

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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NAACCR 2011 Annual Conference
Louisville, Kentucky
June 2011

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

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
 - 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.

Methods

- Data sources: PoC study of 7 cancer registries (CA, GA, KT, LA, NC, MN, and WI)
- Medical record abstraction: Medical records were re-abstracted 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

- 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 guidelines¹²
- 3 outcomes of interest:
 - Guideline-concordant adjuvant chemotherapy (any regimens)
 - Guideline-concordant regimens
 - Guideline-concordant hormonal therapy

¹NCCN Clinical Practice Guidelines in Oncology, version 1.2003

² 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

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 of guideline-concordant adjuvant therapy were no longer significant.

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 – 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

Acknowledgement

- Funded by CDC through cooperative agreements
- CDC
 - Robert R. (Bob) German, DrPH, MPH - Jen Wike, MBA, MPH
 - Trevor Thompson, BS
- Other Investigators
 - Rosemary Cress, DrPH - Ann S. Hamilton, Ph.D.,
 - Roger T. Anderson, Ph.D. - Carin Perkins, Ph.D.
 - J. Frank Wilson, MD, FACR

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

Thank You!

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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.