

Use of healthcare services and pattern of comorbidities in long-term breast cancer survivors: a longitudinal study based on real world data

Anna Jansana^{1,2}, Teresa Sanz^{2,3}, Beatriz Poblador^{2,4}, Laia Domingo^{1,2}, Mercè Comas^{1,2}, Maria Isabel del Cura^{2,3}, Alexandra Prados-Torres^{2,4}, Berta Ibáñez^{2,5}, Ibai Tamayo^{2,5}, Maria Padilla^{2,6}, Antonio Gimeno^{2,4}, Maximino Redondo^{2,6}, Xavier Castells^{1,2,7}, Maria Sala^{1,2}

1. Department of Epidemiology and Evaluation, Hospital del Mar Medical Research Institute (IMIM). Barcelona, Spain.

2. Health Services Research on Chronic Patients Network (REDISSEC), Institute of Health Carlos III. Madrid, Spain.

3. Madrid Health Service, Primary Care Research Unit. Madrid, Spain.

4. EpiChron Research Group, Aragon Health Sciences Institute (IACS), IIS Aragón, Teaching Unit of Preventive Medicine and Public Health, Miguel Servet University Hospital. Saragossa, Spain.

5. Navarrabiomed-Complejo Hospitalario de Navarra-Universidad Pública de Navarra. IdiSNA. Pamplona, Spain.

6. Research Unit, Costa del Sol Hospital, University of Málaga. Instituto de Investigación Biomédica de Málaga (IBIMA). Marbella, Spain.

7. Autonomous University of Barcelona (UAB). Barcelona, Spain.

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Background

Long-term breast cancer survivors are those women who survive at least 5 years after primary breast cancer diagnosis. There is evidence of specific comorbidities derived from breast cancer caused by the treatment and the disease itself. These comorbidities tend to chronify and therefore require follow-up by health professionals. Cancer survivors' follow-up is an essential phase of cancer care that presents challenges in terms of coordination, the role of each professional and activities to be taken. The aim of this study is to analyse the patterns of utilization of primary care services and comorbidities in long-term breast cancer survivors and to compare them with those in women without history of breast cancer.

Material and methods

Retrospective cohort study based on real world data drawn from electronic medical records and administrative data from primary care and cancer registries databases. Women from five Spanish regions, with a diagnosis of breast cancer and a survival period greater than ≥ 5 years were identified, as well as a sample of women, matched 1:2 by age and administrative health area, without a cancer diagnosis. The use of primary care was assessed during the follow-up period: 2012-2016. Visits were classified according to healthcare professional and medical specialty visited. Rates of visits to primary care and to hospital as well as diagnostic tests per woman/year were calculated for long-term breast cancer survivors and for women with no history of breast cancer. Charlson index was used to assess the burden of comorbidities in both groups at the beginning and at the end of follow-up.

Results

The total size of the study was 19328 women (6512 long-term breast cancer survivors /12816 women without history of breast cancer). The mean age at the beginning of follow-up was 68.6 years. Among long-term breast cancer survivors, 25% were survivors of ten years or more. At the end of follow-up, 87.4% of survivors and 91.7% of women with no history of breast cancer were alive. Long-term breast cancer survivors had a higher rate of specialist care visits than the control group (4.8 vs 2.5 annual visits per woman/year). The group of long-term breast cancer survivors had a higher Charlson index score at both the beginning and end of follow-up and a higher prevalence of other diseases and conditions other than breast cancer.

Table 1. Characteristics of the women at baseline

Characteristics	Long-term breast cancer survivors N=6,512	Women without history of breast cancer N=12,816	p -value
Age at the beginning of follow-up, mean (SD)	68.6 (12.8)	68.5 (12.7)	
Age groups, n (%)			
30-49 years	495 (7.6)	974 (7.6)	
50-59 years	1,556 (23.9)	3,063 (23.9)	
60-70 years	1,700 (26.1)	3,345 (26.1)	
>70 years	2,761 (42.4)	5,434 (42.4)	
Survival time at the beginning of follow-up, n (%)			
5-10 years	4,872 (74.8)	-	
≥ 10 years	1,640 (25.2)	-	
Vital status at the end of follow-up, n (%)			
Alive	5,662 (87.4)	11,759 (91.7)	<0.001
Exitus	819 (12.6)	965 (7.5)	
Diagnoses at the beginning of follow-up, mean (SD)*	6.4 (6.9)	5.2 (4.9)	<0.001
Charlson index score, n (%)**			
0	1,863 (23.8)	9,491 (74.1)	<0.001
1	182 (2.8)	1,158 (9.0)	
2	2,388 (36.7)	1,055 (8.2)	
≥ 3	2,079 (31.9)	1,112 (8.7)	

* Diagnoses at the beginning of follow-up include the baseline breast cancer diagnosis for the survivor group and all other cancer codes that were in the primary care information system at the beginning of follow-up for both groups.

