Real-World Evidence Study of Factors Associated With Breast Cancer Conserving Surgery for Females Diagnosed With Early Stage Breast Cancer

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BACKGROUND

Problem  • Breast Conserving Surgery (BCS) is now considered an acceptable alternative to mastectomy for patients with non-metastatic invasive breast cancer (BCa).
• Limited research examining factors influencing BCS reveal important predictors such as insurance, sociodemographic characteristics, and availability of health care services.

Research Objective  • Examine factors associated with BCS in a large, contemporary cohort of commercially insured females with breast cancer.

METHODS

This retrospective observational study of the IBM® MarketScan® Commercial and Medicare Supplemental Database: 1/1/2012 – 3/31/2018.

RESULTS

National and Regional Time Trends in BCS

Comparison of Patients Receiving BCS or Mastectomy n=57,299

Figure 2. National and Regional Trends in BCS. A. Average of BCS proportions across all census regions (A). B. Proportion of BCS (2012-2017) in east US Census region per 100 B. Patients 60 years and older were at least 29% more likely to receive BCS relative to those younger than 50.

LIMITATIONS

This cross-sectional study relied upon privately insured commercial claims data and results may not be generalizable. We inferred community-level characteristics based on county-level data. Additionally, clinical data sources (e.g., biomarker, hormone receptor status) may further explain BCS vs. mastectomy selection.

CONCLUSIONS

This study showed increased BCS with older age, access to and use of genetic services, living in communities with a higher density of physicians specialized in medical genetics & nuclear medicine physicians, and decreased BCS use with certain co-morbid conditions and the regions of the South, Midwest, or West. This real-world evidence study contributes to informing clinical practice on the significant patient- and community-level factors influencing BCS in a non-metastatic invasive breast cancer cohort.

57,299 met inclusion criteria of which, 47.1% (28,474) had BCS, ranging from 62.9% in 2012 to 73.3% in 2017 (Figure 2). While BCS increased overall, differences were observed on most factors considered between patients who had BCS and those who did not (Table 1). However, of 15 comorbidities measured, only two (diabetes [p<.001] and chronic obstructive pulmonary disease [p=.04]) varied significantly.

Table 1. Characteristics of study population. Results from Korn-Haenszel Chi-square test. Chi-square equals p-value*

Logistic Model of BCS versus Mastectomy Results (n=57,299)

Figure 3. Odds Ratios (ORs) with 95% confidence intervals (A) and Regional Effects (PES) (B) of factors influencing BCS. Factors are categorized according to patient-level and Community/ERA-level (+) data. # represents number per 10,000 residents. Significance levels are designated (p<.05, **p<.001). (PES/level) p-values were based on clustered standard errors.

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