

Avaliação do consumo dietético e estado nutricional em mulheres com câncer de mama em tratamento quimioterápico

Assessment of the Dietary Consumption and Nutritional Status of women with breast cancer undergoing chemotherapy

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RESUMO

Introdução: O câncer de mama é uma das neoplasias que mais acomete mulheres no mundo. O excesso de peso associado ao desenvolvimento desta neoplasia, também esta relacionado ao mau prognóstico em pacientes com câncer de mama.

Objetivo: Avaliar o consumo dietético e o estado nutricional em mulheres com câncer de mama em tratamento quimioterápico.

Metodologia: Estudo de modelo transversal com 57 mulheres. Aplicou-se Avaliação Subjetiva Global Produzida pelo Paciente, recordatório alimentar de 24 horas, questionário estruturado e avaliação antropométrica. O consumo alimentar de macronutrientes foi comparado com o Guia Alimentar para a população Brasileira e as vitaminas e minerais de acordo com pelas Dietary Reference Intakes. Análise estatística foi realizada através do Software Statistical Package for Social Sciences (SPSS) versão 13.0. As variáveis foram avaliadas através de teste t- student, teste Análise de Variância (ANOVA), teste Exato de Fischer. O nível de significância adotado foi de 5% ($p < 0,05$).

Resultados: A média de idade foi de 53,9 (+ 11,2) anos, 79% estavam com excesso de peso segundo Índice de Massa

Corporal, e 86% com estado nutricional adequado segundo Avaliação Subjetiva Global Produzida pelo Paciente. O consumo médio de Vitamina D 1,0 ng e de vitamina E (7,4 mg), selênio (0,1 ng), carboidratos (54,6%), fibras (14,4 g) abaixo do recomendado pelas Dietary Reference Intakes e pelo Guia Alimentar para a População Brasileira.

Conclusão: Conclui-se que a maioria das participantes apresentou excesso de peso. O consumo de vitamina A, D, E, de selênio, e fibras, apresentou-se abaixo do recomendado.

PALAVRAS-CHAVES

Câncer de mama. Estado Nutricional. Nutrição. Quimioterapia.

ABSTRACT

Introduction: Breast cancer is one of the neoplasias that most affect women worldwide. Overweight associated with the development of this neoplasia, is also related to poor prognosis in patients with breast cancer.

Objective: To evaluate the dietary intake and the nutritional status of women with breast cancer undergoing chemotherapy.

Methodology: Cross-sectional study model with 57 women. There were applied the Patient-generated Subjective Global Assessment, the 24-hour food recall, the structured questionnaire and the anthropometric evaluation. The dietary intake of macronutrients was compared to the Dietary

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Guidelines for the Brazilian Population and the vitamins and minerals according to the Dietary Reference Intakes. Statistic analysis was performed by using the *Statistical Package for Social Sciences* (SPSS) software version 13.0. The variables were evaluated through the Student's t-test, the Analysis of Variance (ANOVA) test, and the Fischer's exact test. The adopted significance level was 5% ($p < 0.05$).

Results: The mean age was 53.9 ($\pm 11,2$) years; 79% were overweight, according to the Body Mass Index, and 86% with adequate nutritional status, according to the Patient-generated Subjective Global Assessment. The average consumption of 1.0 ng of vitamin D and of E vitamin (7.4 mg), selenium (0.1 ng), carbohydrates (54.6%), fiber (14.4 g) under the recommended by the *Dietary Reference Intakes* and by the *Dietary Guidelines for the Brazilian Population*.

Conclusion: There is concluded that most of the participants showed overweight. The consumption of vitamin A, D, E, selenium, and fiber, was under the recommended.

KEYWORDS

Breast cancer. Nutritional Status. Nourishment. Chemotherapy.

ABBREVIATIONS

INCA: National Cancer Institute.

BMI: Body Mass Index.

CA: Cancer.

WC: Waist Circumference.

PG-SGA: Patient-generated Subjective Global Assessment.

REC: Research Ethics Committee.

ICF: Informed Consent Form.

DRIs: Dietary Reference Intakes.

SPSS: Software Statistical Package for Social Sciences.

RDA: Recommended Dietary Allowance.

ANOVA: Variance Analysis.

INTRODUCTION

Breast cancer is the neoplasia that most affects women worldwide, the leading cause of death among the female population. For the year 2014, there are expected 57.120 new cases of breast cancer in Brazil, and in Rio Grande do Sul/Brazil this estimate is 5030 new cases (1).

