

Background

The American Society of Breast Surgeons (ASBrS) put forth guidelines for contralateral prophylactic mastectomy (CPM) in 2016, as a growing body of evidence linked this procedure to greater risk than benefit for most patients. Despite clarifying the indications for CPM, procedure rates have remained steady. In this study, we aim to investigate variables from the patient, disease, provider, and systems levels to understand contributing factors to CPM within our 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. These years purposefully span the periods before and after the ASBrS guideline change. An indicated CPM was defined as any procedure adhering to ASBrS guidelines for patients at significant risk of CBC. Rate of CPM by year was tabulated to identify any trends in procedure use. Patient, disease, provider, and system level factors were obtained. Bivariate analysis was used to identify variables for inclusion in the backward multivariable model.

Results

Characteristic	N (%), mean (SD), or median (Q1, Q3)	Point Estimate	95% Wald Confidence Limits	
Age	58.2 (±13.4)	0.963	0.941	0.986
Cancer stage				
0	13 (1.2)	0.149	0.017	1.322
1	400 (38.1)	Reference		
2	419 (39.9)	0.705	0.496	1.003
3	195 (18.6)	0.467	0.288	0.757
4	24 (2.3)	0.203	0.022	1.859
Technique				
None	386 (36.7)	Reference		
Free flap	640 (60.9)	1.194	0.583	2.444
Latissimus flap	25 (2.4)	1.127	0.321	3.960
Tissue expander	385 (57.7)	1.639	0.904	2.970
Direct to implant	135 (20.2)	2.863	1.476	5.551
Other	24 (3.6)	1.639	0.545	4.927

Table 1: This table outlines factors found to be significant in multivariate analysis for receipt of CPM. On the patient level, every increase in age by 1 year decreased odds of CPM by a factor of 0.96, which equates to a 4% decrease in odds. For the disease stage, the odds of CPM for stage 3 breast cancer decreased by 53% when compared to patients with stage 1 breast cancer. The odds of CPM for patients undergoing direct to implant reconstruction was 2.9 times higher compared to patients with no reconstruction.

Of note, CPM rates by year ranged from 24.1% to 32.3%, with no significant difference between years.

Discussion

Over the five-year study period, the rates of non-indicated CPMs by year were not statistically different. CPM rate ranged from a quarter to a third of all mastectomy patients each year. This finding highlights that CPM rates are consistent and pervasive despite changes in guidelines.

Our statistical analysis uncovered several factors that relate to continued use of non-indicated CPM. Interestingly, no systems level factors were related to non-indicated CPM. Taken in concert, our findings suggest the desire and use of CPM may be related to human factors as both patient and provider factors were significant. In order to more thoroughly examine the effect of human factors on persistent CPM rates, future research needs to perform rigorous analysis of physician and patient communication.

References

1. Boughey JC, Altai DJ, Chen SL, et al. Contralateral Prophylactic Mastectomy (CPM) Consensus Statement from the American Society of Breast Surgeons: Data on CPM Outcomes and Risks. *Ann Surg Oncol.* 2016;23(10):3100-3105.
2. Wright FC, Look Hong NJ, Quan ML, et al. Indications for Contralateral Prophylactic Mastectomy: A Consensus Statement Using Modified Delphi Methodology. In: *Annals of Surgery.* Vol 267. Lippincott Williams and Wilkins; 2018:271-279.