Causes of death among women with malignant breast cancer from the cancer hospital registry in Paraíba

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1 INTRODUCTION

Breast cancer is the main public health problem in the world, being considered one of the main causes of death and one of the important barriers to the increase in life expectancy worldwide. Despite this, there has been an increase in the survival of women with breast cancer due also to the therapeutic modalities developed for this problem and early diagnosis (CRUZ et al 2021).

The increase in life expectancy causes a higher risk of comorbidities related to age, the therapeutic scheme and the clinical aspects of breast cancer (CRUZ et al2021). Many patients diagnosed with cancer already have some type of prior comorbidity, the most common being cardiovascular diseases (AGULAR et al2019). The presence of comorbidity at the beginning of breast cancer treatment can impact survival and quality of life. Meta-analysis suggested that pre-existing diabetes is independently associated with overall survival (OS) and disease-free survival (DFS). The data showed that the pooled adjusted Hazard Ratio was 1.51% (95%CI 1.34-1.70) for OS and 1.28(95%CI 1.09-1.50) for DFS in breast cancer patients with diabetes when compared to breast cancer patients without diabetes (ZHAO; REN, 2016)

Among chemotherapy, radiotherapy and other therapies can lead to cardiotoxicity by different mechanisms, and the risk is directly related to the detection of underlying heart disease, cardiovascular risk factors and previous oncological cardiotoxic treatment. Advances in cancer therapy allow patients to prolong life, but serious complications such as chemotherapy-induced toxicity are still major causes of death. Cardiac toxicity is the second leading cause of morbidity and mortality in breast cancer survivors. It is important to diagnose and prevent cardiac dysfunction, recognize preclinical changes with risk stratification based on pre-existing cardiac disease. Regarding radiation therapy, cardiac injury is related to microvascular and macrovascular effects. Post radiation fibrosis being the most

common cause of these changes (FLORESCU; NISTOR, 2019). Therefore, the prevention of cardiotoxicity should be performed in all patients who will undergo cancer treatment.

Study that listed the main risk factors for death from causes other than breast cancer. It found that cancer progression is the leading cause of death in patients with breast cancer, however, patients in early stages, elderly, diabetic and hypertensive patients had risk factors for death from diseases other than breast cancer, particularly cardiovascular disease (ALESSIO et al 2011).

The evaluation of the presence of comorbidity in patients diagnosed and treated for breast cancer aims at risk stratification, with definition of care management. This evaluation should be initial and conducted throughout the treatment of breast cancer.

With the increase in early diagnosis, it is expected that patients with breast cancer increasingly have other health problems common to the general population and not related to cancer as causes of death. Furthermore, the results of the main causes of death show a scenario of problems that these women may have faced during the course of diagnosis and treatment of cancer, leading to reflection on the expansion of care for women with breast cancer.

2 OBJECTIVE

To verify the causes of death in patients with breast cancer registered in the Paraíba's Hospital Cancer Registries

3 METHODS

This is a cross-sectional study developed with data obtained from the Hospital Cancer Registries (RHC) of three hospitals in the state of Paraíba from 2010 to 2015. The state of Paraíba currently has one High Complexity Oncology Center (CACON) and four High Complexity Oncology Units (UNACON), one of which was not part of this study because it was only inaugurated in the year 2019. Another UNACON did not accept to participate in the study, this service had a registry of 378 women.

Data collection was performed using the Tumor Registry Form obtained from the SisRHC. This information system is a computerized database management tool for Hospital Cancer Registry developed by INCA. The deaths were collected from information from a nominal search in the Mortality Information System (SIM). The interrelationship of the records of the HCR database with the SIM occurred based on the probabilistic relationship technique of records, considering three homologous fields present in both databases (HCR and SIM): name, mother's name and date of birth, using the Alteryx software. The groups of causes of death of the diseases were classified by the chapters of the 10th Revision of the International Classification of Diseases.

The research was authorized by the Health Secretariat of the State of Paraíba to release the SIM Bank. In addition, the UNACON of Paraíba state and the two CACON'S were requested to release the Hospital Cancer Registry database of each hospital. The research was approved by the research ethics committee (CAAE 53471021.0.0000.5188 - UFPB/ CAAE 53471021.0.3002.5182 - HU/UFCG).

4 RESULTS

The main causes of death of patients registered in the Paraíba Hospital Cancer Registry were breast cancer with 64%, followed by other neoplasms (17.53%), as the third cause circulatory system diseases (5.88%) the fourth cause was respiratory diseases (2.99%) and the fifth cause was the group of endocrine, nutritional and metabolic diseases (2.38%) (Table 1).

Among malignant neoplasms other than breast, the main causes were malignant neoplasms of other locations, of ill-defined location, secondary and of unspecified location (4.17%), malignant neoplasm of trachea, bronchus and lungs (3.49%) and malignant neoplasm of the brain (1.79%) (Table 1).

The ill-defined causes, represented by symptoms, signs, and abnormal findings of clinical and laboratory examinations, not elsewhere classified, accounted for (1.70%).

