



Breast Imaging and the Pandemic: Evaluating the Socioeconomic and Racial Disparities



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Background

- Socioeconomic and racial disparities in breast cancer worsen health outcomes among marginalized groups, specifically lengthening delay to diagnosis and treatment as well as prevent access to high quality care.¹⁻³
- Since the SARS-Cov-2 pandemic began and lead to a drastic change in daily life and healthcare, a question remains on how it has impacted health outcomes in breast cancer patients⁴⁻⁶
- A few institutions have examined factors in patient care that were impacted by the pandemic, such as a decrease in overall breast cancer screening and biopsies at the height of the pandemic⁴⁻⁶
- In this study, we investigated how the pandemic has impacted the delays in care, prognoses of cancer, and evaluated the socioeconomic and racial disparities that have played a part in worsening outcomes.

Methods

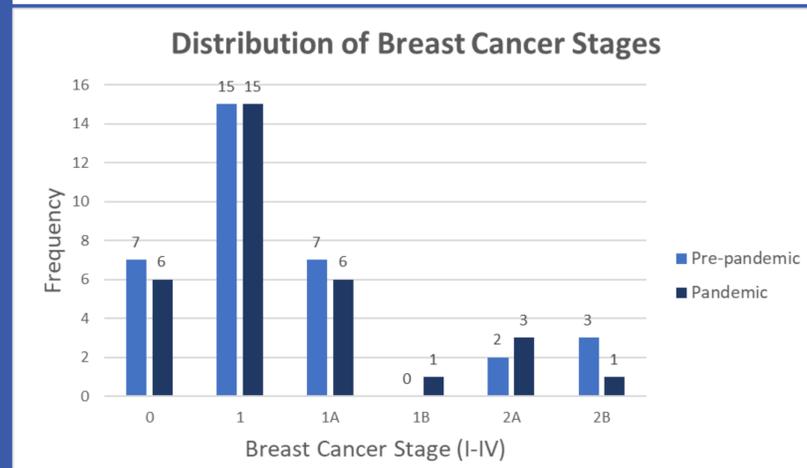
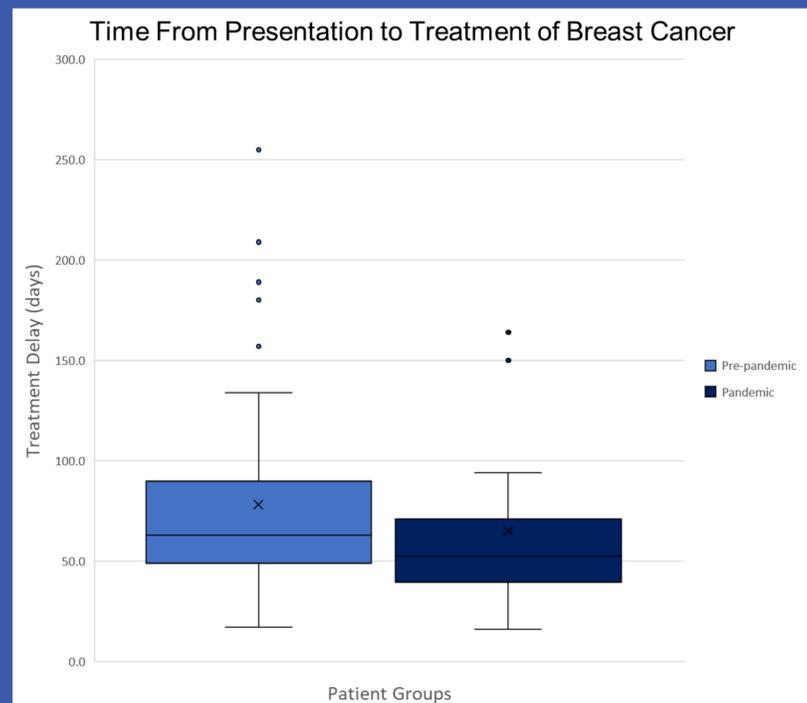
- MagView was used to extract basic patient information from our two patient samples: 288 patients in the “pre-pandemic” sample who have received treatment between March 15 to August 15, 2019, and 197 patients in the “pandemic” sample who have received treatment between March 15 to August 15, 2020.
- Chart review was conducted on Epic to access remaining patient information and clinical care timepoints.
- The statistical test we will conduct for the data is a two-tailed paired t-test so that we can see any increase or decrease of the variables between the two samples.