Among the factors associated to the risk of breast cancer development there are: family history, alcohol consumption, smoking, overweight, be over 50 years old, sedentary lifestyle, woman's reproductive life (1, 2).

Nourishment can act as a risk factor, as well as act in cancer prevention. (3) The feeding may be changed by the adopted treatment; chemotherapy can cause some side effects of varying intensities, the most common side effects are nausea and vomiting, anorexia, dietary changes, mucositis, diarrhea and immunosuppression, which may lead to a worsening in the nutritional status of patients (4).

The Patient-generated Subjective Global Assessment (PG-SGA) is one of the methods used to assess changes and risks in oncologic patients, allowing early nutritional evaluation and also re-evaluation of the nutritional status in a shorter time interval (5).

Thus, the aim of this study was to evaluate the dietary intake and the nutritional status in women with breast cancer undergoing chemotherapy.

METHODOLOGY

This is a cross-sectional study, performed in a medium-sized hospital in the countryside of Rio Grande do Sul-Brazil. The data collection was conducted from October 2013 to March 2014. It was approved by the Research Ethics Committee of the University Center UNIVATES (COEP) under No. 364.666, as well as by the Research Ethics Committee of the hospital where the study was conducted.

The participants of the research were women aged over 18 diagnosed with breast cancer that took injectable chemotherapy in oncology clinic of the hospital during the study period, and the sample consisted of 57 women. There were excluded from the study the women who were receiving enteral and/or parenteral nutrition, as well as those who carried out another type of anticancer treatment (radiotherapy/chemotherapy orally), aiming to observe the nutritional status among women with breast cancer who were taking only chemotherapy treatment.

After signing the Informed Consent Form (ICF), there was started the data collection through an interview, which was performed in two stages in order to diminish possible discomforts arising from many questionings, leading to a overstraining of the participants.

The interview instruments used were the Patient-generated Subjective Global Assessment (PG-SGA), the 24-hour food recall (two recalls), the Anthropometric Assessment, and the structured questionnaire with socio-economic issues.

To assess the nutritional status there were used anthropometric measurements (weight and height) and the PG-SGA. For assessing the weight there was used the Anthropometric Adult Mechanical scale, brand Welmy® with capacity of 150 kg; and the patients remained on the scale platform, in upright position, barefoot, wearing light clothing and static body until the end of weighing. After, there was performed the height measurement with an anthropometric ruler coupled to the scale; the

patients remained erected, with the weight distributed evenly on the scale platform, the arms facing the thighs, head erect, and heels together touching the measuring tape. The participants had undergone nutritional care; on the day of the research there were used the nutritionist's record data. From the data, there was calculated the Body Mass Index (BMI) (weight (kg) / height (m²) which has been classified according to the World Health Organization (6).

The PG-SGA was evaluated in two stages, the first with questions related to weight change, symptoms that hindered the food and functional capacity; they could be answered by the patient or by a family member, and the second stage related to the metabolic stress; physical examination, that was answered by the researcher. The classification was: "A" the patient that was well nourished, "B" the patient who was suspected or moderate malnutrition and "C" the patient that showed severe malnutrition.

The 24-hour food recall was used for assessing the dietary intake of macronutrients, vitamins and minerals; there were questioned the foods and portion sizes consumed at each meal in a 24-hour period. The calculation of the amount ingested was made through the *DietWin* Professional software, version 2008. The classification of the consumption of macronutrients was done according to the Dietary Guidelines for the Brazilian Population (7), and the consumption of vitamins and minerals according to the Dietary Reference Intakes (DRIs) (8), classified according to the Recommended Dietary Allowance (RDA) (1997-2005). The Dietary Guidelines for the Brazilian Population was used because it is a specific guide to Brazilians, based on the nourishment of this population, taking into account their cultural diversity food (7), thus justifying the use of this instrument to assess the macronutrients.

For statistical analysis, there was used the *Statistical Package for Social Sciences (SPSS)* software, version 13.0. For the evaluation of the variables there were used the Student's t-test, the Analysis of Variance test (ANOVA), and the Fischer's exact test. The significance level was 5% ($p \leq 0,05$).

