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ASSOCIATION BETWEEN MOST PREVALENT SIDE EFFECTS AND NUMBER OF CHEMOTHERAPY SESSIONS IN WOMEN WITH BREAST NEOPLASIA

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ABSTRACT

Objective: This study aims to associate the most prevalent side effects with the duration of chemotherapy treatment of women with breast cancer assisted at the Pernambuco Cancer Hospital. **Materials and Methods:** This was a descriptive, cross-sectional study with a quantitative approach, conducted at the Outpatient Unit of a specialized clinic for breast pathology at the Pernambuco Cancer Hospital (PCH). The data collection procedure was performed by applying the Free and Informed Consent Term (FICT) and subsequently a collection instrument with information on the clinical treatment of women. **Results:** The study results revealed that a considerable portion of women, 192 of them (60.6%), received the diagnosis less than a year ago. When asked if they felt any kind of symptom, 284 patients (89.6%) stated that they had already felt or were feeling at the moment, among them, 238 (83.8%) indicated fatigue (tiredness) as a predominant symptom, followed by of nausea, which featured 218 markings (76.8%). **Conclusion:** Finally, it is clear that the symptoms, in general, became more prevalent in the lives of patients who had had few chemotherapy sessions.

INTRODUCTION

Cancer is among the leading causes of morbidity and mortality worldwide, causing fear in society. It refers to the term neoplasia, characterized by malignant tumors in which disordered growth of transformed cells occurs, and can invade tissues and organs of the body, as well as reach neighboring or distant organs, a process referred to as metastasis, which is the leading cause of death from cancer (WHO, 2018). Among the risk factors for the development of the disease, about 80% is related to the environment, characterized mainly by the habits and lifestyles adopted by the population, which can determine the different types of cancer. In addition, hereditary factors and aging are also key factors in the development of the disease (Almeida *et al*., 2005). Cancer is classified according to the normal cell type that originated it. It consists of a primary classification, organized into groups, where the suffix–oma means tumor, they are: Sarcomas, Lymphomas, Leukemia, Myelomas, Germ Cell Tumors, Melanomas, Gliomas, Neuroblastomas and Carcinomas, being the most common

types (Almeida *et al.*, 2005). Considered one of the leading causes of death worldwide, accounting for 8.8 million deaths in 2015, the most common causes include: lung cancer (1.69 million deaths), liver (788,000 deaths), colorectal (774,000) stomach) (754,000 deaths), breast (571,000 deaths) (WHO,2018). Breast cancer is the leading cause of death in women in Brazil. Although there is a control and screening policy, diagnosis is most often established in the late phase of the disease, revealing a deficiency in the implementation of early screening methods (Makluf; Dias; Barra,2005).

Breast cancer is considered rare before age 35, and above this age its incidence grows gradually, especially after age 50, affecting both developed and developing countries, as is the case of Brazil (INCA, 2018). Although rare, breast cancer also affects men, representing 1% of all cases of the disease. According to data from the National Cancer Institute (INCA), the estimated new cases are 59,700 in 2018 and the number of deaths represents 14,388, 181 men and 14,206 women (INCA, 2018). Among the treatments offered for breast cancer, chemotherapy is recommended in all cases, with the purpose of eliminating micrometastases, considering that chemotherapy acts systemically and thus reaches malignant cells throughout the body (INCA, 2018). However, this therapy is associated with often aggressive side effects that can lead the woman to changes in her self-esteem, functional loss, generating emotional and social changes. It is therefore performed at intervals of approximately 21 days, in which normal cells are not severely impaired during treatment. Side effects are more intense from seven to ten days after the application of the chemotherapy cycle, where from the second cycle, usually begins the hair loss (Makluf; Dias; Barra, 2005;Camargo and Souza,2002). Thus, the aim of this study was to associate the most prevalent side effects with the length of chemotherapy treatment (number of sessions) of women with breast cancer assisted at the Pernambuco Cancer Hospital.

