

Racial/ethnic differences in initiation of adjuvant hormonal therapy among women with hormone receptor-positive breast cancer

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Background

- Breast cancer patients from racial/ethnic minority populations have lower five-year survival rates than non-Hispanic White women^{1,2}
 - 87.5% - Non-Hispanic White women
 - 85.5% - Chinese women
 - 85.3% - Filipino women
 - 83.0% - Hispanic women
 - 75.0% - Black women
- Survival differences may be due to **breast cancer treatment disparities**
- Adjuvant hormonal therapy decreases risk of recurrence, increasing overall survival among women with hormone receptor-positive breast cancer³ (estrogen and/or progesterone receptor-positive)
- Few previous studies have examined racial/ethnic differences in use of adjuvant hormonal therapy

Objective : To explore racial/ethnic differences in tamoxifen and aromatase inhibitor initiation among women with hormone receptor-positive localized or regional stage breast cancer

Methods

Study population: Women enrolled in a large integrated health system, Kaiser Permanente Northern California (KPNC), diagnosed with hormone receptor-positive localized or regional stage breast cancer between January 1, 1996 and June 30, 2007, aged 20-79 years

Data sources: KPNC cancer registry and pharmacy data

Outcome measure: Initiation, defined as 2 or more prescriptions for adjuvant hormonal therapy filled within the first year after diagnosis of breast cancer

Analysis: Odds ratios [OR] and 95% confidence intervals [CI] comparing initiation by race/ethnicity (Hispanic, Black, Chinese, Japanese, Filipino, and South Asian vs. non-Hispanic White) estimated using logistic regression adjusting for confounders*

*Confounders adjusted for: age and year of diagnosis, area-level socioeconomic characteristics, co-morbidities, tumor stage, histology and grade, type of breast cancer surgery, radiation and chemotherapy use

Results

- 13,753 women in KPNC met eligibility criteria and were included in analysis
- 70% of women filled 2 or more prescriptions for adjuvant hormonal therapy within one year after diagnosis

Table 1. Characteristics of women enrolled in KAISER diagnosed with invasive hormone receptor-positive breast cancer (N=13,753)

	White n (%) [*]	Hispanic n (%) [*]	Black n (%) [*]	Chinese n (%) [*]	Japanese n (%) [*]	Filipino n (%) [*]	South Asian n (%) [*]	p-value
Background characteristics	10,443 (75.9)	1,089 (8.0)	841 (6.1)	497 (3.6)	206 (1.5)	579 (4.2)	98 (0.7)	
Age at diagnosis (mean±SD)	60.4 ± 10.9	56.0 ± 11.5	56.7 ± 11.8	56.0 ± 11.0	59.3 ± 10.8	54.6 ± 10.9	51.9 ± 11.2	<0.001
Socioeconomic status ^{**}								
Lowest quintile	270 (2.9)	80 (8.0)	111 (14.3)	10 (2.1)	2 (1.0)	21 (3.9)	2 (2.3)	<0.001
2nd quintile	909 (9.6)	171 (17.1)	212 (27.3)	29 (6.2)	7 (3.7)	55 (10.2)	5 (5.8)	
3rd quintile	1,789 (18.9)	212 (21.1)	176 (22.7)	54 (11.6)	27 (14.1)	128 (23.8)	13 (14.9)	
4th quintile	2,778 (29.3)	304 (30.3)	165 (21.2)	152 (32.6)	55 (28.6)	186 (34.6)	24 (27.6)	
Highest quintile	3,718 (39.3)	236 (23.5)	113 (14.5)	222 (47.5)	101 (52.6)	148 (27.5)	43 (49.4)	
Health-related indicators & tumor characteristics								
Charlson comorbidity index								
0	8,707 (83.4)	886 (81.3)	639 (76.0)	423 (85.1)	166 (80.6)	472 (81.5)	85 (86.7)	<0.001
1	1,293 (12.4)	163 (15.0)	137 (16.3)	64 (12.9)	25 (12.1)	74 (12.8)	9 (9.2)	
≥2	443 (4.2)	40 (3.7)	65 (7.7)	10 (2.0)	15 (7.3)	33 (5.7)	4 (4.1)	
SEER summary stage								
Localized	7,245 (69.4)	699 (64.2)	538 (64.0)	358 (72.0)	148 (71.8)	384 (66.3)	63 (64.3)	0.001
Regional (direct extension or LN)	2,999 (28.7)	367 (33.7)	287 (34.1)	131 (26.4)	54 (26.2)	178 (30.7)	31 (31.6)	
Regional (direct extension + LN)	199 (1.9)	23 (2.1)	16 (1.9)	8 (1.6)	4 (2.0)	17 (3.0)	4 (4.1)	
Treatment for breast cancer								
Surgery and radiation ³								
Mastectomy ± radiation	4,175 (40.4)	458 (42.9)	311 (37.1)	224 (45.5)	86 (42.6)	310 (53.8)	48 (49.0)	<0.001
4,343 (42.0)	383 (35.9)	330 (39.3)	185 (37.6)	80 (39.6)	166 (28.0)	32 (33.0)		
Lumpectomy + radiation	1,630 (15.8)	203 (19.0)	169 (20.1)	74 (15.0)	32 (15.8)	92 (16.0)	16 (16.5)	
Lumpectomy, no radiation	186 (1.8)	23 (2.2)	29 (3.5)	9 (1.8)	4 (2.0)	8 (1.4)	1 (1.0)	
No surgery	3,948 (38.0)	532 (49.2)	361 (43.4)	213 (43.0)	86 (41.8)	283 (49.0)	49 (50.5)	<0.001
Chemotherapy treatment ³								
Adjuvant hormonal treatment								
2 or more prescriptions filled	7,333 (70.2)	722 (66.3)	560 (66.6)	327 (65.8)	149 (72.3)	409 (70.6)	68 (69.4)	0.017

