Clinical-Epidemiological Profile and Health-Related Quality of Life of Women with Breast Cancer During Chemotherapy Treatment: Observational Study

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Perfil Clínico-Epidemiológico e Qualidade de Vida Relacionada à Saúde de Mulheres com Câncer de Mama durante Tratamento Quimioterápico: Estudo Observacional

Perfil Clínico-Epidemiológico y Calidad de Vida Relacionada con la Salud de Mujeres con Cáncer de Mama en Tratamiento Quimioterápico: Estudio Observacional

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ABSTRACT

Introduction: Breast cancer may affect different profiles of women worldwide. In addition, chemotherapy to treat breast neoplasms directly affects health-related quality of life. **Objective:** To describe the clinical-epidemiological profile and to compare the general and specific health-related quality of life of women with breast cancer during chemotherapy. **Method:** In an observational and prospective study, 140 women with breast cancer in northeastern Brazil were evaluated in the intermediate cycle and at the end of chemotherapy. Quality of life was assessed using a general instrument (EORTC-QLQ-C30) and a specific module (EORTC-QLQ-BR23). Data were compared with a paired non-parametric test, with a significance level of 5%. **Results:** Regarding the clinical-epidemiological profile, the median age was 50 years, 82.9% were black or mixed-race, and 95% lived in Sergipe, Brazil. In addition, 50.7% had no occupation, the median family income was one minimum wage, as well as the median of education was eight years of study and only 40.7% have completed high school. Considering the data from the C30 and BR23 questionnaires, it was observed that most items and scales worsened at the end of chemotherapy when compared to the intermediate cycle. Among the items and scales with significant differences, most had moderate or high effect sizes. **Conclusion:** It is possible to conclude that the clinical-epidemiological profile was unfavorable and chemotherapy reduced several aspects of the health-related quality of life of women with breast cancer.

Key words: breast neoplasms/epidemiology; breast neoplasms/drug therapy; quality of life; women's health.

RESUMO

Introdução: O câncer de mama pode acometer diferentes perfis de mulheres ao redor do mundo. Além disso, a quimioterapia para tratar neoplasias mamárias afeta diretamente a qualidade de vida relacionada à saúde. **Objetivo:** Descrever o perfil clínico-epidemiológico e comparar a qualidade de vida relacionada à saúde geral e específica de mulheres com câncer de mama durante a quimioterapia. **Método:** Estudo observacional e prospectivo com 140 mulheres com câncer de mama no Nordeste do Brasil avaliadas no ciclo intermediário e ao final da quimioterapia. A qualidade de vida foi avaliada por um instrumento geral (EORTC-QLQ-C30) e um módulo específico (EORTC-QLQ-BR23). Os dados foram comparados com teste não paramétrico pareado, com nível de significância de 5%. **Resultados:** Em relação ao perfil clínico-epidemiológico, a mediana da idade foi de 50 anos, 82,9% eram pretas ou pardas e 95% moravam em Sergipe, Brasil. Além disso, 50,7% não possuíam ocupação, a mediana da renda familiar foi de um salário-mínimo, bem como a mediana da escolaridade foi de oito anos de estudo, e somente 40,7% tinham ensino médio completo. Considerando os dados dos questionários C30 e BR23, observou-se que a maior parte dos itens e escalas piorou ao final da quimioterapia quando comparados ao ciclo intermediário. Entre os itens e escalas com diferenças significativas, a maioria apresentou tamanho de efeito moderado ou alto. **Conclusão:** É possível concluir que o perfil clínico-epidemiológico foi desfavorável, e a quimioterapia reduziu diversos aspectos da qualidade de vida relacionada à saúde de mulheres com câncer de mama.

Palavras-chave: neoplasias da mama/epidemiologia; neoplasias da mama/tratamento farmacológico; qualidade de vida; saúde da mulher.

