

Influence of Physical Activity on Side Effects in Women with Breast Neoplasms Undergoing Chemotherapy Treatment

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Abstract— The aim of this study was to describe the influence of physical activity practice by women with breast cancer undergoing chemotherapy treatment and its side effects. This is a descriptive, cross-sectional study with a quantitative approach, carried out from September to November 2015. Among the women interviewed who practice physical activity, walking was the most prevalent activity (49.5%). There was a predominance of the presence of symptoms in women who do not engage in physical activity, however, among those who do not have symptoms, those who do not engage in physical activity predominated. The most common symptoms reported by them were nausea and fatigue, both corresponding to the group of women who did not perform any activity. It is concluded that the regular practice of physical activity brings with it several beneficial factors for the body and presents itself as a determining factor for the reduction of side effects in patients with breast cancer undergoing chemotherapy.

I. INTRODUCTION

Cancer is a systemic and multifactorial disease characterized by rapid, abnormal and uncontrolled cell growth that culminates in the formation of invasive and poorly delimited tumors. These anomalous cells can spread throughout the body through the circulatory system and reach different tissues, constituting metastases [1].

With a high incidence and mortality rate, breast cancer is the most common and feared type of cancer among women because it affects the perception of self-

image and female sexuality, in addition to being a large-scale public health problem [2].

Genetics, lifestyle, environment and hormonal issues are factors that, when correlated, present themselves as high risk for the emergence of breast cancer [3].

The treatment of choice for the various types of cancer, which currently has the greatest prospect of cure, is chemotherapy. These drugs are transported to various tissues of the body through the bloodstream, reaching small, difficult-to-access tumor cells and destroying them [1, 2]. The advance of technology in chemotherapy

combined with the early diagnosis of the disease has increased the chances of a cure for breast cancer [4].

However, such treatment carries with it several unwanted consequences that negatively affect the quality of life and are caused due to the cytotoxic effect of drugs on normal cells, since tumor cells behave in a non-specific way, thus making it difficult to isolate from others [5].

The most common side effects of chemotherapy treatment are nausea and vomiting. However, other symptoms may arise, such as mucositis, diarrhea, anorexia, stomatitis, abdominal pain and discomfort [5]. Depression, anxiety and fatigue are also side effects of chemotherapy [1], as well as anemia, general malaise and insomnia [4]. In addition, there is a reduction in steroid hormones in the body that can lead to a precipitous menopause. [1]. Given the variety of adverse symptoms, the individual tends to reduce the practice of physical activity. This inactivity contributes to an increase in personal weakness, intensifying side effects and decreasing their functional and interpersonal capacity [4].

Physical activity is an important protective factor against breast cancer, in addition to alleviating unwanted symptoms resulting from the treatment [3]. It works by directly modifying the body's metabolism, reducing the harmful effects caused by the reduction of steroid hormone levels, stimulating the body's energy balance [3], and increasing the secretion of endogenous opioids that reduce pain levels [4].

The Pernambuco Cancer Hospital (HCP) has been providing health care services in the oncological field for 70 years, and is a reference point for the treatment of cancer, serving about 55% of cancer patients in the state. This study aimed to describe the influence of the practice of physical activity on the most prevalent side effects that affect women with breast cancer undergoing chemotherapy treatment in this hospital.

II. METHODS

It was a descriptive, cross-sectional study with a quantitative approach. Carried out at the Outpatient Unit of a clinic specializing in Breast Pathology at the Cancer Hospital of Pernambuco (HCP), from September to November 2015. The HCP is characterized by being an institution that began its activities in a philanthropic manner on November 9, 1945. Since its creation until the present day, it has become a reference in its field of action in the North and Northeast of Brazil and, throughout its trajectory, it plays the role of assistance to cancer patients, as well as information to the population about the importance of preventing this injury.

The sample calculation was performed based on the estimated proportion, as it was intended to identify it

for the number of women with breast cancer undergoing chemotherapy.

Considering that the monthly mean of patients with breast cancer undergoing chemotherapy at the HCP was 1800 (N) and some statistical values were constant, such as the 95% confidence level ($z = 1.96$) and the error (e) or (d) 5%, a sample (n) of 317 patients was obtained, having as reference a finite population.

As inclusion criteria, we considered female patients with breast cancer, undergoing outpatient chemotherapy at the HCP, aged 18 years and over and with communication skills for reading and writing comprehension. As exclusion criteria, there were female patients in a different treatment modality from chemotherapy.

The data collection procedure was performed as follows: the Informed Consent Form was delivered, read and explained to each of the 317 women at the time they were undergoing chemotherapy at the HCP outpatient clinic. When they agreed to participate in the research, they signed it showing agreement, and then responded to the collection instrument with information about their clinical treatment.

The 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 and minimum and maximum values were also presented.

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III. RESULTS AND DISCUSSION

Table 1 addresses the frequencies and percentages of women who practice physical activity, highlighting the walk as the most performed, indicated by 47 of those who reported performing physical activities (49.5%). It should be noted that the percentages of the types of exercises were calculated based on the responses of the 95 women who responded positively, which may indicate more than one physical activity.

Only a minority of patients reported practicing physical activity (30.0%), and of these, 49.5% indicated walking as the most practiced physical exercise, followed by physiotherapy (45.3%).

