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EVALUATION OF QUALITY OF LIFE AND FUNCTIONAL CAPACITY OF CANCER PATIENTS IN CHEMOTHERAPY

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ABSTRACT
The present study aimed to evaluate the health-related quality of life (HRQOL) and measure the functional ability of patients with cancer in pre-and post-chemotherapy moments (QT). It is a ferocious cohort study, with a quantitative approach, carried out from January to March 2015 at an outpatient clinic of QT a university hospital of the Federal District, covering a sample of 53 individuals. The participants interviewed on two occasions, following, respectively, the first and second cycles of QT, during which have applied the *Protocol Quality of Life questionnaire-30 core* and functional capacity assessment *scales Performance Status* and *Karnofsky performance Scale*. The results showed the decrease of all features after the first cycle of the QT, in addition to significant differences of scores: fatigue (p = 0.003), nausea (p = 0.000 <), insomnia (p = 0.042) and diarrhea (p = 0.006), with a significant increase in signs and symptoms occurring between the first and second cycle of QT, 9.4% to 20.8%. This range also proved significant worsening regard to functional impairment of the patients (p = 0.045). The results showed the need to see the impact on HRQOL since the beginning of chemotherapy treatment.

Keywords: Neoplasms. Drug therapy. Signs and symptoms. Activities of daily living. Quality of life.

INTRODUCTION

Cancer, chronic multifactorial pathology, constitutes today one of the biggest challenges for science and health policies of developed and developing countries. In Brazil, for the biennium 2016-2017, the estimate is 600,000 new cases of cancer, the most prevalent being the non-melanoma skin, prostate and breast[1].

Various therapies have used in the treatment of several types of cancer, including the chemotherapy (QT), systemic treatment that uses cytotoxic substances through the bloodstream. According to their purposes, the QT can classify into: adjuvant, neoadjuvant, curative, and palliative[2].

Regardless of your purpose, causes significant QT side effects due to hematologic toxicities (leukopenia, anemia, thrombocytopenia, febrile neutropenia) and non-hematological (neurological, pulmonary, gastrointestinal, renal, etc.)[3]. In addition, the emotional changes which may contribute to the abandonment of the treatment[4].

It is known that the side effects, if not evaluated and managed appropriately, involve decreased functional ability and quality of life (QOL) of individuals. In relation to functional ability, such a term linked to the ability of the individual to perform their everyday activities[5]. Already the QV consists of a process of belief and satisfaction of the individual with your family, social and environmental realities. Due to your specificity, both in the context of combating diseases and in the health care context, the term health-related quality of life (HRQOL)[6].

On the face of it, the rationale for this study guided in the growing number of patients in need of chemotherapy treatment as well as the potential impact of this treatment on HRQOL, with diminished autonomy to carry out everyday activities in because of the compromises physical, emotional, social, and spiritual. Thus,

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this work has as objective to evaluate the HRQOL and the functional ability of patients with cancer, seen in an outpatient clinic of QT, in the moments before and after.

METHODOLOGY

It is a longitudinal cohort study, a quantitative approach, whose investigation conducted between January and June 2015, in the ambulatory of QT a university hospital of the Federal District, near the center of high complexity in Oncology (CACON). As for patients, invited to take part in the research the day attended the to perform the first cycle CACON chemotherapy.

Regarding the study's population, formed by patients with cancer and chemotherapeutic antineoplastic treatment sign intravenous. Already the sample considered as non-probability (for convenience), composed of 53 patients, which conformed to the criteria for inclusion set forth: (i) individuals over the age of 18 years and (ii) that were at the beginning of chemotherapy treatment (first cycle). Exclusion criteria were: (i) part of the group with investigational medicinal products or (ii) any family, social conditions, psychological or geographic impossibilities the participation in the study.

About the time of completion of the survey, developed in two different moments: time 1, before the first round of chemotherapy, and now 2, before the second cycle. It should note that the interval between cycles of chemo varies depending on the type of cancer and the treatment protocol.

