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NAUSEA, VOMITING AND QUALITY OF LIFE IN WOMEN WITH BREAST CANCER RECEIVING CHEMOTHERAPY

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ABSTRACT

The aim of this study was to assess the quality of life (QoL) of women with breast cancer during chemotherapy and to identify the incidence of nausea and vomiting during the treatment. Data were assessed with the application of the instrument of the European Organization for Research and Treatment of Cancer, EORTC-QLQ-C30 Portuguese version and breast cancer module BR-23, which was applied before, in the middle and in the end of the treatment. The participants were 79 women, of which 93% had nausea and 87% had vomited at least once during the treatment. QoL showed a slight decrease during treatment. Cronbach's alpha for each application of the questionnaires was 0.890492, 0.936392 and 0.937639. The availability of treatment information and guidelines on the management of nausea and vomiting is crucial for the proper management of the toxicities of chemotherapy.

Descriptors: Breast neoplasm. Nausea. Vomiting. Quality of life. Drug therapy.

RESUMO

Objetivou-se avaliar a qualidade de vida (QV) de mulheres com câncer de mama em tratamento quimioterápico e identificar a ocorrência de náuseas e vômitos durante o tratamento. Os dados foram coletados com a aplicação do instrumento da Organização Europeia de Pesquisa e Tratamento de Câncer, EORTC-QLQ-C30, na versão em português, bem como do módulo para câncer de mama BR-23, aplicados antes, no meio e ao final do tratamento. Das 79 mulheres incluídas, 93% apresentaram náuseas e 87% vômitos pelo menos uma vez durante o tratamento. A QV apresentou pequena diminuição durante o tratamento. O coeficiente alfa de Cronbach para cada aplicação dos questionários foi de 0,890492, 0,936392 e de 0,937639. A disponibilidade de informações sobre o tratamento e de orientações quanto ao manejo da náusea e do vômito é crucial para o gerenciamento adequado das toxicidades da quimioterapia.

Descritores: *Neoplasias da mama. Náusea. Vômito. Qualidade de vida. Quimioterapia.*
Título: *Náuseas, vômitos e qualidade de vida de mulheres com câncer de mama em tratamento quimioterápico.*

RESUMEN

Evaluar la calidad de vida (QOL) de las mujeres con cáncer de mama durante la quimioterapia e identificar el acontecimiento de náuseas y vómitos durante el tratamiento. Se recogieron datos con la aplicación del instrumento de la Organización Europea para la Investigación y Tratamiento del Cáncer, EORTC-QLQ-C30 versión en portugués y módulo para el cáncer de mama BR-23 aplicado antes, en la mitad y al final del tratamiento. Se incluyeron 79 mujeres, el 93% tuvo náuseas, el 87% vómitos al menos una vez durante el tratamiento. La QOL presentó una ligera disminución durante el tratamiento. El coeficiente alfa de Cronbach para cada aplicación de los cuestionarios fue 0.890492, 0.936392 y 0.937639. La disponibilidad de informaciones sobre el tratamiento y directrices sobre el manejo de la náusea y vómito es fundamental para la correcta gestión de las toxicidades de la quimioterapia.

Descriptores: *Neoplasias de la mama. Náusea. Vómito. Calidad de vida. Quimioterapia.*
Título: *Náuseas, vómitos y calidad de vida en mujeres con cáncer de mama en la quimioterapia.*

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INTRODUCTION

The adverse events (AE) caused by chemotherapy drugs are related to the inespecificity of the tumor cells and the cytotoxic effects in normal cells. These events prevail in cells that are in constant division, such as those of the hematopoietic tissue, hair follicle and gastrointestinal coating[1]. Despite increasing the survival, chemotherapy, as well as the hormone therapies, influence negatively the quality of life (QoL) due to these AE[2].

Gastrointestinal AE may include nausea, vomiting, mucositis, diarrhea, anorexia, stomatitis, and abdominal pain or discomfort; however, oncologic patients refer that nausea and vomiting are the most stressful and uncomfortable AE[3-4]. They may occur both together or in isolation, so they must be assessed separately, as they are different events with different causes[5].

The incidence of nausea and vomiting is primarily related with the emetic potential of the drugs, which range from very high, causing vomiting in over 90% of the patients, to potentially low, affecting less than 10%[6]. It is also associated with variations such as gender, age, anxiety, consumption of alcohol, radiotherapy in the gastrointestinal tract and expectation of developing nausea and vomiting. Factors related to the chemotherapy drug that may influence the occurrence of these events include: the drug used, the dose, the combination of drugs, the route of administration, the speed of administration and the number of cycles received[7-8].