MATERIALS AND METHODS

This was a descriptive, cross-sectional study with a quantitative approach, which was carried out at the Ambulatory Unit of a specialized clinic for breast pathology at the Pernambuco Cancer Hospital (PCH), from September to November 2015. The PCH is characterized by being an institution that began its activities in a philanthropic manner on November 9, 1945. From its inception to the present day, it has become a reference in its field of activity in the North and Northeast of Brazil and, throughout its history, plays the role assistance to cancer patients, as well as information to the population about the importance of preventing this disease.
The sample calculation was performed based on the proportion estimate, since it was intended to identify it for the number of women with breast cancer undergoing chemotherapy. Considering that the monthly average of patients with breast cancer undergoing chemotherapy in the PCH was 1800 (N) and some constant statistical values, such as 95% confidence level (z = 1.96) and error (e) or (d) of 5%, a sample (n) of 317 patients was obtained, with reference to a finite population.

Inclusion criteria were female breast cancer patients undergoing outpatient chemotherapy at the PCH aged 18 years and over and with communication skills for reading and writing comprehension. As exclusion criteria, we had female patients in divergent treatment modality of chemotherapy. The data collection procedure was performed as follows: the Free

and Informed Consent Term (FICT) was delivered, read and explained to each of the 317 women at the time they were undergoing chemotherapy at the PCH outpatient clinic. When they accepted to participate in the research, they signed it, showing agreement and, soon after, they responded to the collection instrument with information about their clinical treatment. Clinical profile data were described by analyzing their frequencies (absolute numbers) and isolated and interval percentages in which they were present in the study population. For some variables of these profiles, means, standard deviation (SD) and minimum and maximum values were also presented. This study corresponds to a clipping of a Master's dissertation that was submitted and approved by the Research Ethics Committee (REC) of the Pernambucan Cancer Society under CAAE No. 45583415.0.3001.5205; and defended by the author by the Associate Postgraduate Program in Nursing of the University of Pernambuco/Paraíba State University (UPE/UEPB), in May 2016.

RESULTS

The average time elapsed from receiving the diagnosis of breast cancer found in the present investigation allows us to say that most of the women interviewed received the diagnosis less than a year ago, which favored a significant increase in the incidence of women receiving chemotherapy. The increased incidence of breast cancer in some developed countries was detected by Martins *et al.*, (2009). These findings suggest that there should be earlier detection of this neoplasm due, for example, to mammography for screening. Viacava, Souza-Júnior and Moreira (2009) also reveal that in Brazil in 2007, for example, the coverage for mammography within the age group of 50 to 69 years was approximately 70.0%. On the other hand, modern life is known to have exposed women to higher stress and greater vulnerability to breast cancer. Data on breast cancer treatment information indicates a minimum of 0.2 months and a maximum of 204 months of diagnosis, with a mean of 18.21 months - standard deviation (SD = 28.71).

Table 1. Time of diagnosis and number of chemotherapy sessions already performed. Recife, Pernambuco (PE), Brazil, 2015. (n = 317)

Variables	Extracts	Frequency	Percentage
Diagnostic time in years	Less than a year	192	60.6
	1-2	58	18.3
	2-3	17	5.4
	3-4	16	5.0
	4-5	09	2.8
	Five years or more	25	7.9
Number of Chemotherapy Sessions	0-15	244	77.0
	15-30	61	19.2
	30-45	09	2.8
	45 or more	03	0.9
	Total	317	100%

Source: Own elaboration.

When measured in years, the diagnosis was classified into six types of intervals, and a considerable portion of women, 192 of them (60.6%), received it less than a year ago. Regarding the time since diagnosis and the number of chemotherapy sessions already performed, it can be inferred that the average was 9.81 sessions (SD = 9.94), with a minimum of one session and a maximum of 88. Separated at intervals of every fifteen sessions, it was found that treatment time predominated for less than one year. This can be seen in table 1 above.