Now 1 patient underwent an interview survey of data from identification, demographic profile, clinical history, as well as to application of Karnofsky performance Scale[7] and Performance Status of the Eastern Cooperative Oncology Group (ECOG PS)[8] in addition to the questionnaire Quality of Life questionnaire-core 30 (QLQ-C30)[9]. At the moment 2, were reapplied two QLQ-C30 and scales.

QLQ-C30 on the, this is a questionnaire composed of 30 questions divided into five groups of scales of features. The first group divided into: physical functions, cognitive, emotional, social and role performance. The second group includes three ranges of symptoms: fatigue, nausea, and vomiting. The third group of scale evaluates six aspects of symptoms common to cancer patients: dyspnea, lack of appetite, insomnia, constipation, and diarrhea. The Fourth Group evaluates the QV and global health. And, finally, the fifth group of scale evaluates the monetary impact of treatment and disease[10].

The results of the questions generate scores of functional scales and symptoms that transformed into a scale of 0 to 100 according to the guidelines of the European Organization for Research and Treatment of Cancer (EORTC), where 0 denotes the worst and 100 the functioning best performance in functional scales and Global Health/QOL; While, on the scales and items of symptoms, the 100 shows more symptoms present and 0 no symptoms[10].

The Karnofsky performance Scale used to measure the level of functional ability presented by patients. The range composed with 100 points for high activity and 0 points for death[11].

The PS-ECOG is a method to measure functional performance of global patient and an important therapeutic parameter range. The patient classified according to the number of points, which varies from 0 to 4:0, asymptomatic patient; 1, patient who shows symptoms of the disease, but it performs its activities normally; 2, symptomatic patient needing ambulatory attendance more often; 3, patient with more than 50% of the time in bed; and four, patient bedridden[8].

The analysis performed by descriptive and statistical software Special Package for Social Sciences (SPSS) version 21.0. For the correlation between the domains, and the total score of QLQ-C30 with ordinal variables, we used Spearman coefficient. The Wilcoxon test used for comparison of pre-and post-chemotherapy averages. Relative frequencies calculated, absolute, averages and standard deviation of the results obtained. To describe the intensity of the concordance between the two rating scales, used to measure the Kappa coefficient, based on the number of concordant answers between the two ranges, so that p values < 0.05 considered significant.

Finally, the Research Ethics Committee of the State Secretariat of Health of the Federal

District have approved research project – SES/DF, number 305,289 Protocol and the patients who agreed to take part in the research have signed the term of free and clear Commitment (FICS) in first contact with the researcher.

RESULTS

The median age was 56 years, being the smallest age of 23 and the maximum of 67 years. Most of the patients were female (N = 33; 62.3%) had completed primary school (N = 23; 43.4%) and worked 20 hours (N = 9; 17%). The three main occupations showed in the study were: housewives (N = 9; 17%), domestic (N = 5; 9.4%) and Masons (N = 5; 9.4%). The monthly household income of most of the patients were up to two smallest wages (N = 23; 43.4%), with two dependents this income. After the beginning of the QT, some patients reported a reduction in income (N = 33; 62.3%).

The most common cancers in this study were: breast (N = 18; 34%), digestive (N = 11; 20.8%), gynecological (N = 7; 13.2%) and others (N = 17; 32%). Considered as other cancers with less than 5 records: head and neck (N = 4; 7.5%), Lung (N = 4; 7.5%), unknown (N = 3; 5.7%), skin (N = 2; 3.8%), prostate (N = 2; 3.8%), sarcoma (N = 1; 1.9%), relapse (N = 1; 1.9%). The most common staging of patients of research was T2 (30.2%), N0 (39.6%) and M0 (69.8%). Regarding the protocols used by patients in chemotherapy treatment, they are in your clear majority of adjuvant chemotherapy (N = 31; 58.5%).