All chemotherapy drugs have an emetogenic potential that varies in intensity. The potential of the most commonly used drugs in the protocols for breast cancer treatment is described as follows[6,13]: high risk (in more than 90% of patients): cyclophosphamide (1,500 mg/m² or more) and cisplatin; moderate risk (in 30 to 90%): cyclophosphamide (less than 1,500 mg/m2), epirubicin, doxorubicin; low risk (in 10 to 30%): 5-fluouracil, paclitaxel, docetaxel, methotrexate, liposomal doxorubicin, gemcitabine, trastuzumab and minimal risk (in fewer than 10% of patients): vinorelbine.

Approximately 50% of patients with cancer will experience nausea and vomiting during the chemotherapy treatment; vomiting induced by chemotherapy may be prevented in around 70 to 80% of patients with the proper use of antiemetic agents, however, the control of nausea is more limited[9].

The incapability to reach a desirable level of control of these events in every patient is multifactorial, as well as the incapability to control nausea and to understand its physiologic mechanism, the continuing use of regimes of emetogenic chemotherapy, the underestimation of the report of these events by professionals, the lack of conformity between the guidelines of antiemetic and chemotherapy drugs prescribed and the segmented development of vomiting control in detriment of nausea[8].

Nausea induced by chemotherapy has a high impact on the nutritional condition and activities of daily living, which may harm the QoL. Since nausea is a key-symptom associated with other symptoms, such as vomiting, it is imperative that more attention is given to its control both through pharmacological and non-pharmacological measures, such as nutritional interventions[10].

Considering that the chemotherapy treatment causes a great impact both physically and emotionally on these women, and observing that the care of these symptoms is poorly valued in women with breast cancer, besides the fact that the institution does not have a protocol of appropriate care and handling of patients in chemotherapy, the present study had the aim to identify the occurrence of nausea and vomiting caused by the drugs used in the protocols of neoadjuvant and adjuvant chemotherapy referred by the women assisted in the Mastology Outpatient Clinic of the University Hospital of Ribeirão Preto School of Medicine, at University of São Paulo (HCFMRP-USP), and to assess the QoL of these women in the beginning, in the middle and in the end of the chemotherapy treatment.

METHODS

The present study is an extract from the research "Evaluating the Quality of Life, Anxiety, Depression and Toxicity to Chemotherapy in Women with Breast Cancer", which assessed not only the quality of life but also the signs and symptoms related to the adverse events of the chemotherapy treatment. The quantitative and prospective study proposal was approved by the Research Ethics Committee of HCFMRP-USP, under the protocol no. 765/2009.

The study participants selected were women with breast cancer who had initiated chemotherapy

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in the period between April of 2009 and March of 2010, and complied with the inclusion criteria: being older than 19 years of age and initiating the chemotherapy treatment for the first time. The exclusion criteria were: women who could not express themselves individually; who presented diagnosis of metastatic disease or other type of malignant tumor; who had already received chemotherapy for breast cancer or other type of malignant tumor and who were in pregnancy-postpartum cycle.

The data collection instrument contained information regarding the socio-demographic data, neoadjuvant or adjuvant chemotherapy protocol proposed and the occurrence of nausea and/or vomiting after each cycle. The researcher obtained the data by means of interview with the women participating in the study and review of their medical records. In order to assess the occurrence of nausea and vomiting, the questions were made on the day they received chemotherapy. The women, however, answered the questions regarding the previous cycle. The QoL was assessed with the application of the instrument of the European Organization for Research and Treatment of Cancer, EORTC QLQ-C30 (version 3.0), which was translated and validated to Portuguese[11], in three different moments, that is, before initiating the chemotherapy treatment, in the middle and in the end of the process.

The instrument QLQ C-30 is a questionnaire containing thirty items divided into three domains: Global Health Status, with two questions; Functional Scales, with fifteen items to assess the physical, role, cognitive, emotional and social functioning; and Symptom Scales consisting of thirteen items to assess: fatigue, nausea, vomiting, dyspnea, insomnia, appetite loss, constipation, diarrhea and financial difficulties[11].

The items 1 to 28 of the questionnaire are placed in a four-point Likert scale, in which the answers followed the pattern: not at all, a little, quite a bit and very much. The items 29 and 30 are presented in a seven-point Likert scale, in which one corresponds to very poor and seven to excellent.

The data were organized in Excel spreadsheets and analyzed by means of descriptive statistical analysis of the variables: age, education, marital status, chemotherapy protocol, nausea and vomiting for each cycle.

The instrument EORTC QLQ-C30 was analyzed based on a gross score (GS) established for each scale, consisting in the sum of the values of the alternatives indicated in each question/item composing the scale, divided by the number of answers.