RESULTS

There were evaluated 57 women diagnosed with breast cancer. They aged 31-80 years, average age $53,9 \pm 11,2$ years; among these 45 (78.9%) were classified as adults and 12 (21.1%) as elderly. Forty-nine (86.0%) women had children, among these 75.4% (43) breastfed, 57.9% (33) reported having no family history of breast cancer, 59.6% (34) practiced physical activity and 73.7% (42) of the patients did not smoke. As for the socio-economic aspects, there was observed that 29 (50.9%) of the participants had incomplete primary education, and the income ranged from 1 to 1/2 minimum wages among 57.9% of participants. Regarding to the nutritional status classified by the PG-SGA, there was ob-

served that 86.0% (49) of the women were well-nourished, and according to the BMI it showed that most of the participants were overweight (47.4%) and obese (31.6%), according to the results described in Table I.

By analyzing the dietary intake through the 24-hour food recall (Table II) there was observed a high protein intake (17.9%) in relation to the recommended by the Dietary Guidelines for the Brazilian Population, as well as the consumption of saturated fatty acids (9.7%). Still among the group of fats, the consumption of polyunsaturated fatty acids (5.1%), Omega 3 (0.4g/kg/day) and Omega 6 (4.3g/kg/day) was found lower than the recommended in comparison to the Dietary Guidelines for the Brazilian Population. Regarding to the consumption of vitamin A, vitamin D, vitamin E, selenium and fiber, there was observed that the consumption is lower than the recommended by the DRIs; there was used the DRA as the cutoff point for evaluation.

About the relation between the PG-SGA, and dietary intake of macronutrients and vitamins and minerals (Table III), there was evaluated an average consumption of selenium below the recommended among the participants, and there were not observed significant differences about the average consumption of this mineral among the participants classified as adequate nutritional status and those with suspicion and moderate malnutrition; the participants with suspicion and moderate malnutrition had a higher average consumption of selenium compared to those who had an adequate nutritional status not including the daily recommendation intake of this mineral in accordance with the DRA.

Regarding to the BMI and the consumption of macronutrients and vitamins and minerals as shown in Table IV, there was observed a consumption of Vitamin A, Vitamin D and Vitamin E, lower than the recommended, regardless the nutritional status of the participants.

As observed in Table V, 4 (50%) of the participants with suspect or risk of malnutrition had an adequate BMI, showing that the PG-SGA is a more detailed method for nutritional assessment in oncologic patients, but there was not obtained statistically significant difference among the variables.

DISCUSSION

The participants of this study were aged between 31 to 80 years, an average of 53.9 years (± 11.2 years); similar results to the study of Hoffelmann *et al.* (9) where the age was between 31 to 84 years, an average of 56.2 years (± 10.7 years). In this study, there were observed 39 women (68.42%) with lower levels of schooling, likely to have less knowledge about risk factors related to the development of cancer. (10).

Regular physical activity has been associated to a protective effect in relation to breast cancer (11), besides being re-

Table I. Description of the studied sample.

Variable	Category	No. of cases	%
Age group	Adult	45	78,9
	Elderly	12	21,1
No. of children	None	8	14,0
	From 1 to 2	28	49,1
	From 3 to 4	16	28,1
	More than 4	5	8,8
Schooling	Fundamental Incomplete	29	50,9
	Fundamental Complete	9	15,8
	Upper Secondary Incomplete	1	1,8
	Upper Secondary Complete	14	24,6
	Higher Education Incomplete	1	1,8
	Higher Education Complete	2	3,5
	Illiterate	1	1,8
Income (Minimum Wages)	Up to 1/4 m.w.	1	1,8
	1/4 - 1/2 m.w.	2	3,5
	1/2 - 1 m.w.	33	57,9
	Over 1 - 2 m.w.	17	29,8
	2 - 3 m.w.	4	7,0
Breastfeeding	Yes	43	75,4
	No	7	12,3
	No children	7	12,3
Family history of breast cancer	Yes	22	38,6
	No	33	57,9
	Not answered	2	3,5
Kinship	1st Grade	12	21,1
	2nd Grade	10	17,5
	No kinship	35	61,4
Physical Activity	Yes	34	59,6
	No	23	40,4
Smoker	Ex-smoker	15	26,3
	No	42	73,7
PG-SGA	STG A	49	86,0
	STG B	8	14,0
BMI	Eutrophy	12	21,1
	Overweight	27	47,4
	Obesity	18	31,6

% percentage; No= number of participants= 57; BMI: body mass index; PG-SGA: Patient-generated Subjective Global Assessment.

lated as a complementary treatment in the improvement of physiological and psychological aspects in patients with breast cancer. (12) Inumaru *et al.* (13), observed in their study a lower risk of developing breast cancer in physically active women; in this study 59.6% of the participants reported that they practice physical activity, unlike the findings by Oliveira *et al.* (14), in which 100% of the women were sedentary.