In the survey, the predominant QT protocols were respectively: carboplatin + paclitaxel (N = 21; 39.6%) and paclitaxel (N = 16; 30.2%). All patients covered in your first round of QT and the most recurrent intervals between the first and second cycle of QT were of 7 days (N = 31; 58.5%) and 21 days (20; 37.7%), followed the range of 15 to 17 days (N = 2; 3.8%). The intervals between cycles did not influence on patients ' quality of life.

The data yielded by application of the QLQ-C30, in the first and second time QT infusion of patients of this study, can found in Table 1.

Table 1. Health-related quality of life before and after the start of chemotherapy. CACON-HUB-Brasilia 2015.

	TIME 1 **M ± SD**	TIME 2 **M ± SD**	P VALUE
FEATURES			
Physical Functioning	66.29 ± 29.13	61.64 ± 24.98	0.093
Performance of paper activity	63.52 ± 34.91	57.86 ± 31.62	0.244
Emotional Functioning	57.70 ± 31.05	51.73 ± 31.75	0.058
Cognitive Functioning	82.08 ± 23.99	78.53 ± 25.21	0.109
Social functioning	77.04 ± 32.39	75.79 ± 29.16	0.657
SIGNS AND SYMPTOMS			
Fatigue	**50.43 ± 27.96**	**62.05 ± 30.38**	**0.003 ****
Nausea	**64.78 ± 25.25**	**83.96 ± 23.10**	**< 0.000 ****
Pain	66.35 ± 30.69	64.15 ± 32.09	0.688
Dyspnea	70.44 ± 31.80	70.44 ± 36.20	0.819
Insomnia	**45.91 ± 36.53**	**57.23 ± 35.43**	**0.042 ****
Lack of appetite	62.89 ± 32.46	69.18 ± 35.11	0.214
Constipation	77.99 ± 32.65	84.91 ± 24.08	0.143
Diarrhea	**84.91 ± 22.23**	**93.71 ± 14.70**	*** 0.006 ***
Financial difficulty	76.10 ± 28.02	72.96 ± 32.72	0.605
Global QOL	38.84 ± 22.23	36.16 ± 23.96	0.355

** P < 0.05 significance Level.

Was clear decrease of all features after the first cycle of the QT, in addition to significant differences of scores: fatigue (p = 0.003), nausea (p = 0.000 <), insomnia (p = 0.042) and diarrhea (p = 0.006), with reduction in HRQOL post-chemotherapy.

Table 2 describes the HRQOL separated by chemotherapy Protocol, having the medium (M) and standard deviations (SD) functions and signs and symptoms arising from QLQ-C30.

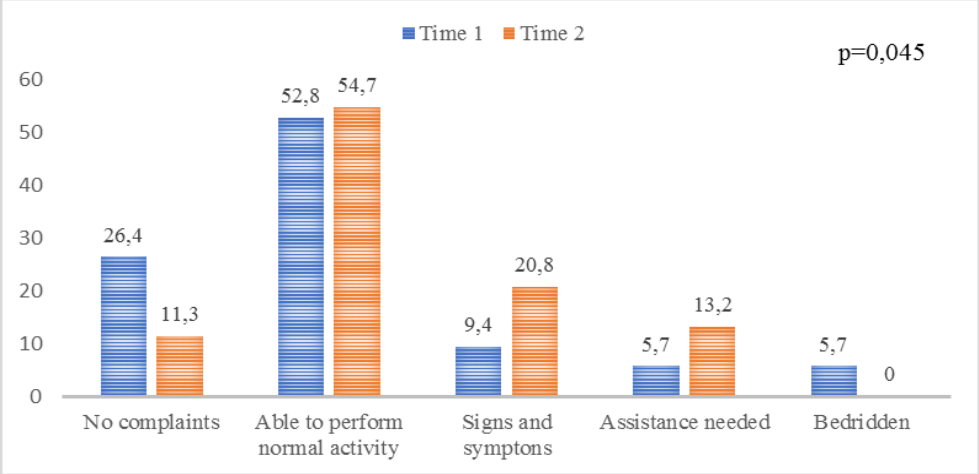
Table 2. Scores of health-related qualities of life according to the chemotherapy Protocol. CACON-HUB-Brasilia 2015.