RESULTS

The study counted with the participation of 79 women aged between 29 and 69 years, with a mean age of 48.4 years, which shows the sample was mostly made of young women, represented by 55.8% women aged between 29 and 50 years. Most of them (79.7%) were Caucasian; 60.7% were married and 40.5% had incomplete primary education (Table 1).

Regarding the protocol of treatment used, 48 women received EC-T (epirubicin, cyclophosphamide and docetaxel) or EC-TH (epirubicin, cyclophosphamide, docetaxel and trastuzumab) and 31 used FEC (fluouracil, epirubicin and cyclophosphamide), both in neoadjuvance and in adjuvance.

Among the 79 women who participated in the study, 93% experienced nausea and 87% vomiting, at least once during the treatment.

Regarding those who received EC-T/EC-TH, it was possible to observe 231 occurrences of nausea and 118 of vomiting, totaling 349 events during all cycles. Table 2 presents the episodes of nausea and vomiting according to the cycle of treatment. Nausea episodes were more frequent until the fourth cycle, and although the occurrence of vomiting oscillated during the treatment, it was more common in the five first cycles. It is important to highlight that the same woman may have presented these adverse events more than once during the treatment.

Among the women who received the FEC protocol, there were 131 events of nausea and 94 of vomiting, totaling 225 events. During the treatment, these two events presented little oscillation (Table 3).

Table 4 shows the standard deviation for the items QoL and nausea and vomiting of EORTC QLQ C30 for the three moments in which this questionnaire was applied. It was observed that, during the treatment, in the three applications of the questionnaire, the means of the scales for "overall health measure" for the women who received FEC were 71.24; 76.88 and 73.39 respectively, whereas

Table 1 – Women undergoing chemotherapy for breast cancer, according to age, marital status and education (N=79). Ribeirão Preto, SP, 2010.

Variables	Number	%
Age (years)		
29 to 40	18	22.8
41 to 50	26	33.0
51 to 60	27	34.1
61 to 69	08	10.1
Marital status		
Married	48	60.7
Single	12	15.1
Divorced	11	13.9
Widowed	08	10.1
Education		
Incomplete primary education	32	40.5
Complete primary education	11	13.9
Incomplete high school	11	13.9
Complete high school	10	12.6
Incomplete higher education	03	3.8
Complete higher education	10	12.6
Illiterate	02	2.5

Table 2 – Distribution of women submitted to chemotherapy for breast cancer, according to nausea and vomiting between cycles, for protocols EC-T/EC-TH. Ribeirão Preto, SP, 2010.

Adverse Event	After Cycle 1 (N= 48)	After Cycle 2 (N= 48)	After Cycle 3 (N=48)	After Cycle 4 (N=48)	After Cycle 5 (N=47)	After Cycle 6 (N=45)	After Cycle 7 (N= 41)	After Cycle 8 (N=43)	Total Number
Nausea	32 (66%)	35 (73%)	35 (73%)	34 (71%)	28 (59%)	25 (55%)	19 (46%)	23 (53%)	231
Vomiting	19 (39%)	15 (31%)	15 (31%)	18 (37%)	17 (36%)	12 (27%)	08 (19%)	14 (32%)	118

for those who received EC-T/EC-TH the means were 77.08; 75.69 and 71.10. These values did not present much variation during the treatment, which indicates the QoL was stable during the process, regardless the drugs used (Table 4).

Regardless the protocol used, there was little variation in the mean and in the standard deviation of the domains "overall quality of life" and "nausea and vomiting" in relation to the chemotherapy protocols (Table 4).

Table 5 shows the variable "nausea and vomiting", which presented a statistically significant difference for the women studied, according to the chemotherapy protocol used. Cronbach's alpha coefficient for each application of the questionnaires was 0.890492 before starting the treatment, 0.936392 for the questionnaire in the middle and 0.937639 in the end. These values show a high internal consistency of the scale and the similarity between the coefficients show their reliability in these variables.

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Table 3 - Distribution of women submitted to chemotherapy for breast cancer, according to nausea and vomiting between cycles, for the protocol FEC. Ribeirão Preto, SP, 2010.

Adverse Event	After Cycle 1 (N=31)	After Cycle 2 (N=31)	After Cycle 3 (N=31)	After Cycle 4 (N= 31)	After Cycle 5 (N= 31)	After Cycle 6 (N=29)	Total Number
Nausea	22 (71%)	22 (71%)	20 (64%)	22 (71%)	23 (74%)	22 (76%)	131
Vomiting	19 (61%)	11 (35%)	17 (55%)	15 (48%)	15 (48%)	17 (59%)	94

Table 4 – Representation of the domains "global quality of life" and "nausea and vomiting" of EORTC QLQ C30 in the three moments of assessment of the women with breast cancer (N=79). Ribeirão Preto, SP, 2010.

