Adherence to Breast Cancer Screening Guidelines and Its Association with Survival in Women Treated for Breast Cancer in Colombia: A National Cohort Study Based on Administrative Claims

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I. BACKGROUND

Breast cancer (BC) is the neoplasm with the highest incidence amongst women in Colombia. Colombian guidelines recommend screening women aged 50 to 69 years for BC with biannual mammography, yet adherence to mammography screening or its impact on mortality at a national level have not been assessed (1).

II. OBJECTIVE

We aimed to determine adherence to BC mammography screening guidelines and its association with 5-year overall survival (5YOS) in women treated for BC in 2015 in Colombia.

III. METHODS

We conducted a national retrospective cohort study based on administrative claims from the Colombian contributory health regime. We identified patients eligible for BC screening between 2011-2014 (women aged 50 to 66 by January 1st, 2011) who were first treated for BC in 2015 through a previously validated BC case detection algorithm combining BC specific ICE-10 codes and oncologic procedure codes, including chemotherapy, radiotherapy and surgery. Screened patients were those who had registered at least two mammography codes separated by at least two years. Patients who fulfilled the algorithm for other cancer types were excluded. Primary outcome was 5YOS. We used propensity score matching (PMS) to balance sociodemographic and clinical covariates and performed a Cox regression with the matched sample to estimate hazard ratios (HR). Secondary outcome was adherence to guidelines according to region and insurer. We estimated differences between regions and insurers using *chi-square* tests. We used the national death registry database RUAF-ND, the national UPC-sufficiency database for the contributive healthcare regimen and the national BDUA administrative database as sources of information. All databases were provided by the Colombian Ministry of Health.

IV. RESULTS

We identified 1520 incident cases of women treated for BC in 2015. 265 (17.43 %) patients were screened according to guidelines. Mean age was 62.50 years (SD 4.66) for screened and 61.83 years (SD 4.60) for unscreened patients. The majority of patients had a Charlson Comorbidity Index score of 2, corresponding to 137 (51.70%) of screened and 797 (63.51%) of unscreened patients, respectively. Diabetes mellitus was the most prevalent comorbidity in both screened (18.87%) and unscreened patients (18.57%). 6.04% of screened patients had metastatic disease, whereas 3.59% of unscreened patients had metastatic disease.

We found differences regarding adherence to guideline screening according to insurers and regions. Regions with lowest adherence to screening were Pacific (9.06%) and Oriental (9.06%), whereas the Central and Bogotá-Cundinamarca regions had the highest adherence (37.74% and 28.68%), as presented in *table 1*.

Mortality rates were 2.64 (CI95% 1.88-3.72) and 4.36 (CI95% 3.85 – 4.95) per 100 person-years, respectively. PSM yielded a sample of 262 screened and 262 unscreened patients. Adherence to guideline screening recommendations was associated with an improved 5YOS in the unmatched (HR: 0.55 (CI95% 0.37 to 0.80)) and matched samples (HR: 0.58 (CI95% 0.40 to 0.84)), respectively. *Figure 1* depicts the Kaplan-Meier 5YOS of screened and unscreened patients in the matched sample.

	Total sample n=1520	Screened n= 265 (17.43%)	Unscreened n=1255 (82.57%)	*p*-value
Region, n (%)				0.018
Atlantic	218 (14.34)	40 (15.09)	178 (14.18)	
Bogota-Cundinamarca	381 (25.07)	76 (28.68)	305 (24.30)	
Central	529 (34.80)	100 (37.74)	429 (34.18)	
Oriental	140 (9.21)	24 (9.06)	116 (9.24)	
Pacific	249 (16.38)	24 (9.06)	225 (17.93)	
Orinoquia and Amazon	3 (0.20)	1 (0.38)	2 (0.16)	

Table 1. Adherence to guidelines according to regions

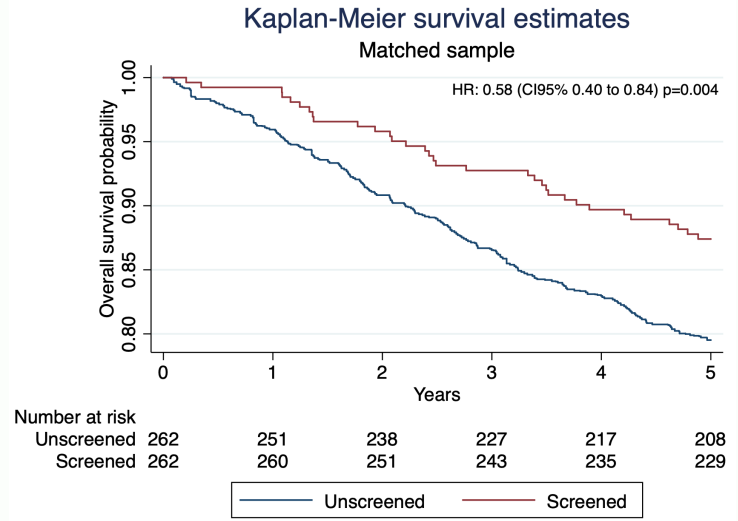

Figure 1. Kaplan-Meier 5YOS of screened and unscreened patients after PSM

V. CONCLUSIONS

BC screening is associated with better 5YOS in women treated for BC in Colombia. Adherence to screening guidelines is low and heterogenous between regions and insurers. BC national screening adherence can be monitored through administrative claims, with the potential to become an indicator of care of BC.

VI. LIMITATIONS

Clinical stratification of BC using the TNM system is not feasible with our sources of information. Non-observable confounders due to the retrospective design cannot be adjusted with PSM.

VII. REFERENCE

1. Duarte C, Salazar A, Strasser-Weippl K, de Vries E, Wiesner C, Arango-Gutiérrez A et al. Breast cancer in Colombia: a growing challenge for the healthcare system. Breast Cancer Research and Treatment. 2021;186(1):15-24.