	PLACITAXEL	CARBO + PLACITAXEL	OTHER	
	M ± SD	M ± SD	M ± SD	P Value
FEATURES				
Physical Functioning (FF)	57.50 ± 24.32	62.54 ± 20.59	64.58 ± 31.24	0.641
Activity performance (of)	56.25 ± 33.81	61.11 ± 29.96	55.20 ± 33.17	0.910
Emotional Functioning (FE)	44.79 ± 32.47	61.11 ± 28.42	46.35 ± 34.01	0.210
Cognitive Functioning (FC)	**71.87 ± 28.36**	**90.83 ± 12.65**	**69.79 ± 28.68**	**0.025 ****
Social Functioning (FS)	31.01 ± 73.95	82.53 ± 26.07	68.75 ± 30.95	0.327
SIGNS AND SYMPTOMS				
Fatigue	52.08 ± 34.11	51.66 ± 18.82	47.22 ± 32.07	0.925
Nausea	66.66 ± 27.21	62.69 ± 26.30	65.62 ± 23.14	0.939
Pain	76.04 ± 35.98	65.00 ± 28.98	58.33 ± 28.54	0.126
Dyspnea	**79.16 ± 26.87**	**76.19 ± 28.17**	**54.16 ± 36.26**	**0.040 ****
Insomnia	37.50 ± 45.33	44.44 ± 28.54	56.25 ± 35.93	0.259
Appetite	64.58 ± 30.95	69.84 ± 31.45	52.08 ± 34.35	0.284
Constipation	66.66 ± 40.36	85.71 ± 24.88	79.16 ± 31.91	0.365
Diarrhea	83.33 ± 21.08	82.54 ± 24.98	89.58 ± 20.06	0.562
Financial difficulty after QT	79.16 ± 31.91	76.19 ± 26.12	72.91 ± 27.80	0.595
Global QOL	39.58 ± 25.18	37.70 ± 21.50	39.58 ± 21.40	0.973

** P < 0.05 significance Level.

According to table 2, the cognitive functions (FC) of patients achieved a reduction of mean values and standard deviation, i.e. greater weakness of the clinical picture. The Protocol of carboplatin and paclitaxel achieved a score of 90.83, which showed, in this respect, a positive impact, IE not debilitating. Most patients presented dyspnea, protocol-independent of QT, however the Protocol therapy is the paclitaxel utico has obtained the greatest potential to manifest it.

Chart 1. Functional capacity before and after the first cycle of chemotherapy, according to the Karnofsky performance Scale.



In relation to the Karnofsky performance Scale, we can see that, on the first day, 26.4% (n = 14) did not present complaint, however, this average decreased to 11.3% (N = 6) soon after the first infusion. About the performance of the activities, initially, 52.8% (N = 28) have reported being able to lead a normal life, having increased to 54.7% (N = 29) after the first cycle. In the first cycle 9.4% (N = 5) of the patients had any sign or symptom of the disease, which increased significantly in the second cycle of QT to 20.8% (N = 11).