RESUMEN

Introducción: El cáncer de mama puede afectar a diferentes perfiles de mujeres en todo el mundo. Además, la quimioterapia para tratar las neoplasias de mama afecta directamente la calidad de vida relacionada con la salud. **Objetivo:** Describir el perfil clínico-epidemiológico y comparar la calidad de vida relacionada con la salud general y específica de mujeres con cáncer de mama durante quimioterapia. **Método:** Estudio observacional y prospectivo con 140 mujeres con cáncer de mama en el Noreste de Brasil evaluadas en la mitad del ciclo y al final de la quimioterapia. La calidad de vida se evaluó mediante un instrumento general (EORTC-QLQ-C30) y un módulo específico (EORTC-QLQ-BR23). Los datos se compararon con una prueba pareada no paramétrica, con un nivel de significación del 5%. **Resultados:** En cuanto al perfil clínico-epidemiológico, la mediana de edad fue de 50 años, el 82,9% eran negros o mestizos y el 95% vivían en Sergipe, Brasil. Además, el 50,7 % no tenía ocupación, la renta familiar mediana era de un salario mínimo, así como el nivel educativo medio era de ocho años de estudio y solo el 40,7 % tenían la secundaria completa. Considerando los datos de los cuestionarios C30 y BR23, se observó que la mayoría de los ítems y escalas empeoró al final de la quimioterapia en comparación con el ciclo intermedio. Entre los ítems y escalas con diferencias significativas, la mayoría tuvo tamaños del efecto moderados o altos. **Conclusión:** Es posible concluir que el perfil clínico-epidemiológico fue desfavorable y la quimioterapia redujo varios aspectos de la calidad de vida relacionada con la salud de las mujeres con cáncer de mama.

Palabras clave: neoplasias de la mama/epidemiología; neoplasias de la mama/tratamiento farmacológico; calidad de vida; salud de la mujer.

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INTRODUCTION

As a real public health problem, breast cancer (BC) is common and lethal to women worldwide. The incidence and survival are modified by the clinical-epidemiological profile of the population, considering the exposure to each risk factor. BC mortality is affected by lifestyle, health care access and socioeconomic status. Lifestyle may predispose to BC, but health care access and socioeconomic status may determine early diagnosis and proper treatment. Brazil is recognized as an unequal country, where inequality issues impact the population's health status, including BC-related mortality. Therefore, descriptions of clinical-epidemiological profiles of women with BC may expand the understanding of BC incidence and mortality in this country, as well as the planning of preventive strategies in public health services[1-3].

In fact, there is a list of BC risk factors observed in different populations around the world. Socioeconomic risk factors influence lifestyle and health, modifying the experience of those living with BC. A worse socioeconomic status can be translated into poor education, unemployment and low income possibly leading to medical distrust, food insecurity, underserved housing conditions and poor access to health. Also, race, ethnicity and social discrimination are risk factors in socioeconomic and clinical settings, considering race-ethnicity health disparities. These factors may contribute to a risky lifestyle, late BC diagnosis and unsatisfactory treatment. In addition, the impact of socioeconomic status can be even greater in developing countries, where inequalities are frequent[1,4-6].

Furthermore, there is a set of clinical characteristics that may be associated with BC, also modifying its incidence and mortality. Classically, there is a cluster of sexual and reproductive risk factors, in addition to comorbidities – smoking, alcoholism, sedentarism and obesity - and lifestyle habits as physical activity, which may not only predispose to BC, but limit cancer treatment or create conditions for treatment-related adverse events[1,5,7,8] in this population.

In Brazil, describing the clinical-epidemiological profile is a necessity. Due to inequalities, there is a difference in cancer mortality trends, which tend to be unfavorable in low-income and poorly developed macroregions, as in Brazilian Northeast. In addition, the offer of health services and resources for cancer treatment have influenced cancer mortality in Brazil, which leads to the question of which clinical-epidemiological profiles have been experienced by BC patients in the country[9-11].

In parallel with the clinical-epidemiological profile, it is important to recognize that chemotherapy (CT) is a common treatment modality for cancer patients, including BC women. There are several chemotherapeutic agents available, often used in combinations to enhance treatment in different stages of the disease, whether neoadjuvant, adjuvant or palliative. However, CT can trigger several health impacts affecting health-related quality of life (HRQoL)[1,12,13] as adverse events, for instance.