¹Initiation=2 or more prescriptions filled within the first year after diagnosis

²Percentages based on non-missing values; ³Quintiles determined from Census block-group level SES distribution of the state of CA

⁴8.9% missing; ⁵1% missing

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➢ In multivariable-adjusted analysis: Hispanic and Chinese women significantly less likely than NHW women to initiate adjuvant hormonal therapy

Table 2. Logistic Regression: Initiation^a of any adjuvant hormonal therapy (N=10,548)

Main exposure	Initiation ^a N (%)	aOR* (95% CI)
Race/ethnicity		
Non-Hispanic White	5,633 (71.0)	Ref
Hispanic	553 (66.0)	0.82 (0.71, 0.96)[†]
Black	449 (68.7)	1.03 (0.85, 1.23)
Chinese	264 (65.7)	0.78 (0.63, 0.98)[‡]
Japanese	121 (74.7)	1.27 (0.89, 1.82)
Filipino	346 (72.4)	1.10 (0.89, 1.36)
South Asian	50 (66.7)	0.91 (0.55, 1.52)

^aInitiation=2 or more filled prescriptions for adjuvant hormonal therapy in first year after diagnosis

[†]adjusted for age at diagnosis, year of diagnosis, marital status, quintile of SES, Charlson comorbidity index, SEER stage, histology type, tumor grade, surgical and radiation treatment, chemotherapy use
[‡]p=0.015; [†]p=0.03

Conclusions

- Within large integrated health system of KPNC, Hispanic and Chinese women less likely to initiate adjuvant hormonal therapy than non-Hispanic White women
- Results should be confirmed in other studies given possibility that current findings due to multiple comparisons
- Findings consistent with lower five-year survival rates among Hispanic and Chinese women compared to non-Hispanic White women
- Differences in access to care not likely to explain results as all women insured
- Alternative reasons for under-initiation among these groups need to be explored in future research

References

- Jemal A, Clegg LX, Ward E, et al. Annual report to the nation on the status of cancer, 1975-2001, with a special feature regarding survival. Cancer 2004;101:3-27.
- Lin SS, Clarke CA, Prehn AW, Glaser SL, West DW, O'Malley CD. Survival differences among Asian subpopulations in the United States after prostate, colorectal, breast, and cervical carcinomas. Cancer 2002;94:1175-82.
- Eifel P, Axelsson JA, Costa J, et al. National Institutes of Health Consensus Development Conference Statement: adjuvant therapy for breast cancer, November 1-3, 2000. J Natl Cancer Inst 2001;93:979-89.