Results

- A total of 93 patients out of 485 in the study were analyzed
- Pre-pandemic group breast cancer stage frequency: 7 patients for stage 0, 15 for stage 1, 7 for stage 1A, 2 for stage 2A, and 3 for stage 2B breast cancer
- Pandemic group breast cancer stage frequency: 6 patients in stage 0, 15 patients in stage 1, 6 patients in stage 1A, 1 patient in stage 1B, 3 patients in stage 2A, and 1 patient in stage 2B breast cancer
- Time until treatment was described as “Treatment Delay” and measured by taking the difference of the date of initial presentation by the date of treatment
- The pre-pandemic group had a slightly higher mean at 78.19 days versus 65 days
- The pre-pandemic group also seemed to have a higher spread in data, containing many more outliers in the 150+days range than the pandemic group

Figures/Tables

| Cancer Stage | Frequency (Pre-Pandemic) | Frequency (Pandemic) |
|--------------|--------------------------|----------------------|
| 0 | 7 | 6 |
| 1 | 15 | 15 |
| 1A | 7 | 6 |
| 1B | 0 | 1 |
| 2A | 2 | 3 |
| 2B | 3 | 1 |



Discussion

- Due to a sample size of only 93 and not all patients yet included in the study, statistical testing was not conducted
- The frequencies of stages in both groups preliminarily show that the distribution is relatively similar, but more data needs to be gathered to be able to discern a more solid conclusion
- Anticipated future data will most likely show a greater frequency of higher-stage cancers in the pandemic group vs. the pre-pandemic group due to less patients coming in for their mammogram screenings, resulting in missed early detection and greater progression of breast cancers
- The current results of the overall treatment delay show that the pre-pandemic group has a higher average treatment delay, although the means and error bars are too close to declare a significant difference. Again, more data needs to be gathered for this variable.
- Anticipated future data will most likely show a statistically significant increase in treatment delay for the pandemic group due to the pandemic hindering breast cancer patients from going in-office to get imaging, biopsies, and even treatment done.
- Other variables that can be measured are the distribution of grades of breast cancer, which can be projected to show higher grade cancers for the pandemic group due to aforementioned factors such as delayed screening and surveillance
- Socioeconomic variables that can be measured is how race/ethnicity, occupation, education, zip code, and needing of a translator impacts the amount of treatment delay and strength of the cancer
- Anticipated outcomes of these variables could show that these socioeconomic determinants of health are even more pronounced during the pandemic, further delaying treatment and worsening cancer outcomes for disadvantaged patients

Limitations

- Lack of a large sample size, which makes data analysis difficult due to there not being enough data points to analyze variables such as socioeconomic disparities
- Our sample comes from UCLA Health, which has most patients insured and from a more affluent zip code, which is not the best representative sample for the US population
- Our sample also is located in the Los Angeles area, which has drastically different pandemic measures than other areas in the state and country
- Some patients experience greater delays in treatments than others solely due to the complexity of cancer. If the sample size was larger, this would not skew the data as much.
- Breast cancer staging is conducted later than the date of presentation, so the cancer could have worsened since then

Conclusion

- The data currently does not show a significant difference of distribution of breast cancer stages or delay in treatment between the pre-pandemic and pandemic groups
- However, after gathering more patient information in the future, the data can potentially reveal the various disparities experienced by patients in either group and can better help providers identify areas in which improvements can be made to reduce late-detected breast cancers and provide necessary treatment earlier

References

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