

Impact of racial and socioeconomic disparities on overall survival in Invasive Lobular Carcinoma



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Introduction

- Invasive lobular carcinoma (ILC) has molecular and clinical characteristics distinct from Invasive Ductal Carcinoma (IDC).
- Although ILC has better short-term outcomes than IDC, its overall survival (OS) is reported to be worse due to late recurrences and resistance to chemotherapies.¹
- It is well known that racial and socioeconomic disparities are crucial factors associated with poor prognosis in patients with breast cancer in general.²
- However, the impact of racial and socioeconomic disparities on the survival outcomes of patients with ILC is not well understood, regardless of the unique features of ILC.
- In this study, we investigated how the racial and social economic factors as well as clinicopathological factors affect OS in ILC.

Primary Objective

- To test the association between racial and socioeconomic factors and OS among patients with ILC.

Hypothesis

- Racial and socioeconomic disparities in patients with ILC are poor prognostic factors.

Methods and Materials

- The data was obtained from the Surveillance, Epidemiology, and End Results (SEER) Plus Data 17 registry.
- Female patients with ILC who were diagnosed from 2010 to 2015 were included. The data was followed up until 2020.
- Patients with missing racial information were excluded.
- Age, race, tumor grade, subtype, stage, types of surgery of the primary site, types of systemic therapies, types of radiation therapies, median household income, geographic location, and marital status were collected.
- Racial categories were classified into White (W), Black or African American (B), American Indian or Alaska Native (AIAN), Asian (A), and Native Hawaiian or Other Pacific Islander (NHPI)
- Univariate and multivariate Cox proportional hazards models were used to test the association between variables of interest and OS.

Results

- A total of 33,239 patients with ILC were included [W; 28,401 (85.4%), B; 2,780 (8.4%), A; 1,708 (5.1%), AIAN; 176 (0.5%), NHPI; 174 (0.5%)]
- B and AIAN had lower household incomes (<\$65,000; 51.3% [B], 48.8% [AIAN] vs 34.8% [W]).
- Sixty percent of B were unmarried compared to 39.3% in W.
- In the multivariate analysis, lower household incomes and unmarried status remained significantly associated with short OS.

	White (%) (N=28,401)	Black (%) (N=2,780)	Asian (%) (N=1,708)	AIAN (%) (N=176)	NHPI (%) (N=174)	P-values
Age						<0.001
<50	3570 (12.6)	451 (16.2)	365 (21.4)	34 (19.3)	28 (16.1)	
≥50	24,831 (87.4)	2,329 (83.8)	1,343 (78.6)	142 (80.7)	146 (83.9)	
Subtype						<0.001
HR+HER2-	24,786 (87.3)	2,397 (86.2)	1,470 (86.1)	138 (78.4)	165 (94.8)	
HR+HER2+	1,200 (4.2)	122 (4.4)	65 (3.8)	13 (7.4)	6 (3.4)	
HR-HER2+	131 (0.5)	18 (0.6)	14 (0.8)	3 (1.7)	0 (0.0)	
TNBC	388 (1.4)	56 (2.0)	48 (2.8)	5 (2.8)	0 (0.0)	
Unknown	1,896 (6.7)	187 (6.7)	111 (6.5)	17 (9.7)	3 (1.7)	
Stage						<0.001
I	11,376 (40.1)	982 (35.3)	697 (40.8)	68 (38.6)	63 (36.2)	
II	10,075 (35.5)	975 (35.1)	631 (36.9)	67 (38.1)	61 (35.1)	
III	4,225 (14.9)	459 (16.5)	235 (13.8)	23 (13.1)	29 (16.7)	
IV	1,674 (5.9)	251 (9.0)	84 (4.9)	10 (5.7)	13 (7.5)	
Unknown	1,051 (3.7)	113 (4.1)	61 (3.6)	8 (4.5)	8 (4.6)	
Median household income						<0.001
-54999	4,227 (14.9)	688 (24.7)	36 (2.1)	46 (26.1)	4 (2.3)	
55000-64999	5,653 (19.9)	740 (26.6)	250 (14.6)	40 (22.7)	26 (14.9)	
65000-74999	7,585 (26.7)	705 (25.4)	416 (24.4)	31 (17.6)	38 (21.8)	
75000-	10,927 (38.5)	647 (23.3)	1,006 (58.9)	59 (33.5)	106 (60.9)	
Unknown	9 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	
Geographic location						<0.001
Metropolitan	25,400 (89.4)	2,568 (92.4)	1,668 (97.7)	121 (68.8)	158 (90.8)	
Non-metro adjacent to metro	1,763 (6.2)	153 (5.5)	6 (0.4)	15 (8.5)	1 (0.6)	
Non-metro non-adjacent to metro	12,29 (4.3)	59 (2.1)	34 (2.0)	20 (11.4)	15 (8.6)	
Unknown	9 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	
Marital status						<0.001
Married	15,585 (54.9)	917 (33.0)	1,113 (65.2)	80 (45.5)	103 (59.2)	
Unmarried	11,164 (39.3)	1,669 (60.0)	500 (29.3)	79 (44.9)	58 (33.3)	
Unknown	1,652 (5.8)	194 (7.0)	95 (5.6)	17 (9.7)	13 (7.5)	

Table 1. Base patient characteristic

Race	HR (95% CI)	P-values
White	Ref	
Black	1.00 (0.92-1.09)	0.97
Asian	0.70 (0.60-0.80)	<0.001
AIAN	1.10 (0.76-1.57)	0.62
NHPI	1.07 (0.74-1.54)	0.72
Median household income		
-54999	Ref	
55000-64999	0.83 (0.76-0.90)	<0.001
65000-74999	0.82 (0.75-0.89)	<0.001
75000-	0.79 (0.73-0.86)	<0.001
Geographic location		
Metropolitan	Ref	
Non-metro adjacent to metro	1.04 (0.93-1.16)	0.54
Non-metro non-adjacent to metro	0.96 (0.84-1.10)	0.56
Marital status		
Married	Ref	
Unmarried	1.65 (1.57-1.73)	<0.001

Table 2. Multivariate analysis for OS

Conclusions

- Lower household incomes and unmarried marital status but not race or geographical location were significant prognostic factors associated with short OS in ILC.
- This suggests that addressing the challenges in financial and social support could be effective to improve the OS of patients with ILC.
- Biological differences of ILC in each race need to be investigated further.

References

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- Ozcan B, et al., Radiographics. 2024; 44(1):e230090.