysis suggests that patients recently receiving chemotherapy had higher risk of ICU stay and hospitalization.