Discussing the impacts of CT for BC women goes beyond the perspective of success and survival, also focusing on HRQoL, either during or after treatment[14]. Quite often, studies on quality of life with BC patients report signs and symptoms that impact HRQoL, both from cancer and its treatment. However, investigations are frequently reported with different profiles of BC patients, who have been or are being exposed to different and simultaneous treatment modalities. In addition, there are differences in the socioeconomic profile and stage of the disease, which certainly may imply in HRQoL outcomes; it should be measured with specific scales for cancer patients to reveal precise interactions between the factors[15-17]. Then, the objective of this study was to compare general and specific HRQoL of women with BC during chemotherapy in Brazil's Northeast and describe their clinical-epidemiological profile.

METHOD

Observational and descriptive study carried out in three cancer clinics of Aracaju, capital of Sergipe in Brazil's Northeast region. The Institutional Review Board of "*Escola de Enfermagem de Ribeirão Preto - Universidade de São Paulo*" (CAAE: 63009616.4.0000.5393) reviewed and approved the study, in compliance with ethics of studies with human subjects, the Declaration of Helsinki and National Health Council guidelines. The participants were duly informed and signed the Informed Consent Form (ICF). In addition, the cancer clinics signed a consent for data collection.

The report of this study was based on the "Strengthening the Reporting of Observational Studies in Epidemiology" (STROBE) checklist[18]. The approach was designed as a single-arm to evaluate treatment-dependent outcomes throughout the CT for BC: health-related quality of life (general and specific for BC patients) and adverse events. The three cancer centers that agreed to participate were enrolled, although others were invited and refused due to operational or administrative issues. The contribution of each cancer center took into account the flow of patients and how many patients consented to participate.

Medical records were used to invite potentially eligible patients by convenience sampling. Eligible patients were

females, 18 years old or more, diagnosed with BC, who had not started CT and not submitted to any other type of cancer treatment, in addition to patients who currently were on CT (exposed or not to other previous treatments such as surgery), excluding palliative cases. In addition, patients with satisfactory cognitive function to participate (able to respond to questions during the interview) and who did not have diabetes mellitus (significant confounding variable in BC outcomes) were eligible[19,20]. As medical records were the main source of information to identify and collect data from the participants, those that were incomplete, illegible and unavailable were excluded.

Based on the profile of the participants to estimate the sample size, data from the National Cancer Institute (INCA) were utilized. In the estimate for the 2016-2017 biennium, 450 new cases of BC were expected in Sergipe, Brazil[21]. Thus, to find differences between two means of paired groups, considering an alpha error (α) of 5% and a beta error (β) of 20%, estimating the standard deviation of 20 points in the Global Health Scale/Quality of Life from European Organization for Research and Treatment of Cancer (EORTC-C30)[22] and a minimum detectable difference of 5 points[23], approximately 127 participants were required. More patients (10%) were included to deal with possible losses or increased variability, in order to maintain the power of the test (1 - β) at 80%.

Data collection was performed in each cancer center, in a private space, before the CT session. Each participant was evaluated in two segments of the study: in the intermediate cycle (IC) and at the end of CT (EC). During weekly visits, each new BC patient who met the inclusion criteria was invited to participate. Planning for data collection in each segment was based on the treatment schedule of the patient available in the cancer centers. All data were collected between March 2017 and February 2019. After the signature of the ICF, data were collected from the medical charts and interviews when the instruments were applied. Whenever possible, missing information from the medical charts were retrieved during the interview.

As variables for data collection, the clinical-epidemiological profile was based on previous evidence in BC state-of-the-art, focusing on key factors for incidence, treatment and survival[24-26]. Socioeconomic status included age, race, marital status, number of children, occupation, education level and income. Lifestyle was measured by physical activity, Body Mass Index (BMI) and daily water intake. In addition, obesity, smoking and alcohol use were recorded, as well as whether the participant had any other systemic comorbidity. For BC features, histopathological and molecular patterns, staging and treatment (chemotherapy protocol and drug-line) of each participant were retrieved. These items were organized into a basic questionnaire to characterize the sample.