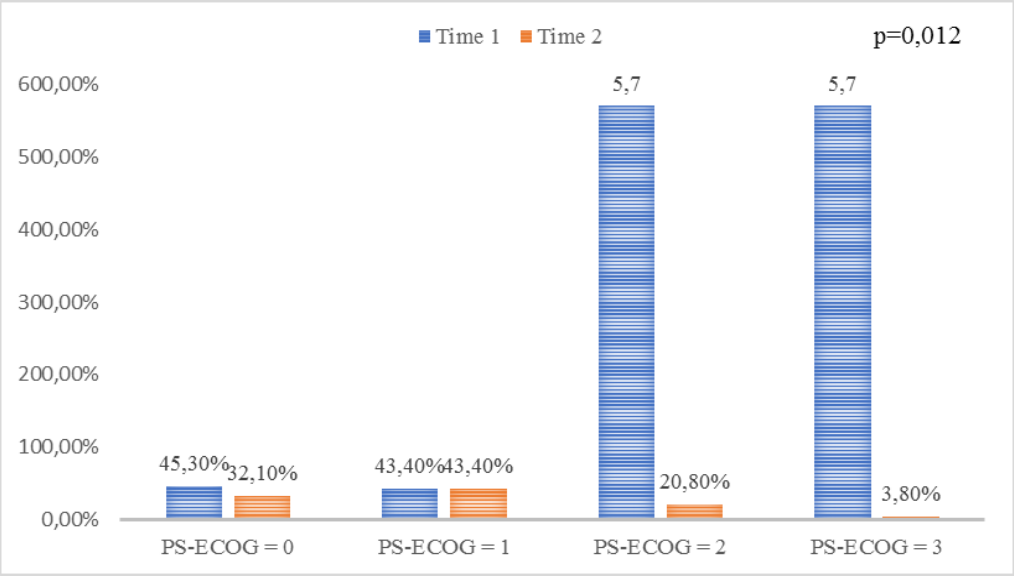
In relation to the overall assessment of Karnofsky, one can realize that, between the first

and second cycles, there has been a significant worsening about functional impairment (p = 0.045) of patients according to Chart 1. On the first day, 5.7% (N = 3) needed inpatient, whose index rose to 13.2% (N = 7). Already the average patients who were bedridden rose from 5.7 to 0.

As exposed in Chart 2, the evaluation before the first infusion of QT, 45.3% (N = 24) were PS-ECOG = 0, i.e. were asymptomatic, while 43.4% (N = 23) presented symptoms but were its activities normally (PS-ECOG = 1). The rest classified as PS-ECOG = 2, for 5.7% (N = 3) needed more frequent; ambulatory attendance and 5.7% (N = 3) classified with PS-ECOG = 3 as were patients who needed to stay more than 50% of the time in bed.

After evaluation, the results showed a decrease in the number of asymptomatic patients: 32.1% (N = 17) had PS-ECOG = 0, 43.4% (N = 23) stayed with PS-ECOG = 1; and 3.8% (N = 2) with PS-ECOG = 3. There has been an increase in the number of patients who needed outpatient care more often PS-ECOG = 2 (20.8%; N = 11). In General, one can see a significant (p = 0.012) in the functional performance of the patient, according to the Chart 2.

Graph 2. Functional capacity before and after the start of chemotherapy according to Performance Status-Eastern Cooperative Oncology Group (ECOG PS).



In relation to the Kappa coefficient (0.178) of responses, it appears that there is a significant result (p = 0.048), especially when it scans the prechemotherapy moment in the implementation of the PS-ECOG and KPS. Now we have post chemotherapy p 0.000 and Kappa < = 0.388 which, according to the rating denotes a slight agreement on some points of both scales.

DISCUSSION

The average age of the participants, 56 patient's years corroborates with the fact of aging associated with a higher incidence of cancer, while the less efficient cell repair with the advancement of age[12]. The female predominance is due by greater female life expectancy and higher male mortality rate[13].

The low educational level presented by patients is compatible with the average schooling for the Brazilian population of the same age group, being a factor of concern due to the relationship between low educational level and decrease in QV, as well as less access to health services for the same population. Income and occupation variables are consistent with those presented by the Brazilian population. In relation to the prevalence of cancers, breast cancer showed higher incidence following the national average and the Federal District, as the higher incidence among women[14].

As for the staging, no evidence found in specialized literature for the most common type.

