Influence of Race, Socioeconomic Status, Insurance, and Hospital Type on Receipt of Guideline Adjuvant Systemic Therapy for Non-Metastatic Breast Cancers

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Objectives

- To examine the dissemination of guideline adjuvant care in the community
- To identify the association of socio-demographic and hospital factors with receipt of guideline-concordant adjuvant care

Methods

- Data sources: PoC study of 7 cancer registries (CA, GA, KT, LA, NC, MN, and WI)
- Medical record abstraction: Medical records were reabstracted from hospitals and non-hospital settings.
- Physician verification: Information on treatment was verified with treating physicians when it was missing or incomplete in medical records.
- Case eligibility: Women, 20 years and older, diagnosed with a microscopically confirmed locoregional breast cancer in 2004, received breast cancer surgery.

Background

- In 1999, IOM published the report Ensuring Quality Cancer Care, recommending more research to measure and improve the quality of cancer care
- In 2000, IOM further recommended to enhance cancer registries for assessing quality of cancer care
- In 2005, the CDC-NPCR funded seven registries to conduct a pattern of care study for prostate and female breast cancers.

Cancer registries do not have complete data on adjuvant therapy from routine data collection due to the lack of adequate resources. Assessing the quality of cancer care often relies on data from NCDB, medical claims, and PoC studies.

The majority of previous PoC studies were limited to the SEER areas.

A few publication on adjuvant therapy for breast cancer; more scarce on regimens

Most publications focused on racial differences. The independent association of other non-clinical factors with receipt of systemic adjuvant therapies have not been examined thoroughly.

Guideline-concordant care

- Received or not received adjuvant therapy according to the NCCN guidelines
- 3 outcomes of interest:
  - Guideline-concordant adjuvant chemotherapy (any regimens)
  - Guideline-concordant regimens
  - Guideline-concordant hormonal therapy

NCCN Clinical Practice Guidelines in Oncology, version 1.2003
1 Hormonal therapy was considered for tumor <1 cm for the reduction of recurrence. Patients with tumor <1 cm receiving hormonal therapy were grouped in the guideline-concordant care.
Clinical variables

- Clinical variables specified in the NCCN guidelines
  - regional lymph node status
  - histology type
  - tumor size
  - tumor grade
  - ER/PR status

- Comorbidity collected using ACE-27 by Piccirillo et al
  None, mild, moderate, severe, and unknown.

Results

- 6,734 cases included
- Most cases were white (77%), nearly two thirds privately insured, 83% residing in low poverty areas, 69% in high education areas, and 50% treated at CoC hospitals.

Socio-demographic and hospital variables

- Independent variables of interest
  - Race/ethnicity (NH-white, NH-black, NH-AI/AN, NH-API, and Hispanic)
  - Insurance (private, Medicare/other public, Medicaid, none, unknown)
  - Census-tract poverty (low: <20%; high: >20%)
  - Census-tract education (high: <25%; low: >25% less than a high school education)
  - CoC status (yes, no, others)
  - Residence state at diagnosis

Results – adjuvant chemotherapy

- 43% of women did not receive guideline-concordant care
- Univariate analysis: Race, insurance, area poverty, and CoC status were significantly associated with receipt of guideline-concordant care.
- Multivariate analysis: Significant predictors of non-guideline chemotherapy, after adjusting for age, residence state, and clinical variables:
  - Medicaid insurance
  - living in high poverty areas
  - living in low education areas
  - treatment at non-CoC hospitals

Data Analysis

- Univariate analysis: association of individual variables with the use of guideline-concordant care.
- Multiple logistic regression: association of socio-demographic and hospital variables with the use of guideline-concordant therapies with adjustment.
- All statistics were weighted to reflect the populations from which the sample was drawn.
- SAS Procedures for survey data analysis

Results – adjuvant chemotherapy

- After adjusting for all variables, significant predictors of non-guideline chemotherapy
  - Medicaid insurance
  - treatment at non-CoC hospitals

The OR for area poverty was attenuated
Results – chemotherapy regimens

- 12% of chemotherapy recipients did not receive recommended regimens
- Univariate analysis: Insurance, area poverty, area education, and CoC status were significantly associated with receipt of guideline-concordant regimens
- Multivariate analysis: Significant predictors of non-guideline regimens, adjusting for age, residence state, and clinical variables:
  - lack of health insurance
  - living in high poverty areas
  - living in low education areas

Results – Hormonal therapy

- 18% of women did not receive guideline-concordant care
- Univariate analysis: Race, insurance, area poverty, education, and CoC status were significantly associated with receipt of guideline-concordant care.

Discussion – Race/ethnicity and guideline care

- Race/ethnicity was associated with use of guideline-concordant chemotherapy and hormonal therapy. However, after adjusting for age and/or clinical and socio-demographic variables, the association was no longer statistically significant.
- Black, AI/AN, and Hispanic patients were younger at diagnosis (median age differed by 5-10 years). It may explain why after adjusting for age, the differences in use guideline-concordant adjuvant therapy were no longer significant.

Discussion – Medicaid and guideline-concordant care

- Less likely to receive guideline chemotherapy and hormonal therapy.
- Poor, more likely to have comorbid conditions; the differences persisted adjusting for clinical factors including comorbid condition.
- Other underlying factors pertaining to Medicaid status: transportation, family support
- Other socio-demographic and hospital factors may contribute to the lower use of guideline hormonal therapy among Medicaid beneficiaries.

Results – Hormonal therapy

- Multivariate analysis: Significant predictors of non-guideline hormonal therapy, adjusting for age, residence state, and clinical variables:
  - living in high-poverty areas
  - treatment at non-CoC hospitals
- After adjusted for all variables, significant predictors of non-guideline hormonal therapy, treatment at non-CoC hospitals remains significant predictor for the low use of guideline-concordant care

Discussion – Area SES and guideline-concordant care

- Living in high poverty and low education areas was consistently associated with low use of guideline chemotherapy, regimens, and hormonal therapy.
- The association was attenuated by other socio-demographic and hospital variables for chemotherapy.
- Low-income and less-educated women may not communicate well with physicians.
- Other contributing factors: family support, transportation
Discussion – CoC status and guideline-concordant care

- Women treated at CoC hospitals were more likely to receive guideline-concordant care.
  - Multidisciplinary tumor board
  - State-of-art therapy services
  - Fewer barriers to obtaining an oncology consultation

Discussion

- Strengths
  - Large sample size
  - Population-based design
  - All racial/ethnic groups
  - Coverage areas

- Limitations
  - Diagnosis year: 2004
  - Exclusion of almost 20% of eligible cases
  - Exclusion of those receiving neo-adjuvant chemotherapy
  - Non-individual level contextual binary SES covariates
  - No information for subgroups of APIs and Hispanics

Conclusions

- Socio-demographic and hospital factors are associated with guideline-concordant use of adjuvant therapy for breast cancers.
- Underlying causes leading to non-guideline treatment need to be identified to reduce disparities in breast cancer care and improve survival.

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Thank You!

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