HRQoL was measured by two questionnaires widely validated by the European Organization for Research and Treatment of Cancer (EORTC). The first one was designed for cancer patients (general; QLQ-C30) and the second one was a module designed for BC patients (specific; QLQ-BR23)[22,26,27]. The Portuguese version and permission to use them were requested and received by email, as recommended by the EORTC. Both instruments were applied in their entirety, following a standard procedure to generate scores for each scale/item. Both instruments evaluate the functionality and cancer-related symptoms and treatment.

Data were organized in tables and entered by double typing to reduce errors due to the volume collected. The codes applied for data collection were transformed into the categorical description of each variable. The jamovi software (v. 1.6.16, Sydney, Australia) was used for the statistical analysis, with a significance level (p) of 5% (α=0.05) for all tests. Descriptive measures were provided for categorical variables, considering absolute (n) and relative (%) frequencies, as well as mean and standard deviation (SD). Analytically, the data sets were evaluated for normality by distribution plots and the Shapiro-Wilk test. Considering a non-normal distribution, non-parametric tests were used. To compare the HRQoL during chemotherapy (IC *versus* EC segments), the Wilcoxon rank test was used. As a measure for the effect size, rank-biserial correlation coefficient (r_{rb}) was used. When moderate or high effect sizes were observed (>0.500), the mean difference and its 95% confidence interval ($CI_{95\%}$) were provided.

RESULTS

140 women with BC (n=140) were included in the study sample. No dropouts or losses were observed during the two segments (probably due to the incipient profile). The median of the age at baseline was 50 years (interquartile range: 18), ranging from 21 to 76, and 49.3% were over 50 years old. Also, 82.9% were black or mixed, and 80% of the participants were born and 95% lived in Sergipe, Brazil.

Stable union was the marital status of 67.9% of the sample. The median number of children was 2, ranging from 0 to 9. Also, 45% had between 1 and 2 children, while 40% had 3 or more. The analysis of the socioeconomic aspects revealed that 50.7% had no occupation, but 65.7% claimed they earned regular salary. Adjusted for the current Brazilian minimum wage, the median of family income was 1, ranging from 0.1 and 7.5.

In addition, the median years of education was 8, ranging from 0 to 18. Only 24.3% had secondary education and 16.4% had university education.

Table 1 presents the lifestyle and comorbidities. Other low frequency comorbidities – depression (2), asthma (2), hepatic steatosis (1), renal insufficiency (1), dyslipidemia (1), sickle cell anemia (1), systemic lupus erythematosus (1) were detected as well; Table 2 presents BC features observed in the sample. For Body Mass Index, the mean value was 27.7 (±5.5), ranging from 15.4 to 42.8. Considering 200 mL for each water cup/day, the median of daily water intake was 1.500mL, ranging from 200 to 4.000.

Table 3 presents general health-related quality of life scores (EORTC QLQ-C30) observed in the sample. It

Table 1. Lifestyle and comorbidities of women diagnosed with breast cancer in Aracaju, Sergipe, Brazil (2017-2019)

Variable	n	%
Physical activity		
Yes	63	45
No	77	55
Physical activity duration (minutes/day)		
None	77	55
≤ 30	13	9.3
≤ 60	44	31.4
> 60	6	4.3
Physical activity frequency (days/week)		
None	77	55
≤ 3	30	21.4
> 3	33	23.6
Body Mass Index (weight[kg]/height[m]^2)		
Underweight	5	3.6
Eutrophic	44	31.4
Overweight	49	35
Obese	42	30
Water intake (mL/200 mL for each water cup/day)		
≤ 1.000	53	37.8
≤ 2.000	68	48.6
> 2.000	19	13.6
Smoking		
Yes	6	4.3
Ex-smoker	17	12.1
No	117	83.6
Alcohol use		
Yes	18	12.8
Ex-alcoholic	5	3.6
No	117	83.6
Systemic arterial hypertension		
Yes	48	34.3
No	92	65.7
Allergy (drugs and/or foods)		
Yes	29	20.7
No	111	79.3

Captions: n = absolute frequency; % = relative frequency.