The most prevalent protocols of QT match the most commonly used protocols for breast cancer[15]; assuming the research used only protocols having taxanos, it expected that the most prevalent type of cancer influence directly the most prevalent Protocol.

Analyzing the table 1, you can see a prejudice on HRQOL of patients. In all the features analyzed, there were losses measured, showing that, after the first cycle, it is possible to realize the negative changes that the chemotherapy treatment gave and how these changes occurred holistically. When the functional losses related signs and symptoms with the mechanism of action of chemotherapy, it becomes possible to draw a parallel between the lack of specificity of the antineoplastic agents by tumor cells and the signs and symptoms. Symptoms such as nausea, pain, fatigue, show that, in addition to the attack on the tumor cells, other healthy cells also undergo action of antineoplastic agents[6].

Table 2 describes the HRQOL separated by chemotherapy Protocol. Worst-hit was the functionality of the cognitive field (cognitive function). Cognitive functions present intrinsic elements related to educational levels and high IQ, depression, traumatic injuries, and genetic and extrinsic, linked to attention, concentration, executive function, language, motor function, learning and memory[16].

The dyspnea was a given common especially in therapeutic Protocol of Paclitaxel. Its causes are multifactorial with onset of symptoms such as shortness of breath, chest tightness, suffocation, and it is important that your early detection to prevent progression to Acute respiratory failure[17].

According to the literature, the low score on the Karnofsky performance Scale strongly associated with death within a brief period. However, although the result you have considerable validity as an indicator of functional condition of patient with cancer and other chronic diseases, this not used as a specific flag of death[18].

In relation to PS-ECOG scale, your use as a predictor of death does not find scientific justification. So, as on the Karnofsky, greatest scientific evidences found to use the PS-ECOG scale to evaluate the performance in daily activities and injury in the performance of these activities by harms health[5].

The study showed that participants have suffered loss in functional capacity even with only one cycle of QT. Other studies highlight the worsening feeling of functional ability in short by patients using chemotherapy[19].

In addition to confirming the loss in functional role, it is important to know what are the factors that cause the decrease. Physiological changes resulting from QT as nausea, vomiting, fatigue, pain, dyspnea, insomnia, constipation, diarrhea and psychoemotional factors singled out as the cause of the decrease[5,15].

It is possible to associate changes in self-care, loss of autonomy, social isolation, loss of identity, anguish, emotional damage, and psychosocial changes with the loss of functional independence[5]. Given this, it is possible to relate the loss of functional ability with the significant reduction in HRQOL, thereby proving the importance of functional assessment coping with cancer.

It considered as a limitation of this study, the reduced sample of patients, as well as the choice of patients with diverse types of cancer and in distinct staging of the disease, and the different time intervals between the 1 and 2the cycle of chemotherapy and, so, in the range for data collection.

It believed that the assessment of HRQOL in patients with the same type of cancer and disease would offer more reliable results, but considering the field available for research, if they proved these criteria, there would be an important sample in composition of this study. Nevertheless, the findings corroborate the literature, proving the importance of studies that find the influence of QT on HRQOL effects as well as the functional ability of cancer patients.

FINAL CONSIDERATIONS

This study, conducted with patients in chemotherapy treatment, showed that there was prejudice in the conduct of daily activities and the consequent reduction in functional role on the part of the participants, in addition to a clear reduction in HRQOL, showing, thus, the evaluation goals covered.

On the impacts of the chemotherapy treatment, functional ability and HRQOL, is clear the relevance of the work of health professionals in the identification and proper management of the side effects of treatment. For this identification is possible, the professional should complement your practice knowledge based on evidence, such as the application scales and questionnaires (Karnofsky performance Scale, PS-EORTC-QLQ-ECOG, C30, among others), since these instruments make it possible to obtain data to help the professional in the systematization of the work process, resulting in a customized and targeted care to manage the signs and symptoms the patient manifests.