Moment	Protocol	Variables	Mean	Standard Deviation	Minimum	Maximum
1	ECT/ECTH	QoL	77.08	23.91	0.00	100.00
		nv	10.42	18.07	0.00	66.67
	FEC	QoL	71.24	27.54	0.00	100.00
		nv	4.84	10.71	0.00	50.00
2	ECT/ECTH	QoL	75.69	24.48	16.67	100.00
		nv	19.79	26.55	0.00	100.00
	FEC	QoL	76.88	19.21	41.67	100.00
		nv	23.12	30.33	0.00	100.00
3	ECT/ECTH	QoL	71.10	20.03	33.33	100.00
		nv	19.50	26.99	0.00	100.00
	FEC	QoL	73.39	22.40	0.00	100.00
		nv	17.74	20.61	0.00	66.67

Legend: QoL = overall quality of life; NV = nausea and vomiting

DISCUSSION

The socio-demographic characteristics, such as having low education level, being older than 40 years of age and being married, found in this study agree with the findings of another national study[12]. These characteristics demand a greater emphasis on educational processes on the part of the health professional, adjusting the language of the teaching-learning process to the level of understanding of the patients.

The occurrence of 93% of nausea and 87% of vomiting found in this study is higher than those found in the literature. In a study that evaluated 35 women with breast cancer receiving adjuvant chemotherapy, the authors verified that 57.1% of the participants reported gastrointestinal symptoms such as nausea, vomiting, constipation and/or diarrhea[12]. On the other hand, the findings of other studies that also evaluated women with breast cancer during chemotherapy with regimes of high and moderate emetic potential evidenced the occurrence of nausea in 31 to 70% of patients and vomiting in 13 to 45%[8-9].

The drugs used by the participants, especially cyclophosphamide and epirubicin, which were present in both chemotherapy protocols, present an emetic potential that varies from very high to high,

Table 5 – Comparisons during the treatment of the variable nausea and vomiting of EORTC QLQ-C30 for the women submitted to chemotherapy for breast cancer (N=79). Ribeirão Preto, SP, 2010.

Comparisons	Differences	P-valor	IC (95%)
Variable nausea and vomiting			
(Beginning - Middle) ECT/ECTH	-9.3746	0.0118	(-16.6440 ;-2.1052)
(Beginning - End) ECT/ECTH	-9.1052	0.0151	(-16.4239 ;-1.7864)
(Beginning - Middle) FEC	-18.2789	0.0001	(-27.3245 ;-9.2333)
(Beginning - End) FEC	-12.9026	0.0055	(-21.9483 ;-3.8570)

p-value <0.0001

depending on the dose used. These statements may be confirmed by analyzing a study[14] in which nearly all participants who received doxorubicin and cyclophosphamide presented increased incidence of nausea.

In an evaluation of 75 women with breast cancer in chemotherapy treatment and 75 in radiotherapy treatment, with application of the questionnaire EORTC QLQ C30, the researchers verified that the group receiving chemotherapy presented a decrease in QoL, in the physical function, development of roles, cognitive function, bodily image, social function and anxiety between the interviews before starting the treatment and in the end. They also reported that, in this same period, the women presented a significant increase in nausea, vomiting, constipation and systemic adverse events of the therapy used[14].

The results of a prospective study involving a group of 200 patients showed that the association of the symptoms appetite loss, nausea and vomiting had a negative impact on the QoL, which was greater than that of nausea, vomiting and appetite loss individually[8].

In the present study, the domain "nausea and vomiting" of EORTC QLQ C30 presented a statistically significant difference for the women studied. These data agree with the results of a study[9] in which 72% of the patients who experienced nausea claimed that this toxicity had a negative impact on their daily life. This percentage increased to more than 89%, when the intensity of nausea was significant.

Although the results found in this study point to a stable QoL during chemotherapy, most of the studies evidence a significantly negative interference of the chemotherapy in the QoL of women with breast cancer[8-10, 12-13, 15].

This fact demonstrates the importance of evaluating women during the entire treatment in all of its aspects, not only limited to evaluations and questions regarding physical signs and symptoms, but also comprising psychosocial aspects.

In this continuous and dynamic process, nurses have a crucial role, since they are the professionals who spend the most time with the patient. For this reason, they may establish a dialogue, gain the trust of the patient and clarify the concept of the woman regarding herself, providing help and common sense, and indicating the best path to follow[16].