Table 2. Breast cancer features of women diagnosed with breast cancer in Aracaju, Sergipe, Brazil (2017-2019)

Variable	n	%
Histopathological pattern		
Ductal (in situ)	3	2.1
Ductal (invasive)	120	85.7
Lobular (in situ)	1	0.7
Lobular (invasive)	8	5.7
Mucinous	4	2.9
Metaplastic	1	0.7
Medullary	2	1.4
Others	1	0.7
Staging		
I	6	4.3
IIA	30	21.4
IIB	35	25
IIIA	35	25
IIIB	31	22.1
IIIC	2	1.4
IV	1	0.7
Molecular pattern		
Luminal A	36	25.7
Luminal B	54	38.6
Basal	28	20
Others	22	15.7
Chemotherapy protocols		
Doxorubicin and cyclophosphamide, with subsequent taxane (docetaxel): AC-T protocol	62	44.3
Doxorubicin, cyclophosphamide and taxane (docetaxel): TAC protocol	22	15.7
Doxorubicin and cyclophosphamide: AC protocol	19	13.6
Others	37	26.4
First-line protocols		
Yes	86	61.4
No	54	38.6
Exposed to other treatment[†]		
Yes	54	38.6
No	86	61.4

Captions: n = absolute frequency; % = relative frequency.
([†]) = previously and not concurrent to chemotherapy, such as surgery, as the patients were exposed to antineoplastic agents for the first time during this study.

is possible to notice that only physical functioning did not worsen between the IC and EC segments. However, although statistically significant, differences with low effects size (r_{rb} = less or equal to 0.5) were observed in global health status/quality of life, emotional functioning, insomnia and financial difficulties. In the other items and scales, there was a worsening at the end of chemotherapy with moderate or high effect sizes (r_{rb} = more than 0.5).

Table 4 presents specific health-related quality of life scores (EORTC QLQ-BR23 module) observed in the sample. It is possible to observe that sexual functioning and sexual enjoyment did not worsen between IC and EC segments. Breast and arm symptoms improved in the EC segment, both with high effects size. In addition, future perspective also improved in the EC segment, but with a low effect size. On the other hand, body image, systemic therapy side effects and upset by hair loss worsened at the end of chemotherapy with high effect size.

DISCUSSION

This study described the clinical-epidemiological profile and compared HRQoL of women diagnosed with BC during chemotherapy in Brazil's Northeast. One of the limitations while interpreting these results is the selection of participants by convenience, considering that they were included before starting the proposed treatment. Furthermore, as the medical charts were examined, their completion was not controllable, which could lead to information bias.

The study sample presented unfavorable socioeconomic status, especially due to poor education and low family

Table 3. General health-related quality of life scores (EORTC QLQ-C30) of women diagnosed with breast cancer in Aracaju, Sergipe, Brazil (2017-2019)

Scales/Items	IC (SD)	EC (SD)	p-value	Effect size (r_{rb}) Difference [CI95%]
Global Health Status (Quality of Life)	81.3 (±23.1)	76.1 (±20.5)^{w}	0.013*	0.270
Physical functioning	49.5 (±19.8)	44.7 (±15.9)	0.092	N/A
Role functioning	86.0 (±25.3)	56.7 (±21.4)^{w}	<.001*	0.750 -33.4 [-41.7, -33.3]
Emotional functioning	62.2 (±30.6)	51.6 (±15.7)^{w}	<.001*	0.352
Cognitive functioning	73.0 (±27.4)	47.6 (±22.0)^{w}	<.001*	0.761 -33.3 [-33.4, -25.0]
Social functioning	86.7 (±21.3)	54.6 (±22.4)^{w}	<.001*	0.913 -33.4 [-41.7, -33.3]
Fatigue	16.8 (±21.3)	43.7 (±15.9)^{w}	<.001*	0.821 33.3 [27.7, 33.4]
Nausea and Vomiting	4.52 (±14.0)	51.6 (±22.6)^{w}	<.001*	0.977 50.0 [50.0, 58.3]
Pain	17.1 (±26.4)	45.7 (±20.3)^{w}	<.001*	0.761 33.3 [33.3, 41.6]
Dyspnea	4.28 (±13.2)	42.6 (±30.7)^{w}	<.001*	0.935 50.0 [50.0, 50.0]
Insomnia	30.0 (±31.7)	43.3 (±32.4)^{w}	0.004*	0.317
Appetite loss	15.7 (±29.0)	49.3 (±33.1)^{w}	<.001*	0.778 50.0 [33.3, 50.0]
Constipation	9.76 (±24.5)	41.6 (±32.0)^{w}	<.001*	0.744 50.0 [33.3, 50.0]
Diarrhea	3.1 (±11.9)	44.0 (±41.0)^{w}	<.001*	0.969 66.7 [66.7, 83.3]
Financial difficulties	40.5 (±36.6)	50.0 (±30.9)^{w}	0.032*	0.266