Assess aspects of the lives of cancer patients is challenging. It hoped that this study open possibilities for the inclusion of evaluation tools work of teams that serve cancer patients in chemotherapy treatment, aiming at a better adherence to the proposed treatments and better HRQOL.

It suggested to conduct other studies which propose to research the impact of treatment with other classes of antineoplastic in HRQOL, functional and ability as well as conduct studies covering the promotion of the quality of life of cancer patients.

AVALIAÇÃO DA QUALIDADE DE VIDA E CAPACIDADE FUNCIONAL DE PACIENTES COM CÂNCER EM TRATAMENTO QUIMIOTERÁPICO

RESUMO

O presente estudo teve como objetivo avaliar a qualidade de vida relacionada a saúde (QVRS) e mensurar a capacidade funcional de pacientes com câncer nos momentos pré e pós-quimioterapia (QT). Trata-se de um estudo de coorte, com abordagem quantitativa, realizado de janeiro a março de 2015 em um ambulatório de QT de um hospital universitário do Distrito Federal, contemplando uma amostra de 53 indivíduos. Os participantes foram entrevistados em dois momentos, acompanhando, respectivamente, o primeiro e segundo ciclos da QT, durante os quais foram aplicados o protocolo *Quality of Life questionnaire-core 30* e as escalas de avaliação da capacidade funcional *Performance Status* e Escala de Desempenho de *Karnofsky*. Os resultados evidenciaram a diminuição de todas as funcionalidades após o primeiro ciclo da QT, além de diferenças significativas dos escores de: fadiga (p=0,003), náusea (p=<0,000), insônia (p=0,042) e diarreia (p=0,006), havendo um aumento significativo da ocorrência de sinais e sintomas entre o primeiro e o segundo ciclo de QT, de 9,4% para 20,8%. Neste intervalo, também foi constatada piora significativa no que diz respeito ao comprometimento funcional dos pacientes (p=0,045). Os resultados evidenciaram a necessidade de se observar o impacto na QVRS desde o início do tratamento quimioterápico.

Palavras-chave: Neoplasias. Quimioterapia. Sinais e sintomas. Atividades cotidianas. Qualidade de vida.

EVALUACIÓN DE LA CALIDAD DE VIDA Y CAPACIDAD FUNCIONAL DE PACIENTES CON CÁNCER EN TRATAMIENTO QUIMIOTERAPÉUTICO

RESUMEN

El presente estudio tuvo como objetivo evaluar la calidad de vida relacionada a la salud (CVRS) y medir la capacidad funcional de pacientes con cáncer en los momentos pre y post-quimioterapia (QT). Se trata de un estudio de cohorte, con abordaje cuantitativo, realizado de enero a marzo de 2015 en un centro ambulatorio de QT de un hospital universitario del Distrito Federal-Brasil, contemplando una muestra de 53 individuos. Los participantes fueron entrevistados en dos momentos, acompañando, respectivamente, el primero y segundo ciclos de la QT, en que fueron aplicados el protocolo *Quality of Life questionnaire-core* 30 y las escalas de evaluación de la capacidad funcional *Performance Status* e *Escala Karnofsky*. Los resultados evidenciaron la disminución de todas las funcionalidades tras el primer ciclo de la QT, además de diferencias significativas de las puntuaciones de: fatiga (p=0,003), náuseas (p=<0,000), insomnio (p=0,042) y diarrea (p=0,006), hubo un aumento significativo de la ocurrencia de señales y síntomas entre el primero y el segundo ciclo de QT, de 9,4% para 20,8%. En este intervalo, también fue constatado un empeoramiento significativo en lo que dice respecto al comprometimiento funcional de los pacientes (p=0,045). Los resultados evidenciaron la necesidad de observarse el impacto en la CVRS desde el inicio del tratamiento quimioterapéutico.

Palabras clave: Neoplasias. Quimioterapia. Señales y síntomas. Actividades cotidianas. Calidad de vida.

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