** The Charlson index was calculated using ICD9, ICD10 and ICPC-2 codes at the beginning of the follow-up using primary care databases.

Table 2. Healthcare utilization among long-term breast cancer survivors and women without history of breast cancer

	Long-term breast cancer survivors (N=6,512)		Women without history of breast cancer (N=12,816)	
	Total Visits (n)	Annual visits per woman/year*	Total Visits (n)	Annual visits per woman/year*
Total visits to healthcare services				
Visits Primary Care	507,733	17.8	718,815	13.0
Visits Hospital	171,595	6.0	11,299	0.3***
Tests	54,123	1.9	45,270	0.8
Total visits	733,451	25.7	775,384	16.9***
Visits to Primary Care Professional visited				
GP	228,373	8.0	437,530	7.9
Nurse	142,768	5.0	142,768	4.7
Other professionals+	136,592	4.8	138,517	2.5
Visits to hospital				
Type of visit				
Emergency	17,033	0.6	7,249	0.2^
Admissions	14,889	0.5	4,050	0.1^
Outpatient visits	150,348	5.3	-	-
Tests				
Type of test				
Lab	17,969	0.6	16,680	0.3
Imaging	30,527	1.1	23,596	0.4
Other	5,627	0.2	4,994	0.1

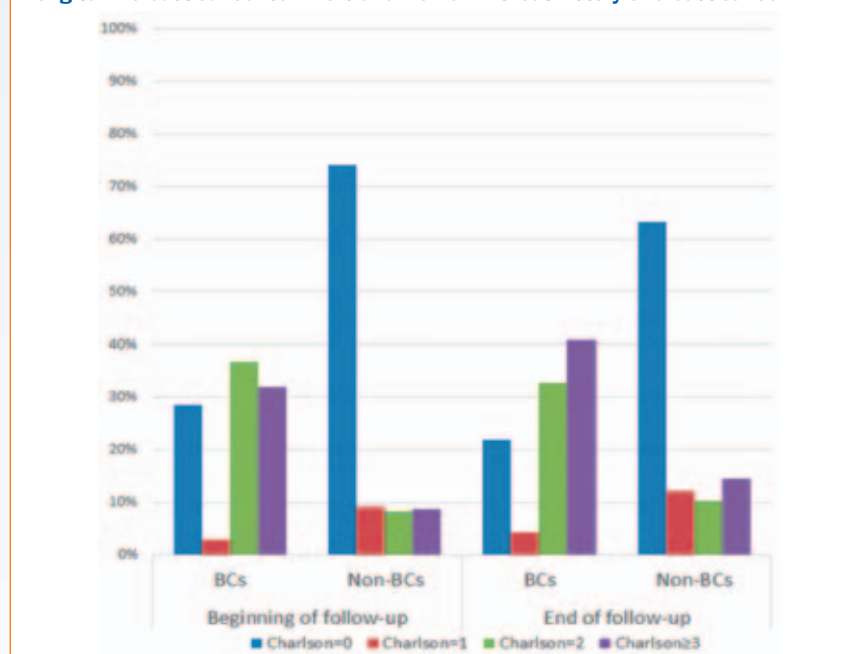
* Total follow-up time for long-term breast cancer survivors was 28,484.0 years.

** Total follow-up time for women without history of breast cancer was 55,355.7 years.

+Other professional include: psychology, rehabilitation, visits to specialists and other professionals in Primary Care settings.

^ Rates referring to hospital visits were calculated including woman whose data was available only. The total follow-up time used in hospital visits rate is 45,877.3 years.

Figure 1. Charlson index distribution at the beginning and at the end of follow-up for long-term breast cancer survivors and women without history of breast cancer



Conclusions

Long-term breast cancer survivors use specialized health services more often than women with no history of breast cancer. The next steps are to study whether this use is in agreement with specific follow-up recommendations for breast cancer survivors and to analyse inconsistencies with international and national guidelines. Optimizing the role of primary care professionals during the follow-up of long-term breast cancer survivors, emphasizing prevention and health promotion activities, would contribute to the fulfilment of recommendations and the acquisition of healthy lifestyle habits in this group of women.