In this study, most of the studied women were overweight, according to the BMI; similar results to the study of Sedó (15), that found 47 (79.7%) women diagnosed as overweight and less than the study of Cordero *et al.* (16) that found 45 (89.0%) overweight women.

Regarding to the nutritional status of the participants assessed by PG-SGA, there was identified that 86.0% of the participants showed an adequate nutritional status, which may be related to the fact that there was found a higher overweight rate among the participants, determined through the BMI, and the data corroborate the study by Mohammadi *et al.* (17), where 94% of the participants had adequate nutritional status, 6% showed nutritional risk and none of the participants was identified with malnutrition. Colling *et al.* (18) reported that there is little association between malnutrition and breast cancer, being overweight closely associated with the disease (19).

Studies have related an association between increased BMI and postmenopausal risk factors in the development of breast cancer (20) as set forth in this study, most women in the postmenopausal, and they were classified as overweight by the BMI, regarding to the relation between nutritional status and menopause, evaluated through the PG-SGA, 33 (89.18%) of the participants in menopause, showed an adequate nutritional status. Similar data to those observed by Pan *et al.*,

Table II. Food consumption of a sample of women with breast cancer.

Variable	Minimum	Maximum	Average	standard deviation	Ideal
Calories (g)	335,5	2299,5	1232	—	—
HC found (%)	32,4	75,3	54,6	8,7	55-75*
PTN found (%)	8,2	33,6	17,9	5,0	10-15*
LIP found (%)	15,3	43,8	27,6	7,4	15-30*
LIP sat found (%)	3,3	20,5	9,7	3,3	<10*
LIP pol found (%)	1,3	37,9	5,1	5,0	6-10*
LIP mon found (%)	2,3	15,5	7,5	2,7	10-14*
Vit. A (ng) found	32,4	5360,9	501,9	729,10	700**
Vit C (mg) found	4,2	1164,2	118,8	158,50	75**
Vit. D (ng) found	0,0	7,8	1,0	1,4	5-15**
Vit E (mg) found	1,2	22,1	7,4	5,3	15**
Omega 3 (g) enc	0,1	3,2	0,4	0,5	1,1**
Omega 6 (g) enc	1,3	16,4	4,3	3,5	11-12**
Selenium (ng) enc	0,0	1,4	0,1	0,2	55**
Fibers (g) enc	1,9	31,5	14,4	6,3	25**

* Recommended daily intake recommended by the Dietary Guidelines for the Brazilian Population.

** Daily Recommendation according to the Recommended Dietary Allowances RDA.

(21) that found a weight increase among women who were already in postmenopausal; Light *et al.* (22) observed in their study a significant difference about overweight, comparing women in the pre and post menopause.

During the chemotherapy treatment, dietary changes resulting from side effects of the treatment itself can affect the food intake of patients with cancer. Vegetables, fruits, fish, soybeans which are foods rich in antioxidant vitamins and minerals were associated with a protective effect in reducing breast cancer, (23).

Misotti and Gagnarella (24) found in their study data that reported a good association between the intake of vitamin D and E, and the decrease in the risk of developing breast cancer (25); in this study the consumption of Vitamin D and E was below the recommended by the DRIs, in spite of this, there was not observed significant difference in the consumption of Vitamin D and E compared to the nutritional status and the BMI. Nogueira *et al.* (26), showed in their study about 85-92% of deficiency in the consumption of vitamin D in women with breast cancer.

Selenium has antioxidant potential and demonstrates relevance in the prevention and treatment of breast cancer

(27), as an inhibitor of angiogenesis (28). In this study, women diagnosed with adequate nutritional status according to the PG-SGA had statistically lower consumption of selenium than those at nutritional risk, however, there were not found studies that relate the consumption of selenium with the nutritional status in women with breast cancer for comparison with the results of this study.

Regarding to the intake of protein, Moon *et al.* (29) reported an average consumption of 24.9% and Sampaio *et al.* (30) reported 18.6%, higher consumption than found in this study where there was an average consumption of 17.9% of protein. However, there was not observed a significant relation between protein intake and nutritional status of the participants of this study, although women with obesity diagnosis had a higher intake of protein (20.0%) compared to the average consumption of the eutrophic women (16.9%).

