Real-world data are critical for understanding the risk of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection and mortality in vulnerable patients, including those with breast cancer. New research presented at the 2021 American Society of Clinical Oncology Annual Meeting provides new insight on current breast cancer treatment outcomes during the coronavirus disease 2019 (COVID-19) pandemic, as well as the impact of the pandemic on breast cancer diagnoses [1, 2].

**Breast Cancer Treatment and COVID-19 Outcomes**

Despite observational studies of breast cancer care during the COVID-19 pandemic, the potential interaction between different types of breast cancer treatment and COVID-19 outcomes are not well known. Nibash Budhathoki, M.B.B.S., of the Perlmutter Cancer Center, presented findings from a retrospective analysis of the risk for SARS-CoV-2 infection and mortality among patients with breast cancer by treatment type [1].

The analysis included data from 3,062 patients with breast cancer who were treated between February 1, 2020, and May 1, 2020, at the multicenter health system in New York City. Patients were undergoing treatment with cytotoxic chemotherapy (n = 379), noncytotoxic endocrine and/or HER2-directed therapy (n = 2,343), or were managed with active surveillance (n = 340).

In total, 641 patients (20.9%) were tested for SARS-CoV-2 infection and 64 patients (2.1%) were diagnosed with COVID-19. Of this group, 10 patients died due to COVID-19.

Results showed no difference in the risk of SARS-CoV-2 infection between patients who were receiving cytotoxic chemotherapy (3.5% vs. 2.7%; p = .5). Furthermore, there was no difference between the chemotherapy and noncytotoxic therapy groups in the risk for death following SARS-CoV-2 infection (0.7% vs. 0.1%; p = .2).

Across treatment groups, factors associated with an increased risk of mortality following SARS-CoV-2 infection included advanced-stage disease (p = .02), older patient age (p = .001), higher body mass index (p = .05), and greater comorbidity burden (p = .01).

Based on these findings, Dr. Budhathoki and colleagues concluded that breast cancer treatment, including chemotherapy, can be administered safely during the COVID-19 pandemic and should not be withheld.

**COVID-19 and Breast Cancer Diagnosis**

In another study, Maxwell R. Lloyd, M.D., of Beth Israel Deaconess Medical Center, presented results from an analysis of the impact of COVID-19 on breast cancer stage at diagnosis [2]. The analysis compared clinical and socioeconomic features of patients who were diagnosed with invasive breast cancer in 2020 (n = 333) with a control cohort of those diagnosed between 2016 and 2019 (n = 1,597).

Researchers noted that mammography was limited at their center between March and June 2020, with a 90% reduction in volume compared with pre-pandemic trends. Overall, 92.9% of all late-stage breast cancer diagnoses made in 2020 occurred between June and December, following the pandemic-related shutdown earlier in the year.

Results showed a significant increase in the proportion of patients who were diagnosed with late-stage breast cancer in 2020 compared with 2016–2019 (12.6% vs. 6.6%; p < .001). According to a multivariate analysis, being diagnosed with breast cancer in 2020 was associated with a 45% increase in the likelihood of a late-stage diagnosis (OR, 1.45; p = .008).

Additional significant predictors of late-stage breast cancer diagnoses included lower income (<200% of the federal poverty level) and increased Charlson comorbidity index scores (Table 1).

In summary, these findings suggest an adverse impact of the COVID-19 pandemic on breast cancer screening, resulting in delayed diagnoses and an increase in late-stage diagnoses. The effect was especially pronounced in vulnerable patient populations, indicating the need for follow-up investigation to minimize long-term health disparities.

| Table 1. Factors associated with late-stage breast cancer diagnosis |
|---------------------------------------------------------------|
| Factor                                      | OR (95% CI)       | p value |
| Year of diagnosis (2020 vs. 2016–2019)       | 1.45 (1.102–1.883) | .008    |
| Lower income                                 | 1.22 (1.035–1.441) | .018    |
| Increased comorbidity burden                 | 1.14 (1.114–1.167) | <.001   |

Abbreviations: CI, confidence interval; OR, odds ratio.
REFERENCES

1. Budhathoki N, Kucharczyk J, D’Abreo N et al. Risk for SARS-CoV-2 infection in patients with breast cancer treated with chemotherapy, biologic therapy or active surveillance: Patient outcomes from multicenter institution in New York. Presented at the 2021 American Society of Clinical Oncology (ASCO) Annual Meeting. June 4–8, 2021. Abstract 1513. Available at https://ascopubs.org/doi/abs/10.1200/JCO.2021.39.15_suppl.1513.

2. Lloyd MR, Stephens SJ, Hong JC et al. The impact of COVID-19 on breast cancer stage at diagnosis. Presented at the 2021 American Society of Clinical Oncology (ASCO) Annual Meeting. June 4–8, 2021. Abstract 528. Available at https://ascopubs.org/doi/abs/10.1200/JCO.2021.39.15_suppl.528.