Captions: IC = intermediate cycle; EC = end of chemotherapy; SD = standard deviation; effect size = rank-biserial correlation coefficient; N/A = not applicable; w = worst outcome.
(*) *p*-value less than 0.05.

Table 4. Specific health-related quality of life scores (EORTC QLQ-BR23 module) of women diagnosed with breast cancer in Aracaju, Sergipe, Brazil (2017-2019)

Scales/Items	IC (SD)	EC (SD)	*p*-value	Effect size (r_{rb}) Difference [$CI_{95\%}$]
Body image	85.4 (±22.2)	52.4 (±17.6)[w]	<.001*	0.897 -37.5 [-33.3, -41.6]
Sexual functioning	27.1 (±34.6)	33.0 (±21.8)	0.085	N/A
Sexual enjoyment	26.7 (±38.2)	22.6 (±35.8)	0.053	N/A
Future perspective	38.6 (±43.7)[w]	50.0 (±32.9)	0.009*	0.297
Systemic therapy side effects	15.1 (±13.7)	54.3 (±12.2)[w]	<.001*	0.998 40.4 [35.8, 42.8]
Breast symptoms	21.6 (±28.7)[w]	3.81 (±6.88)	<.001*	0.999 -29.1 [-20.9, -37.5]
Arm symptoms	21.8 (±25.8)[w]	7.62 (±14.7)	<.001*	0.948 -22.2 [-22.2, -27.7]
Upset by hair loss	1.19 (±8.40)	20.0 (±27.3)[w]	<.001*	0.999 50.00 [33.3, 50.0]

Captions: IC = intermediate cycle; EC = end of chemotherapy; SD = standard deviation; Effect size = rank-biserial correlation coefficient; N/A = not applicable; w = worst outcome.
(*) *p*-value less than 0.05.

income. It has been investigated and described that social and economic components can act independently as risk factors for women with BC. It is debatable how socioeconomic status affects them, but it is plausible to say that a lower survival rate may be associated. In the same perspective, health status before diagnosis and treatment must be taken into account, as it can affect comparisons after treatment[28,29].

Low frequency of eutrophic participants (from BMI analyses) and physical activity were observed in relation to lifestyle, reflecting the majority with overweight or obese. Especially after menopause, there is an increased risk of developing BC in obese women. Also, obesity affects age-independent BC outcomes. However, physical exercise can be useful against weight loss and improve BC outcomes, such as lower mortality rates. The impact of lifestyle on cancer, considering obesity and physical activity, is a two-way lane: while obesity can biologically favor cancer progression, physical activity controls it. Moreover, chemotherapy toxicities, as fatigue, can affect the body weight and functionality. Hence, measuring these variables in the baseline is relevant information to understand BC outcomes[30,31].

Additionally, histopathological diagnosis, as well as staging, are important clinical features to understand the BC prognosis[32-34]. As this sample revealed, invasive ductal carcinoma is the most frequent histopathological diagnosis. In a previous study[32], with data collected between 2014 and 2015 in Sergipe, 125 women were identified with this histopathological subtype. There is a similarity in the data between the results of these investigations, such as the high frequency of systemic arterial hypertension, age and race[32]. On the other hand, the predominance of luminal B-type as a molecular pattern was above international estimates[33], whilst the staging was as expected in the literature[34].

