



## Registry Study Describes COVID-19 Mortality and Hospitalization in Patients with Breast Cancer

Patients with cancer are known to have a higher risk of adverse events following a diagnosis of coronavirus-19 (COVID-19) relative to patients without cancer. However, little is known about the specific patterns of illness and outcomes in patients with breast cancer and COVID-19.

The COVID-19 and Cancer Consortium (CCC19) is an ongoing international cohort study collecting data on patients with active cancer or a history of cancer and confirmed infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes COVID-19. The current analysis includes data from 849 patients with breast cancer and laboratory-confirmed SARS-CoV-2 infection from 79 institutions in the United States and Canada.

Ali Raza Khaki, M.D., of the University of Washington Fred Hutchinson Cancer Research Center, presented findings from the largest study to date describing the patterns of mortality and hospitalization among patients with breast cancer and COVID-19 [1].

Baseline characteristics were representative of the general population of patients living with breast cancer, with most patients in remission at the time of their COVID-19 diagnosis (Table 1).

### KEY FINDINGS

In total, 48% patients were hospitalized and 9% died within 30 days of their COVID-19 diagnosis.

A multivariate analysis identified several predictors of 30-day mortality risk, which are shown in Table 2 on the next page. Older age, higher European Cooperative Oncology Group (ECOG) performance status, increasing comorbidity burden, and the presence of active, progressing cancer were independently associated with 30-day mortality risk related to COVID-19.

The research team also identified predictors of hospitalization among patients with breast cancer and COVID-19, which are shown in Table 3 on the next page. As with mortality risk, hospitalization was associated with increasing age, higher ECOG performance status, higher comorbidity burden, and active, progressing cancer.

In contrast, obesity, smoking status, receptor status, and type of breast cancer therapy did not appear to correlate with hospitalization related to COVID-19.

**Table 1.** Baseline characteristics of patients with breast cancer and COVID-19

Characteristic	Patients (n = 846)
<b>Age, years</b>	
<60	38%
60–69	23%
70–79	21%
≥80	18%
<b>Smoking status</b>	
Never smoker	64%
Current or former smoker	33%
<b>ECOG performance status</b>	
0	44%
1	22%
≥2	12%
Unknown	22%
<b>Active comorbidities</b>	
0	22%
1–2	40%
≥3	38%
<b>Cancer status</b>	
Remission/no evidence of disease	65%
Active, progressing cancer	8%
Active, stable/responding cancer	20%
<b>Receptor status</b>	
HR-positive	47%
HER2-positive	17%
TNBC	9%
Unknown	28%

Abbreviations: ECOG, European Cooperative Oncology Group; HER2, human epidermal growth factor receptor 2; HR, hormone receptor; TNBC, triple-negative breast cancer.

The CCC19 registry study is ongoing. Future updates will contribute further insight to the evolving understanding of COVID-19 outcomes in patients with breast cancer.

### REFERENCE

1. Khaki AR, Shah DP, Lustberg MB et al. Characteristics and outcomes of SARS-CoV-2 infection in patients with invasive breast cancer (BC) from the COVID-19 and Cancer Consortium (CCC19) Cohort Study. Presented at the 2020 San Antonio Breast Cancer Symposium (SABCS). December 8–11, 2020. Abstract PS7-01.

<http://dx.doi.org/10.1002/onco.13664>

**Table 2.** Predictors of 30-day mortality in patients with breast cancer and COVID-19

Variable	OR (95% CI)
Age (per decade)	1.72 (1.33–2.23)
ECOG performance status	
1	2.57 (1.06–6.69)
≥2	5.61 (2.36–14.58)
Comorbidities	
1–2	3.76 (1.20–16.62)
3	5.02 (1.67–21.84)
Cancer status	
Active, progressing cancer	6.39 (3.00–13.65)
Active, stable/responding cancer	0.86 (0.36–1.86)

Abbreviations: CI, confidence interval; ECOG, European Cooperative Oncology Group; OR, odds ratio.

**Table 3.** Predictors of hospitalization in patients with breast cancer and COVID-19

Variable	OR (95% CI)
Age (per decade)	1.47 (1.27–1.69)
Current or former smoker	1.08 (0.76–1.52)
Obesity	1.08 (0.78–1.52)
ECOG performance status	
1	1.89 (1.25–2.87)
≥2	5.63 (2.94–11.42)
Comorbidities	
1–2	1.78 (1.14–2.82)
3	2.99 (1.86–4.86)
Cancer status	
Active, progressing cancer	3.67 (1.87–7.41)
Active, stable/responding cancer	1.02 (0.64–1.62)
Receptor status	
HER2+ (reference: ER+)	0.59 (0.36–0.95)
TNBC (reference: ER+)	1.58 (0.86–2.90)
Treatment exposure	
Cytotoxic therapy	0.86 (0.42–1.71)
Non-cytotoxic therapy	0.82 (0.53–1.26)
Local therapy	0.84 (0.35–2.05)
Multimodal therapy	0.85 (0.49–1.48)
Other therapy	0.33 (0.05–1.73)

Abbreviations: CI, confidence interval; ECOG, European Cooperative Oncology Group; ER, estrogen receptor; HER2, human epidermal growth factor receptor 2; OR, odds ratio; TNBC, triple-negative breast cancer.