THE UNIVERSITY OF MISSISSIPPI
Department of Pharmacy Administration

ADHERENCE TO TAMOXIFEN AND AROMATASE INHIBITORS AMONG WOMEN ENROLLED IN MEDICAID PROGRAM

Rahul Khanna, MBA, PhD[1,2]; Namita Joshi, MS[1];
Patrick Pace, PhD[2,1]; Benjamin F Banahan, PhD[2,1]

[1]Department of Pharmacy Administration, The University of Mississippi;
[2]Center for Pharmaceutical Marketing and Management, The University of Mississippi

BACKGROUND

- Breast cancer is the most common cancer among women, and the second most common cancer in the United States (US).
- Comprehensive Medicaid population based studies of adherence and persistence to tamoxifen and aromatase inhibitors (AIs), including anastrozole, exemestane, and letrozole among women with breast cancer are currently lacking.

OBJECTIVES

- The purpose of this study was to estimate the adherence and persistence to tamoxifen and AIs among women with breast cancer enrolled across 38 state Medicaid programs.
- Factors predicting adherence and persistence to tamoxifen and AIs were also determined.

METHODS

Study sample

- Sample included women aged 18-64 years, continuously enrolled in 2006-2008 Medicaid managed care programs (38 states).
- Incident users of tamoxifen and AIs in 2007 were identified using national drug codes (NDC) and followed from index date to 12-month post index date.
- Proportion of days covered (PDC) and persistence (gap in prescription refills) was used to assess adherence and persistence to tamoxifen and/or AIs, respectively.

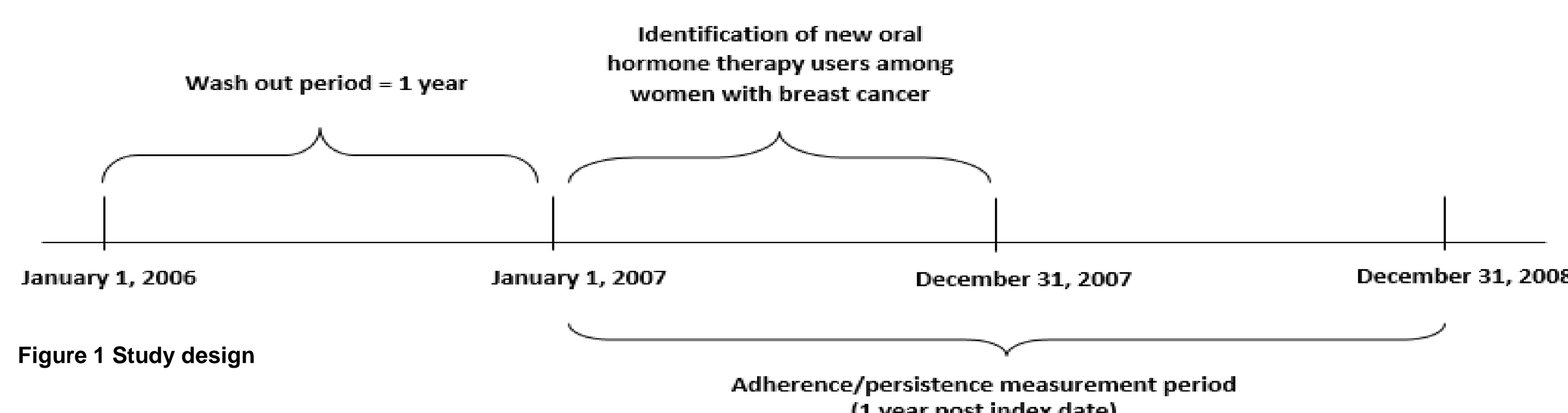

Figure 1 Study design

Data analyses

- Descriptive statistics including means and standard deviations, and frequencies and percentages were calculated for continuous and categorical variables, respectively.
- Logistic regression was employed to identify predictors of adherence and persistence using SAS v9.4.

RESULTS

- The final study sample included 1,076 women with breast cancer who initiated tamoxifen and/or AIs therapy in 2007. Characteristics of the sample are reported in Table 1.
- Table 2 presents the results of logistic regression analyses aimed at identifying the factors predicting adherence and persistence to hormone therapy among women with breast cancer.
- Among women with breast cancer, adherence to hormone therapy increased with age (OR, 1.03; 95% CI, 1.01-1.05). Black women with breast cancer were less likely to be adherent as compared to white women with breast cancer (OR, 0.69; 95% CI, 0.48-0.99). Women with breast cancer residing in the South (OR, 0.50; 95% CI, 0.34-0.74), Midwest (OR, 0.07; 95% CI, 0.04-0.13), or West (OR, 0.53; 95% CI, 0.37-0.77) had lower likelihood of being adherent as compared to women living in the Northeast region. The odds of adherence were higher for women having stage III/IV (OR, 3.93; 95% CI, 1.13-13.71) breast cancer than those with stage 0 breast cancer. The likelihood of adherence increased with number of outpatient visits (OR, 1.04; 95% CI, 1.01-1.06).
- Women with breast cancer residing in the South (OR, 0.44; 95% CI, 0.28-0.69) or West (OR, 0.49; 95% CI, 0.31-0.75) were less likely to be persistent as compared to those residing in the Northeast region. Women with stage I (OR, 3.36; 95% CI, 1.26-8.92) and stage III/IV (OR, 4.21; 95% CI, 1.20-14.77) breast cancer had greater odds of being persistent with therapy as compared to women with stage 0 breast cancer. Women who filled ≥5 prescriptions per month in the 12–month period prior to index date (OR, 2.35; CI, 1.08-5.12) had greater odds of being persistent as compared to those who filled ≤1 prescriptions per month. Those who switched between tamoxifen and AIs (OR, 0.64; CI, 0.41-0.99) were less likely to be persistent as compared to women on one drug during the study period.