Many chemotherapy protocols and drug associations are available for BC, and the use of first-line drugs can trigger better outcomes. Most participants underwent a combination of doxorubicin and cyclophosphamide, often associated with a taxane agent (docetaxel or paclitaxel). These three drugs can be combined in different regimens, considered as BC chemotherapy adjuvant standard protocol. The use of a taxane agent, combined with cyclophosphamide and doxorubicin, can improve survival rate and is a recurrent strategy to treat BC. Also, it is noteworthy that many women with BC undergo different treatment modalities. Although the focus of the main study was chemotherapy, the exposure to other treatment modalities (concurrent or not), such as surgery, must be considered to understand the impact on toxicities and health-related quality of life in further investigations[35-37]. However, this investigation provides an important perspective on the role of chemotherapy in HRQoL of BC patients, considering that no other concomitant therapy was administered (although it is a possible limitation because they may have been submitted earlier).

Epidemiology has been an important tool to understand the BC dynamics over time and space, considering the clinical-epidemiological profile of each

population. Recognizing the importance of each health determinant is the first step in understanding any health outcome. Identifying risk factors, whether related to socioeconomic status, lifestyle or clinical characteristics, is important to define the profile of each woman with BC, which allows patient-centered interventions[5,6].

It is relevant to point out that the global health scale/quality of life from EORTC-C30 has valid metrics for BC patients in Brazil, bearing in mind that quality of life is a complex, subjective and multifactorial outcome[22]. Although statistically significant differences were observed in some results, leading to affirm that HRQoL changed during chemotherapy, it is extremely important to consider the magnitude, presented as effect size values[23].

In this sample, considering 23 items/scales from QLQ-C30 and BR23, 17 significantly worsened in the EC segment when compared to the IC. Only future perspective and breast/arm symptoms improved at the end of chemotherapy. Also, among them, 5 had low and 12 had high effect size. In general, the impact of chemotherapy on HRQoL reported here is consistent with the literature[38-40], demonstrating that this treatment modality can significantly affect the health of BC patients over time, even in an incipient profile.

Binotto et al.[38] evaluated HRQoL in 33 BC patients using QLQ-C30 and BR23. Despite the small number of participants, all were evaluated before and after three months of starting treatment. Unlike the findings of this study, the authors reported significant worsening in physical functioning in C30. Also, they reported that there was no difference in cognitive function, pain, dyspnea, constipation and financial difficulties. The same occurred in relation to BR23, the authors found worsening of the sexual scales (functioning and enjoyment), as well as no difference in the future perspective. The other findings were similar, although no measure of difference or effect size were reported[38].

In a similar profile of patients in two oncology services, Coelho et al.[39] demonstrated by the global health scale/quality of life from EORTC-C30 that there was a decline of the quality of life, but there is no report on the effect size of these differences. This data would be important because the general measures in this investigation ranged between 69.1 and 76.2 on this scale. Hence, it is reasonable to question the magnitude of this difference. In Garcia et al.[40], signs and symptoms of BC and its treatment (CT) were significantly correlated with lower quality of life scores, also without effect size measure. The investigations mentioned above portray the potential of cancer treatment to affect health-related quality of life, as well as the need to assess this outcome with effect size measures, making them more comparable[38-40].

The impact of CT on HRQoL is triggered, among other factors, by the adverse effects caused by antineoplastic agents. In addition, due to systemic effects, cancer treatment can cause significant physical and functional limitations, impacting emotions and the ability to socially interact. The HRQoL is a complex product of the interaction between these factors. However, considering the duration of CT for BC patients, it is important to identify when significant impacts on HRQoL occur, based on real data[38-40].

CONCLUSION

It is possible to conclude that women with breast cancer in the sample had unfavorable socioeconomic profile, lifestyle and comorbidities. In addition, there was a significant worsening of HRQoL at the end of chemotherapy for most items and scales when compared to the intermediate cycle.

CONTRIBUTIONS

Pabliane Matias Lordelo Marinho contributed to the design, planning, data collection, analysis, interpretation, wording and review of the manuscript, Ricardo Barbosa Lima, José Cleyton de Oliveira Santos, Dayane Ketlyn da Cunha Santos, Glebson Moura Silva and Simone Yuriko Kameo contributed to the planning, analysis, interpretation, wording and review of the manuscript; Namie Okino Sawada contributed to the design, planning, data collection, analysis, interpretation, wording and and review of the manuscript. All the authors approved the final version to be published.

DECLARATION OF CONFLICT OF INTERESTS

There is no conflict of interests to declare.

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