Table 2. Patients who presented or present any symptoms. Recife, Pernambuco (PE), Brazil, 2015. (n = 317)

Variable		Frequency	Percentage
No symptoms		33	10.4%
Presented symptoms		284	89.6
Type of Symptoms (n = 284) *	Fatigue (tiredness)	238	83.8
	Nausea	218	76.8
	Mucositis (inflamation)	160	56.3
	Vomit	140	49.3
	Anorexia	135	47.5

Source: Own elaboration.
Note:*Question of multiple answers. Each woman can mark more than one type of symptom.

Table 3. Distribution of the percentages of women, according to the number of chemotherapy sessions, and presenting some kind of symptoms. Recife, Pernambuco (PE), Brazil, 2015. (n= 284)

Number of Chemotherapy Sessions	Symptom Type					
	Nausea	Vomit	Mucositis (inflamation)	Anorexia	Fatigue (tiredness)	Total
0|——15	165 (58.1%)	99 (34.9%)	115 (40.5%)	100 (35.2%)	180 (63.4%)	244 (85.9%)
15|——30	45 (15.8%)	35 (12.3%)	38 (13.4%)	29 (10.2%)	49 (17.3%)	61 (21.5%)
30|——45	05 (1.8%)	03 (1.1%)	05 (1.8%)	04 (1.4%)	06 (2.1%)	9 (3.2%)
45 or more	03 (1.1%)	03 (1.1%)	02 (0.7%)	02 (0.7%)	03 (1.1%)	3 (1.1%)
Total	218 (76.8%)	140 (49.3%)	160 (56.3%)	135 (47.5%)	238 (83.8%)	317

Source: Own elaboration.

When asked if they felt any kind of symptoms, 284 patients (89.6%) stated that they had already felt or were currently experiencing some of the symptoms presented in the survey questionnaire (see table 2). Among them, 238 (83.8%) indicated fatigue (tiredness) as the predominant symptom, followed by nausea, which featured 218 markings (76.8%). Finally, Table 3 shows an association between the number of chemotherapy sessions already performed and the type of symptom presented by the patients. It is noticed that the symptoms, in general, were more prevalent in the life of patients who had had few chemotherapy sessions.

DISCUSSION

Regarding chemotherapy sessions, a significant number of women (40 patients) were undergoing the first session of chemotherapy treatment, a result that stood out among the number of other sessions. When analyzed by intervals, it was found that 77.0% of the patients had performed one to 15 sessions and that only 0.9% of them had already performed 45 or more, mainly due to relapses and / or metastases. No convergent or divergent data were found in the literature regarding the number of chemotherapy sessions already performed by women with breast cancer. It can be inferred from this result, however, that there is an associative link between the increase in women who started chemotherapy for this cancer (high number of first QT sessions) and the increased incidence in the diagnosis for this same cancer, which also had a preponderant result, as seen above, since it is perfectly understandable the direct relationship between the increase in the number of cases of the disease with the consequence of starting chemotherapy treatment. Symptoms mentioned in the interviews included fatigue and nausea, followed by mucositis, vomiting and anorexia. From the correlation between the types of symptoms presented and the number of chemotherapy sessions already performed, it was found that the lower this number, the greater the occurrence of symptoms as a whole, especially fatigue (63.4%) and nausea (58.1%).

Adverse effects related to chemotherapy may be explained by the toxicity of the drugs administered, which may cause fatigue, nausea, mucositis and vomiting as the most frequent (Jorge; Silva, 2010). Thus, it is possible to understand why Martins *et al*. (2009) found fatigue (55.8%), vomiting (25.0%) and nausea (55.8%) as the most prevalent symptoms in their breast cancer patients; because also Azevedo and Bosco (2010), pointed out that 90.0% of their chemotherapy patients reported nausea, 70.0% anorexia and 65.0% vomiting; as well as why Gozzo *et al*. (2014) reported the occurrence of 77.3% of nausea in patients with breast cancer on chemotherapy, results similar to the findings of this study. Regarding the time spent on chemotherapy, Panobianco *et al*., (2011) found that symptoms such as anorexia, nausea and vomiting occurred more intensely in patients who had been undergoing chemotherapy for one year. Machado and Sawada (2008) also stated that, within a period of up to one year of this same treatment, the symptoms of fatigue, nausea, vomiting and anorexia tended to increase. The information released by these authors corroborate the findings of this study, as it was shown that until at least one year (which is equivalent to a smaller number of sessions performed) of therapy, all of these symptoms mentioned became more evident in the lives of the patients.

