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HEALTH OUTCOMES

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Long-term Adherence to Hormone Therapy in Medicaid-enrolled Women with Breast Cancer

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ABSTRACT

OBJECTIVE: This study assessed long-term adherence to hormone therapy in women with breast cancer enrolled in Medicaid.

METHODS: We identified women diagnosed with nonmetastatic breast cancer (2000–2008) and prescribed tamoxifen or aromatase inhibitors (AIs) as hormone therapy within 1 year of diagnosis in the South Carolina Central Cancer Registry and South Carolina Medicaid linked data set. All the patients were followed-up for 1, 2, 3, or 4 years after initiation of hormone therapy. Adherence rate was measured as proportion of days covered (PDC) by tamoxifen or AIs in a given interval (1, 2, 3, or 4 years). Predictors of adherence to hormone therapy (PDC ≥80%) were identified using generalized linear models for repeated measures.

RESULTS: The population consisted of 612 eligible women who filled at least one prescription for AIs (n = 339, 55%) or tamoxifen (n = 273, 45%) within 1 year of diagnosis. The mean PDCs were 71% in the first year and 49% after 4 years. Only 25% of women receiving hormone therapy maintained a PDC of at least 80% after 4 years.

CONCLUSIONS: Long-term use of hormone therapy remains low in the study population. Early interventions must be undertaken to improve adherence over the treatment period.

KEYWORDS: Low income; Medication use

Hormone therapy is a systemic treatment for hormone-receptor-positive breast cancers to remove hormones or block their action and stop cancer cells from growing. Evidence showed higher recurrence rates and worse survival with <5 years of hormone treatment, thus recognizing the potential for long-term regimens.[1-6] However, knowledge on actual use of hormone therapy in low-income populations is limited. Chlebowski and Geller[7] reviewed the literature on adherence to hormone therapy for breast cancer and compared adherence in clinical trial and practice setting populations. Overall, 23% to 28% of the

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participants in clinical trials discontinued therapy after 4 years and 30% to 50% of tamoxifen users discontinued treatments in clinical practice settings. Gotay and Dunn[8] and Banning[9] reviewed the most recent literature and found that 20% to 50% of tamoxifen users and 30% to 70% of aromatase inhibitors (AIs) were adherent for 3 to 5 years in various practice settings. Overall, the actual long-term use of hormone therapy remains low and less than desirable. It is worth noting that, among those studies, very few assessed long-term use of hormone therapy in low-income women with breast cancer.

Health insurance status has been identified as a factor associated with breast cancer outcomes. Previous studies indicated that women covered by Medicaid were more likely to have advanced breast cancer and worse survival compared with those covered by private insurance.[10-12] Understanding variation in the use of hormone therapy and identifying associated predictors in Medicaid patients with breast cancer would allow policymakers to identify obstacles to hormone therapy, estimate medication use behavior, and develop effective disease management in this disadvantaged population.

We created a linked database of South Carolina Central Cancer Registry (SCCCR) and South Carolina Medicaid claims data and used a repeated-measures method to assess intensity and predictors of tamoxifen and AI use among a cohort of Medicaid breast cancer women patients for up to 4 years after hormone therapy initiation. Our specific aims were 1) to describe patient characteristics of low-income women with breast cancer using adjuvant hormone therapy and 2) to assess long-term adherence to hormone therapy and identify associated predictors.

METHODS

Study Population

This was a longitudinal cohort study. We used the SCCCR and South Carolina Medicaid administrative database to identify women who were diagnosed with nonmetastatic breast cancer between 2000 and 2008. We restricted our sample to patients with hormone receptor-positive or unknown breast cancer receiving tamoxifen only or AIs only within 1 year of diagnosis. Tamoxifen and AIs (anastrozole, exemestane, and letrozole) were identified by national drug codes. All patients were continuously enrolled in Medicaid for 1 year before and at least 1 year after the hormone therapy initiation. Eligible individuals were followed-up for 1, 2, 3, or 4 years after the index date (date of first prescription of hormone therapy). The total number of patients for adherence rate measures in each interval could be different due to the variation of enrollment eligibility. Patients with partial enrollment in the given intervals (2, 3, or 4 years) were not included for adherence measures for the corresponding intervals. Thus, each subject could have at least 1 and up to 4 adherence rates for the given intervals. The Medicaid claims and SCCCR data were merged by South Carolina Office of Research and Statistics using probabilistic match. Patient first name, last name, social security number, and date of birth were used for the linkage. After a successful merge, patient identifiers were removed and the de-identified data were provided to us for analysis. The study protocol was approved by the Institutional Review Board at the University of South Carolina.

Outcome Measures

The outcome of interest was medication adherence or the degree of prescription-filling in a given interval (1, 2, 3, or 4 years), measured as proportion of days covered (PDC). The number of days supplied from each filled prescription was used to calculate the proportion of days in which a patient had hormone therapy available in each interval.[13,14] Adherence was defined as a PDC $\geq$80%.[14,15]