In this study, the intake of total fatty acids was according to the recommendations of the Dietary Guidelines for the Brazilian Population, but the consumption of polyunsaturated fatty acids, monounsaturated, omega 3 and omega 6 were below the recommended, although there was no significant

Table III. Comparison of dietary intake of women with breast cancer according to the nutritional status by PG-SGA.

Variable	PG-SGA	No.	Average	Standard deviation	P*
Age	EST A ^a	49	54,8	10,7	0,144
	EST B ^b	8	48,5	13,5	
Age of 1st menstruation	EST A ^a	49	12,7	1,6	0,952
	EST B ^b	8	12,8	1,0	
Age of menopause	EST A ^a	33	46,8	4,0	0,017*
	EST B ^b	4	52,0	2,4	
No. of children	EST A ^a	49	2,4	1,8	0,598
	EST B ^b	8	2,0	1,9	
HC found (%)	EST A ^a	49	54,2	8,4	0,385
	EST B ^b	8	57,1	11,1	
PTN found (%)	EST A ^a	49	17,7	4,8	0,500
	EST B ^b	8	19,0	6,3	
LIP found (%)	EST A ^a	49	28,1	7,3	0,138
	EST B ^b	8	23,9	7,5	
LIP sat found (%)	EST A ^a	49	9,9	3,4	0,447
	EST B ^b	8	8,9	2,3	
LIP pol found (%)	EST A ^a	49	5,3	5,3	0,364
	EST B ^b	8	3,6	1,8	
LIP mon found (%)	EST A ^a	49	7,7	2,7	0,372
	EST B ^b	8	6,7	2,9	
Vit. A (ng) found	EST A ^a	49	488,8	747,1	0,741
	EST B ^b	8	582,0	645,7	
Vit C (mg) found	EST A ^a	49	119,9	168,0	0,898
	EST B ^b	8	112,1	86,6	
Vit. D (ng) found	EST A ^a	49	1,0	1,4	0,339
	EST B ^b	8	0,5	0,8	
Vit E (mg) found	EST A ^a	49	7,5	5,2	0,713
	EST B ^b	8	6,7	6,1	
Omega 3 (g) found	EST A ^a	49	0,5	0,5	0,261
	EST B ^b	8	0,2	0,1	
Omega 6 (g) found	EST A ^a	49	4,4	3,7	0,431
	EST B ^b	8	3,3	1,9	
Selenium (ng) found	EST A ^a	49	0,0	0,1	0,003*
	EST B ^b	8	0,3	0,5	
Fibers (g) found	EST A ^a	49	14,3	6,2	0,711
	EST B ^b	8	15,2	7,4	

PG-SGA: Patient-generated Subjective Global Assessment; ^a Stage A: adequate nutritional status; ^b Stage B: Suspected or moderate malnutrition; No= Number of participants= 57; *P= Level of statistical significance (0,05); Student's t-test.

Table IV. Comparison of food consumption according to the nutritional status according as the BMI.

Variable	BMI	No	Average	Standard deviation	P*
Age	Eutrophy	12	51,3	9,2	0,679
	Overweight	27	54,5	12,5	
	Obesity	18	54,7	10,8	
Age of the 1st menstruation	Eutrophy	12	13,2	1,5	0,268
	Overweight	27	12,8	1,6	
	Obesity	18	12,3	1,4	
Age of menopause	Eutrophy	8	48,4	3,8	0,230
	Overweight	15	48,3	5,0	
	Obesity	14	45,9	3,2	
No. of children	Eutrophy	12	1,8	1,3	0,140
	Overweight	27	2,8	2,2	
	Obesity	18	1,9	1,3	
HC found (%)	Eutrophy	12	54,7	6,7	0,159
	Overweight	27	56,6	7,7	
	Obesity	18	51,5	10,7	
PTN found (%)	Eutrophy	12	16,9	3,8	0,093
	Overweight	27	16,9	3,8	
	Obesity	18	20,0	6,6	
LIP found (%)	Eutrophy	12	28,4	8,9	0,636
	Overweight	27	26,6	6,4	
	Obesity	18	28,5	8,0	
LIP sat found (%)	Eutrophy	12	9,7	2,5	0,999
	Overweight	27	9,7	3,6	
	Obesity	18	9,8	3,5	
LIP pol found (%)	Eutrophy	12	4,6	2,6	0,389
	Overweight	27	4,4	1,9	
	Obesity	18	6,4	8,3	
LIP mon found (%)	Eutrophy	12	8,1	3,5	0,704
	Overweight	27	7,3	2,5	
	Obesity	18	7,5	2,6	
Vit. A (ng) found	Eutrophy	12	580,8	514,0	0,764
	Overweight	27	535,3	989,7	
	Obesity	18	399,0	254,7	

BMI: body mass index; No= Number of participants= 57; *P= Level of statistical significance (0,05); Variance Analysis (ANOVA).