CONCLUSION

Regardless the easy and difficult aspects of the use of instruments for assessing the signs and symptoms related to the chemotherapy treatment, it is important for health professionals to value these symptoms and establish individualized care measures to the patients in the clinical practice.

The availability of information regarding the treatment and guidance as for the handling of adverse events is crucial for the proper management of gastrointestinal toxicities. In face of the impossibility or unfeasibility of the use of instruments for this assessment, the complaints of the patients must be valued and a care plan must be established so as to fill these gaps.

REFERENCES

1 Instituto Nacional de Câncer (INCA). Ações de enfermagem para o controle do câncer: uma proposta de integração ensino-serviço. 3ª ed. rev. atual. ampl. Rio de Janeiro: INCA; 2008.

Versão on-line em Português/Inglês: http://www.scielo.br/scielo.php?script=sci_serial&pid=1983-1447&lng=pt&nrm=iso

2 Montazeri A. Health-related quality of life in breast cancer patients: a bibliographic review of the literature from 1974 to 2007. J Exp Clin Cancer Res. 2008;27(1):1-31.

3 Hesketh PJ. Drug therapy: chemotherapy-induced nausea and vomiting. N Engl J Med. 2008;358:2482-94.

4 Lotti RCB, Barra AA, Dias RC, Makluf ASD. Impacto do tratamento de câncer de mama na qualidade de vida. Rev Bras Cancerol. 2008;54(4):367-71.

5 National Cancer Institute. Common Terminology Criteria for Adverse Events (CTCAE) v.4.0 [Internet]. 2009 [cited 2010 Jun 10]. Available from: http://evs.nci.nih.gov/ftp1/CTCAE/CTCAE_4.03_QuickReference_5x7.pdf.

6 Molassiotis A, Saunders MP, Valle J, Lorigan P, Wardley A, Levine E, et al. A prospective observational study of chemotherapy-related nausea and vomiting in routine practice in a UK cancer center. Support Care Cancer. 2008;16(2):201-8.

7 Jakobsen JN, Herrstedt J. Prevention of chemotherapy-induced nausea and vomiting in elderly cancer patients. Crit Rev Oncol Hematol. 2009;71:214–21.

8 Pirri C, Bayliss E, Trotter J, Olver IN, Katris P, Drummond P, et al. Nausea still the poor relation in antiemetic therapy? The impact on cancer patients' quality of life and psychological adjustment of nausea, vomiting and appetite loss, individually and concurrently as part of a symptom cluster. Support Care Cancer. 2012; 21(3):735-48.

9 Fernández-Ortega PP, Caloto MT, Chirveches EE, Marquilles RR, Francisco JS, Quesad AA . Chemotherapy – induced nausea and vomiting in clinical pratice: impacto on patients' quality of life. Support Care Cancer. 2012;20(12):3141-48.

10 Gridelli C, Haiderali AM, Russo MW, Blackburn LM, Lykopoulos K. Casopitant improves the quality of life in patients receiving highly emetogenic chemotherapy. Support Care Cancer. 2010;18(11):1437-1444.

11 Brabo EP, Paschoal ME, Biasoli I, Nogueira FE, Gomes MC, Gomes IP, et al. Brazilian version of the QLQ-LC13 lung cancer module of the European Organization for Research and Treatment of Cancer: preliminary reliability and validity report. Qual Life Res. 2006;15(9):1519-1524.

12 Nicolussi AC, Sawada NO. Qualidade de vida de pacientes com câncer de mama em terapia adjuvante. Rev Gaúcha Enferm.2011;32(4):759-66.

13 Roscoe JA, Morrow GR, Colagiuri B, Heckler CE, Pudlo BD, Colman L, et al. Insight in the prediction of chemotherapy-induced nausea. Support Care Cancer. 2010;18(7):869–76.

14 Browall M, Ahlberg K, Karlsson P, Danielson E, Persson LO, Gaston-Johansson F. Health-related quality of life during adjuvant treatment for breast cancer among postmenopausal women. Eur J Oncol Nurs. 2008;12(3):180-89.

15 Farrel C, Brearleyet SG, Pilling M, Molassiotis A. The impact of chemotherapy-related nausea on patients' nutritional status, psychological distress and quality of life. Support Care Cancer. 2012;21(1):59-66.

16 Alves PC, Santos MCL, Fernandes AFC. Stress and coping strategies for women diagnosed with breast cancer: a transversal study. Online Braz J Nurs [Internet]. 2012 [citado 2012 Dez 20];11(2):305-18. Disponível em: http://www.objnursing.uff.br/index.php/nursing/article/view/3714/html

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