Conclusion

The results of this study revealed that most of the women interviewed received a diagnosis of breast cancer less than a year ago, favoring research on the side effects of chemotherapy treatment. Among the symptoms, nausea and fatigue were the most prevalent 83.8% and 76.8% respectively, with fatigue being more evident in patients who had had up to fifteen chemotherapy sessions. Thus, there is a need for strategies to mitigate the side effects of chemotherapy treatment, with the purpose of improving patients' quality of life, considering the physical and emotional impact. Further research is required to relate treatment time to major side effects, in view of the scarcity of articles in the literature. Finally, investments in health are of paramount importance,

especially with regard to early detection of cancer and breast, which despite having subsidies, there are still cases of patients with advanced diagnosis, making it difficult to adhere to treatment and consequently cure.

REFERENCES

Almeida, V.L., Leitão, A., Reina, L.C.B., Montanari, A.C., Donnici, C.L. 2005. Câncer e agentes antineoplásicos ciclo-celular específicos e ciclo-celular não específicos que interagem com o DNA: uma introdução. *Revista Quim. Nova.* 28(1):118-129.

Camargo, T.C., Souza, I.E.O. 2002. Acompanhando mulheres que enfrentam a quimioterapia para o câncer de mama: uma compreensão das singularidades. *Escola Anna Nery Revista de Enfermagem.* 6(2):261-272.

Gozzo, T.O., Souza, S.G., Moyses, A.M.B., Panobianco, M.S., Almeida, A.M. 2014. Ocorrência e manejo de náusea e vômito no tratamento quimioterápico em mulheres com câncer de mama. Rev. Gaúcha Enferm. 35(3):117-123.

Instituto Nacional do Câncer (INCA)2018. *Tipos de câncer-Mama.* Disponível em <http://www2.inca.gov.br/wps/wcm/connect/tiposdecancer/site/home/mama>. Acessado em: 17 Jul. 2018.

Jorge, L.L.R., Silva, S.R. 2010. Avaliação da qualidade de vida de portadoras de câncer ginecológico, submetidas a quimioterapia antineoplásica. Rev. Latinoam. Enferm. 18(5).

Machado, S.M., Sawada, N.O. 2008. Avaliação da qualidade de vida de pacientes oncológicos em tratamento quimioterápico adjuvante. *Texto Contexto Enferm.* 17(4):750-757.

Makluf ASD, Dias RC, Barra AA 2006. Avaliação da qualidade de vida em mulheres com câncer de mama. *Revista brasileira de cancerologia.* 52(1):49-58.

Organização Mundial de Saúde (OMS) 2018. *Folha informativa- câncer.* Disponível em: <https://www.paho.org/bra.../index.php?option=com_content&view=article&id=5588:folha-informativa-cancer&Itemid=839>.Acessado em: 17 Jul. 2018.

Panobianco, M.S., Magalhães, P.A.P., Oliveira, I.S.B., Gozzo, T.O. 2011. Depressão e fadiga na qualidade de vida de mulheres com câncer de mama. *Rev. Rene.* 12(2):247-252.

Viacava, F., Souza-Júnior, P.R.B., Moreira, R.S. 2009. Estimativas da cobertura de mamografia segundo inquéritos de saúde no Brasil. *Revista de Saúde Pública.* 43(2):117-125.

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