Table 1 Description of the sample on study characteristics

Characteristic	n	%
Age, mean (sd)	49.81	8.03
Race		
White	463	43.03
Black	238	22.12
Others	375	34.85
Geographic region		
Northeast	289	26.86
South	305	28.35
Midwest	155	14.41
West	327	30.39
Stage		
0	19	1.79
I	757	71.42
II	170	16.04
III and IV	114	10.75
Radiation therapy		
Yes	360	33.46
No	716	66.54
Chemotherapy		
Yes	248	23.05
No	828	76.95
Mastectomy		
Yes	282	26.21
No	794	73.79
Number of Rx per month		
0–1	352	32.71
2–4	644	59.85
≥5	80	7.43
Switch therapy		
Yes	117	10.87
No	959	89.13
CCI		
0–2	422	39.22
3–5	298	27.70
6–9	243	22.58
≥10	113	10.50
Inpatient visits		
Yes	415	38.57
No	661	61.43
Emergency room (ER) visits		
Yes	508	47.21
No	568	52.79
Outpatient visits, mean (sd)	13.83	8.01

CCI Charlson Comorbidity Index; Rx Prescriptions

Table 2 Factors predicting adherence and persistence with hormone therapy among women with breast cancer

	Adherence	Persistence
Characteristic	Odds Ratio (95% Confidence Interval)	
Age	1.03 (1.01 - 1.05)	1.02 (1.00 - 1.04)
Race		
White	Ref.	Ref.
Black	0.69 (0.48 - 0.99)	0.81 (0.55 - 1.18)
Others	1.31 (0.95 - 1.81)	1.22 (0.85 - 1.76)
Geographic region		
Northeast	Ref.	Ref.
South	0.50 (0.34 - 0.74)	0.44 (0.28 - 0.69)
Midwest	0.07 (0.04 - 0.13)	0.85 (0.49 - 1.49)
West	0.53 (0.37 - 0.77)	0.49 (0.31 - 0.75)
Stage		
0	Ref.	Ref.
I	2.08 (0.73 - 5.95)	3.36 (1.26 - 8.92)
II	3.37 (0.98 - 11.58)	2.89 (0.85 - 9.86)
III and IV	3.93 (1.13 - 13.71)	4.21 (1.20 - 14.77)
Radiation therapy		
Yes	1.20 (0.88 - 1.63)	1.20 (0.85 - 1.70)
No	Ref.	Ref.
Chemotherapy		
Yes	1.15 (0.81 - 1.63)	1.24 (0.83 - 1.86)
No	Ref.	Ref.
Mastectomy		
Yes	1.01 (0.68 - 1.49)	1.21 (0.77 - 1.89)
No	Ref.	Ref.
Number of Rx per month		
0–1	Ref.	Ref.
2–4	0.97 (0.70 - 1.35)	1.09 (0.77 - 1.55)
≥5	1.54 (0.82 - 2.88)	2.35 (1.08 - 5.12)
Switch therapy		
Yes	0.76 (0.50 - 1.17)	0.64 (0.41 - 0.99)
No	Ref.	Ref.
CCI		
0–2	Ref.	Ref.
3–5	1.13 (0.79 - 1.62)	1.22 (0.82 - 1.82)
6–9	0.98 (0.55 - 1.74)	1.10 (0.57 - 2.11)
≥10	0.96 (0.45 - 2.05)	1.37 (0.57 - 3.27)
Inpatient visits		
Yes	1.11 (0.78 - 1.59)	1.10 (0.74 - 1.64)
No	Ref.	Ref.
ER visits		
Yes	0.89 (0.66 - 1.20)	0.77 (0.55 - 1.07)
No	Ref.	Ref.
Outpatient visits	1.04 (1.01 - 1.06)	1.012 (0.99 - 1.04)

CONCLUSIONS

- Adherence and persistence to tamoxifen and AIs was suboptimal among women with breast cancer enrolled in Medicaid.
- Policy makers should consider implementing interventions toward improving treatment adherence and persistence among this population.

IMPLICATIONS

- Low levels of adherence and persistence to hormone therapy is likely to impose significant health and mortality burden among patients.
- For providers, it may present challenges in breast cancer management among such patients.
- It is likely to accentuate the economic burden imposed by the diagnosis and treatment of breast cancer for state Medicaid

LIMITATIONS

- There could be errors due to misclassification or miscoding during the processing of claims.
- The sample was limited to women with breast cancer enrolled in Medicaid managed care program.
- The use of claims data to study adherence precluded identification of whether prescription filled was actually consumed by the patient.

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Author's Contact: rkhanna@olemiss.edu