

Factors Contributing to Delay in Surgery in Early-Stage Breast Cancer Patients

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INTRODUCTION

Defining the appropriate time interval from diagnosis to surgery in early-stage breast cancer patients remains a topic of interest within the breast cancer community. Delays in surgical intervention have been demonstrated to have worse outcomes, most prevalently in Stage I and II patients¹. Recent literature has suggested that surgery being performed longer than 8 weeks (57 days) from time of diagnosis leads to worse overall survival². The Commission on Cancer (Coc) has newly instituted a quality metric for surgery to be performed within 60 days of diagnosis in non-metastatic breast cancer patients who are eligible for a surgery-first approach.

There are many factors which are suspected to influence a patient's time to treatment³⁻⁵; however, there exists a need for more detailed investigation into which factors influence this time interval and how deviations from this may affect patient outcomes. We sought to identify patient and institution-specific factors that are associated with an increased time interval from diagnosis to surgery in early-stage breast cancer patients.

METHODS

- We performed a retrospective cohort study of 1927 subjects, selected from the Cancer Registry Database at MD Anderson Cancer Center at Cooper University Hospital.
- We included adults with Stage 0-3 breast cancer, diagnosed between 2018-2022, treated with a surgery-first approach. We excluded all those who did not have surgery, had surgery at an outside institution or who had neoadjuvant therapy.
- We performed descriptive analysis to report the overall percentage of subjects who underwent surgery within 60 days of diagnosis. Then, we divided the subjects into two cohorts: surgery in less than 60 days and surgery in greater than 60 days.
- We performed chi-square or Mann-Whitney U tests, followed by logistic regression, to examine which variables were associated with the time interval from diagnosis to surgery.

RESULTS

- Median time interval (TI) from diagnosis to surgery was 51 days [Interquartile Range (IQR): 36, 70]
- 64% of subjects had a TI < 60 days and 36% had a TI > 60 days
- Variables associated with increased TI, included: age ($p < 0.001$), Hispanic ethnicity ($p=0.015$), insurance status ($p=0.014$), clinical stage ($p=0.005$) and mastectomy as the surgical approach ($p<0.001$)
- No statistically significant difference in those diagnosed at outside institutions or based on receptor status
- No statistically significant difference in upgrade from clinical to pathologic stage at time of surgery ($p=0.065$)

	Diagnosis to Surgery < 60 Days			Diagnosis to Surgery > 60 Days			P-Value
	N	n	Percent (%)	N	n	Percent (%)	
Sex - Female	1,234	1,227	99.4%	693	691	99.7%	0.503
Race							0.205
White		1,007	81.6%		547	78.9%	
Black		168	13.6%		115	16.6%	
Other		59	4.8%		31	4.5%	
Ethnicity - Hispanic	1,234	65	5.3%	693	56	8.1%	0.015
Insurance	1,174			693			0.014
None		9	0.8%		10	1.4%	
Medicaid		26	2.2%		66	9.5%	
Medicare		509	43.4%		240	34.6%	
Private		615	52.4%		365	52.7%	
Other		15	1.3%		12	1.7%	
Location of Diagnosis - Home Institution	1,234	730	59.2%	693	433	62.5%	0.152
Clinical Stage	1,234			693			0.005
0		296	24.0%		201	29.0%	
1		873	70.7%		442	63.8%	
2		63	5.1%		45	6.5%	
3		2	0.2%		5	0.7%	
Surgical Option - Lumpectomy	1,234	801	64.9%	693	233	33.6%	<0.001
Upgraded Pathology	1,234	96	7.8%	693	71	10.2%	0.065

Time Interval from Diagnosis to Surgery (Days)

N = 1,927		
Median	51	[IQR: (36, 70)]

Time Interval from 1st to Most Definitive Surgery (Days)

N = 170		
Median	31	[IQR: (21, 56)]

CONCLUSIONS

Decisions leading up to definitive surgical management of breast cancer are complex. Our findings suggest that there may be further delay to surgery based on age, ethnicity, insurance status and surgical options.

Future studies can examine the relationship between the chosen surgical approach and the time interval from diagnosis to surgery as this is potentially a modifiable factor. Additionally, future studies can compare long-term outcomes, such as recurrence rates and survival for these groups.

There remains room for improvement to facilitate a higher percentage of patients achieving the goal of having surgery within 60 days of their diagnosis.

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