Table 1: Causes of death of women registered in the Paraíba Hospital Cancer Registry.

Causes	ICD-10 codes	N	%
1) Neoplasms (except breast)	C00-C97 (except C50)	206	17,53
Malignant neoplasm of lip, oral cavity and pharynx	C12	2	0,17
Malignant neoplasm of esophagus	C15	1	0,08
Malignant neoplasm of stomach	C16	4	0,34
Malignant neoplasm of the rectosigmoid junction, rectum, anus, and anal canal	C20	2	0,17
Malignant neoplasm of the liver and intrahepatic bile ducts	C22	15	1,28
Other neoplasms of digestive organs	C23	1	0,08
Malignant neoplasm of pancreas	C25	1	0,08
Malignant neoplasm of the trachea, bronchi, and lungs	C34	41	3,49
Other malignant neoplasms of respiratory and intrathoracic organs	C38, C39	3	0,25
Malignant neoplasm of bone and articular cartilage	C40, C41	8	0,68
Malignant skin neoplasm	C43	1	0,08
Other malignant skin neoplasms	C44	4	0,34
Malignant neoplasms of mesothelial tissue and soft tissues	C48	7	0,60
Other malignant neoplasms of the female genital organs	C51, C56	14	1,20
Malignant neoplasm of cervix	C53	4	0,34
Malignant neoplasm of other and unspecified portions of uterus	C55	2	0,17
Malignant neoplasm of the eyes and adnexa	C69	2	0,17
Malignant neoplasm of other parts of the central nervous system	C70, C72	4	0,34
Malignant neoplasm of the brain	C71	21	1,79

Malignant neoplasm of other, ill-defined, secondary, and unspecified location	C73, C76, C78, C79, C80, C97	49	4,17
Non-Hodgkin's Lymphoma	C83, C85	6	0,51
Other malignant neoplasms of lymphoid, hematopoietic and related tissues	C90, C96	8	0,68
Leukemias	C92, C95	6	0,51
2) Malignant breast neoplasm	C50	752	64,0
3) Neoplasia in situ or benign	D05, D24 and D48	8	0,68
4) Infectious and parasitic diseases	A41, A46, B18, B34	11	0,94
5) Diseases of the blood and hematopoietic organs and some immune disorders	D53, D64	2	0,17
6) Endocrine, nutritional and metabolic diseases	E10, E11, E14, E46, E78, E85, E86	28	2,38
7) Mental and behavioral disorders	F03, F32	2	0,17
8) Nervous system diseases	G30	2	0,17
9) Diseases of the circulatory system	I01, I10, I11, I21, I22, I24, I25, I26, I31, I35, I42, I49, I50, I61, I64, I67, I69, I73	69	5,88
10) Respiratory system diseases	J12, J5, J18, J43, J44, J68, J69, J90, J96, J98	35	2,99
11) Diseases of the digestive tract	K25, K26, K40, K52, K56, K74, K83	8	0,68
12) Skin and subcutaneous tissue diseases	L08, L98	2	0,17
13) Osteomuscular and connective tissue diseases	M62	2	0,17
14) Diseases of the genitourinary system	N17, N18, N39, N63, N71	10	0,85
15) Symptoms, signs and abnormal findings of clinical and laboratory examinations, not elsewhere classified	R09, R10, R40, R57, R64, R98, R99	20	1,70
16) External causes of morbidity and mortality	V48, V49 W18, W19, W78, W79 X09, X76, X80, X83	18	1,53
TOTAL		1175	100,0

5 DISCUSSION

There has been a decrease in breast cancer mortality rates due to early detection strategies, improved surgical approaches, and inclusion of better treatment strategies for cancer. Thus, in the face of increased life expectancy in women with cancer other challenges including the impact on cardiovascular health and the presence of other comorbidities such as endocrine diseases must be incorporated into clinical practice. Cardiovascular disease is the second leading cause of long-term morbidity and mortality among cancer survivors. Chemotherapy and targeted treatments are associated with an increased risk of cardiac damage. Thus clinical oncologists face the challenge of treating patients with the best cancer therapies without negatively affecting patients' cardiovascular health (CURIGLIANO et al 2016).

The data from the present study prove the importance of circulatory system diseases as the second group of diseases that most killed women with breast cancer. Being almost double the group of women with respiratory diseases and more than double the women who died from endocrine, nutritional and metabolic diseases. A study that evaluated the causes of death of patients with breast

cancer found that diseases of the circulatory system accounted for 4.3% causes of death of these patients, the second cause being other neoplasms (1.8%) (ALESSIO et al, 2011).

6 CONCLUDING REMARKS

Chronic diseases constitute the health problem of greatest magnitude being the four main types: cardiovascular diseases, cancer, chronic respiratory diseases and diabetes. The recognition of the importance of cardiovascular health and the other chronic diseases in cancer patients is fundamental to extend the gains obtained by better cancer survival due to the advances in its treatment, improving the quality of life of women with breast cancer.

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