

Background

Increased time to mastectomy (TTM) has significant implications for patient mortality, wellbeing, and satisfaction. Despite understanding the relationship between TTM and various outcomes, certain populations are subject to disparities that increase TTM. In this study, we established a clinical database to investigate patient, disease, provider, and systems level variables influencing TTM. We aim to address the gaps in understanding barriers to timely mastectomy in a diverse patient population and hospital system.

Methods

Breast cancer patients across 8 hospitals in a single healthcare system from 2014 to 2018 were retrospectively reviewed. A total population of 1,374 patients undergoing mastectomy within this healthcare system were identified. Patients with time to treatment exceeding 365 days from diagnosis to mastectomy or patients with incomplete data were excluded. This resulted in 1,330 patients meeting inclusion criteria. Bivariate analysis was used to identify variables from four-levels of influence for inclusion in the backward multivariable model.

Results

Table 1: This table outlines factors found to be significant by multivariate analysis for increases in TTM. There are significant factors from all four levels – patient, disease, provider, and system.

On the patient level, African American patients waited 11.6% longer for mastectomy when compared to white patients. TTM was 15.5% longer for patients with income <\$75,000 and 13.4% longer for patients with income \$75,000-\$125,000 compared to the >\$125,000 patient group. On the disease level, neoadjuvant chemotherapy (231.0%), adjuvant chemotherapy (14.41%), and prior history of breast surgery (26.7%) were related to increases in TTM. Of note, average TTM from last chemotherapy appointment was only 38.0 days. Preoperative visit to a plastic surgeon was related to a 19.3% increase in TTM. Patients with Medicaid waited 14.5% longer than commercial insurance holders.

Characteristic	N (%) or mean (SD)	Estimate	SE	p-Value
Ethnicity				
White	621 (46.7)	ref		
African American	542 (40.8)	0.11007	0.04614	0.0172
Asian	52 (3.9)	0.14311	0.23938	0.5500
Other/unknown	115 (8.6)	0.00575	0.08145	0.9437
Income				
<\$75,000	513 (38.6)	0.14428	0.05507	0.0089
\$75,000 – \$125,000	643 (48.3)	0.12579	0.04804	0.0089
>\$125,000	174 (13.1)	ref		
Neoadjuvant treatment				
No	1055 (79.3)	ref		
Yes	275 (20.7)	1.19844	0.04643	<0.0001
Adjuvant treatment				
No	969 (72.9)	ref		
Yes	361 (27.1)	-0.15558	0.03878	<0.0001
Prior surgery				
No	985 (74.1)	ref		
Yes	345 (25.9)	0.23684	0.03377	<0.0001
Visit to PRS provider				
No	312 (23.5)	ref		
Yes	1018 (76.5)	0.17605	0.05416	0.0012
Insurance type				
Commercial	1052 (78.9)	ref		
Medicaid	108 (8.1)	0.13511	0.05576	0.0155
Medicare	152 (11.4)	0.09356	0.05108	0.0672
Unknown	18 (1.4)	0.15438	0.12033	0.1997

Discussion

In our comprehensive analysis of barriers to timely mastectomy, we uncovered factors at all levels – patient, disease, provider, and systemic – that disparately affect a patient’s TTM. Some of our findings confirm prior work in this field, especially with respect to the effect of ethnic background and insurance status. Through analysis of additional, concurrent levels of influence, this study greatly expands our knowledge of factors affecting TTM. Future studies should incorporate increasing numbers of diverse patients to truly capture all factors related to time to treatment disparities.

References

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