Table IV continuation. Comparison of food consumption according to the nutritional status according as the BMI.

Variable	BMI	No	Average	Standard deviation	P*
Vit C (mg) found	Eutrophy	12	129,6	92,9	0,738
	Overweight	27	101,6	69,9	
	Obesity	18	137,5	262,3	
Vit. D (ng) found	Eutrophy	12	1,5	2,2	0,277
	Overweight	27	0,8	1,1	
	Obesity	18	0,8	1,0	
Vit E (mg) found	Eutrophy	12	6,9	5,5	0,920
	Overweight	27	7,3	4,7	
	Obesity	18	7,7	6,2	
Omega 3 (g) found	Eutrophy	12	0,5	0,9	0,742
	Overweight	27	0,4	0,4	
	Obesity	18	0,4	0,4	
Omega 6 (g) found	Eutrophy	12	4,9	4,4	0,707
	Overweight	27	4,3	3,4	
	Obesity	18	3,8	3,1	
Selenium (ng)found	Eutrophy	12	0,1	0,2	0,662
	Overweight	27	0,1	0,3	
	Obesity	18	0,0	0,1	
Fibers (g) found	Eutrophy	12	16,7	7,1	0,096
	Overweight	27	15,1	6,1	
	Obesity	18	11,9	5,5	

BMI: body mass index; No= Number of participants= 57; *P= Level of statistical significance (0,05); Variance Analysis (ANOVA).

Table V. Agreement in the nutritional diagnosis of women with breast cancer through the BMI and the PG-SGA.

BMI	PG-SGA			
	STG A ^a		STG B ^b	
	N	%	No.	%
Proper weight	8	16,3	4	50,0
Overweight	24	49,0	3	37,5
Obesity	17	34,7	1	12,5

PG-SGA: Patient-generated Subjective Global Assessment; ^a Stage A: adequate nutritional status; ^b Stage B: Suspected or moderate malnutrition; BMI: body mass index; No= Number of participants= 57; *P= Statistical significance level (0,05); Fisher's exact test.

difference among the consumption of these acids. The reduction of consumption of fatty acids has been associated to the reduced risk of developing cardiovascular diseases as well as cancer development (31), and Turner *et al.* (32), related in their study the high consumption of fatty acids as a negative factor in the development of breast cancer.

Insufficient intake of carbohydrates and fiber among patients with breast cancer was quoted by the study of Sampaio *et al.* (30), in which women undergoing chemotherapy had an average consumption of 52.7% of carbohydrate and 17.3% of fiber, which corroborates this study, like Gallon and Wender (33), who found in their study an average consumption of 56.9% of carbohydrates and 14.6 g of fiber. Nevertheless, there was not observed a significant difference regarding to the consumption of fiber and carbohydrates when evaluating patients with breast cancer according to the nutritional status.

Among the limitations of this study, there is the actual food intake assessed by the 24-hour Food Recall, arising from the memory of the participants. Another limiting factor was not to assess the stage of the disease, and the time of treatment, as well as the medicine used, evaluating a difference in the nutritional status and dietary intake among these several factors as well as the lack of biochemical tests to elucidate the real nutritional status of the patients.

CONCLUSION

There was concluded by this study that most of the participants were overweight when they were classified according to the BMI and the adequate nutritional status as evaluation performed by the PG-SGA. The consumption of Vitamin A, D and E was under the recommended, as well as the consumption of fiber, carbohydrate, polyunsaturated fat and monounsaturated, without statistically significant difference among the different classifications of nutritional status. The women with nutritional risk had significantly higher intakes of selenium compared to the women with adequate nutritional status according to the classification of PG-SGA, despite the average intake of this mineral has not reached the recommendations of the daily intake recommended by the DRIs. The consumption of protein and vitamin C presented averages above the recommended, but showed no significant difference when the women with breast cancer were compared from the nutritional status classified by BMI and by PG-SGA.

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