Consulting the literature regarding this variable mentioned above, it was found in the study by Evangelista

[6] also that only a minority (37.9%) of patients with breast cancer practiced physical exercise and, of these, 14.4% chose walking as the most common physical activity.

Table 1 – Physical activity and type of physical exercise performed. Recife, PE, Brazil, 2015. (n = 317)

Variable		Frequency	Percentual
Does not exercise		222	70%
Do physical exercise		95	30%
Type of exercise (n=95) *	Walk	47	49,5
	Physiotherapy	43	45,3
	Bodybuilding	05	5,3
	Hydrogymnastics	02	2,1
	Ballet	01	1,1
	Pilates	01	1,1

Source: Survey data, 2021.

Table 2 shows a simple association between the practice of physical activity and the presence of symptoms, demonstrating that there is a predominance of the presence of symptoms in women who do not engage in physical activity. However, among those who do not, predominated those who do not practice physical activity.

It was also possible to notice that 26.2% of the practitioners of physical activity felt or felt some symptom

of the treatment, with fatigue and nausea being the most prevalent with 26.1% and 23.9%, respectively. On the other hand, the rate of women who did not perform physical activity with the presence of symptoms was higher (63.4%). Among these, the preponderance of nausea (52.8%) and fatigue (57.7%) was also quite evident.

Table 2 – Proportions of patients according to physical activity and presence of symptoms. Recife, PE, Brazil, 2015. (n = 317)

Physical activity practice	Has some kind of symptoms		Total
	Has symptoms	No symptoms	
Do physical exercise	83	12	95
	(26,2%)	(3,8%)	(30,0%)
Does not exercise	201	21	222
	(63,4%)	(6,6%)	(70,0%)
Total	284	33	317
	(89,6%)	(10,4%)	(100%)

Source: Survey data, 2015.

Table 3 shows an association between the variable practice of physical exercise with the variables related to the type of symptom presented. In this one, the symptom of nausea stands out, as it was reported by 150 women, and that of fatigue, which appeared with 164 marks, both corresponding to the group of women who did not perform physical activity. Only a minority of patients

reported practicing physical activity (30.0%), and of these, 49.5% indicated walking as the most practiced physical exercise, followed by physiotherapy (45.3%). It was also possible to notice that 26.2% of the practitioners of physical activity felt or felt some symptom of the treatment, with fatigue and nausea being the most prevalent with 26.1% and 23.9%, respectively. On the

other hand, the rate of women who did not perform physical activity with the presence of symptoms was higher (63.4%). Among these, the preponderance of

nausea (52.8%) and fatigue (57.7%) was also quite evident.

Table 3 – Distribution of percentages of women according to the practice of physical activity and who present some type of symptoms. Recife, PE, Brazil, 2015. (n=284)

Physical activity practice	Symptom Type					Total
	Nausea	Vomiting	Mucositis (inflammatio)	Anorexia	Fatigue (tiredness)	
Do physical exercise	68	42	46	37	74	95
	(23,9%)	(14,8%)	(16,2%)	(13,0%)	(26,1%)	
Does not exercise	150	98	114	98	164	222
	(52,8%)	(34,5%)	(40,1%)	(34,5%)	(57,7%)	
Total	218	140	160	135	238	317
	(76,8%)	(49,3%)	(56,3%)	(47,5%)	(83,8%)	

Source: Survey data, 2015.

Prado et al [7] they saw that most women, in turn, performed exercises that would be good for their rehabilitation in reducing sequelae resulting from the treatment, that is, they probably practiced physical therapy. Silva [8] they also found a similar result when they reported that 73.1% of their sample of patients did not perform physical activity. For those who preferred walking as the most common activity, they justified their choice by the fact that this is a “natural” exercise modality and because it does not require great demands, and can be performed outdoors. Another fact that can also justify this preference is that governments base their campaigns to encourage the practice of physical activities on the basis of publicizing the walk [9]

Mock et al [10] suggested that walking, even when practiced at low levels, can reduce fatigue and emotional discomfort and, at the same time, improve the physical functioning and quality of life of breast cancer patients receiving chemotherapy.

The improvement in quality of life related to the regular practice of physical exercises lasting at least 30 minutes, in patients undergoing chemotherapy treatment, corroborates the literature [6], therefore, it is seen as something beneficial, as it reveals a positive psychological effect on mood, improves functional capacity and increases the appetite of patients in general. [7], in addition to increasing the secretion of endogenous opioids, thus decreasing pain [4].

Physical activity, regardless of its intensity, is sufficient to reduce fatigue in breast cancer survivors [11].

It is concluded, therefore, that physically active patients with such neoplasia have less fatigue compared to those who do not exercise, because the absence of physical activity can lead to a decline in physiological and psychological functioning, which may support the fact that they are more prone to symptoms such as nausea and fatigue as identified here [12].

IV. CONCLUSION

A minority practiced physical activity, especially walking. Correlating the practice of physical activity with the presence and type of symptoms presented, it appears that physically inactive patients had more side effects to the treatment, with fatigue being the most prevalent of them. Therefore, it is concluded that the regular practice of physical activity brings with it several beneficial factors for the body, and presents itself as a determining factor for the reduction of side effects in affected patients with breast cancer undergoing chemotherapy treatment.

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