

EPIDEMIOLOGICAL STUDY AND LEVEL OF KNOWLEDGE OF ONCOLOGIC PATIENTS ABOUT ORAL MUCOSITIS AND LASERTHERAPY

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ABSTRACT

This study analyzed the epidemiological profile and the level of knowledge about oral mucositis and laser therapy in a population who performed chemotherapy treatment in a public health service (CICAN-BA) for the years of 2014 and 2015. Fifty handbooks analyzed and questionnaires applied to verify the patient's perception. In addition, examination of the oral cavity has allowed us to identify injuries resulting from side effects of chemotherapy on the oral mucosa. Seventy two per cent of the patients were female and the most prevalent type of cancer was breast cancer (62.06%). About 50% of patients only concluded elementary School and 42% had family income corresponding to the minimum wage. T2 and T4 tumors were more prevalent (72.21%). The oral examination revealed a higher frequency of periodontal disease and carious lesions (51.72%). To assess knowledge, 78% could not conceptualize mucositis and 72% did not use the laser as adjuvant therapy. The data indicate that most users of CICAN-BA are individuals of low income and education level, justifying the lack of understanding about cancer and its therapeutic approaches.

Keywords: Epidemiology. Stomatitis. Neoplasms. Unified Health System.

INTRODUCTION

The cancer is genetic disease, which has considered a public health problem, due to the increased incidence in Brazil⁽¹⁾. The most effective conduits for destruction of tumor cells are still the chemotherapy and radiotherapy, which represent treatment options offered to cancer patients by both private and public institutions. The diagnosis and antineoplastic therapy determine social, economic repercussions, physical, emotional, psychological and sexual, and the main parameters used in the evaluation of the results of antineoplastic therapy are the disease-free survival and overall survival. More recently, this includes the analysis of the quality of life as a relevant criterion in assessing the impact of anticancer treatment⁽²⁾.

The diagnosis and treatment of cancer are associated with considerable psychological effects, which vary according to socio-economic and cultural determinants of every individual. Frames are reported depression, anxiety, suicidal ideation,

insomnia and fear that include from the abandonment by family and friends until the possibility of tumor recurrence and death. This framework can contribute to a negative perception of the quality of life and thus interfere with the evolution of treatment⁽³⁾. In this way, the quality of life is an important factor considered to assist doctors and patients to decide the most appropriate therapy adopted.

The perception of the patient regarding disease represents a factor of great importance for coping and acceptance of clinical condition and consequent anticancer treatment⁽⁴⁾. Often, there is also ignorance about possible minor changes to the use of chemotherapy and side effects from radiotherapy, Mucositis oral (MO).

MO is an acute mucosal inflammatory response that can develop using antineoplastic drugs and that if manifest with ulceration associated with complaint of pain, which makes it impossible to feed patients and often requires use of painkillers⁽⁵⁾. The oral mucositis negatively affects quality of life and can reduce the tolerance the patient to cancer

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treatment⁽⁶⁾.

The therapeutic approach of Mucositis oral, it has been widely used, although some patients do not know the effects of this tool about your oral health, in particular the benefits generated from your clinical use of oral mucositis. It has a fotobiomodulador effect and is able to decrease the pain, in addition to controlling inflammation. The ability to modulate a series of metabolic events through fotofísicos and biochemical process justifies the employment of this therapeutic modality⁽⁷⁾.

Epidemiological studies of users of public institutions of reference to treatment of cancer show a strong relationship between the presence of neoplasms and the low educational level, lower social class, lack of access to information and to health⁽⁸⁾. Another important factor for the development of cancer is age. The incidence rates of all cancers combined grow exponentially with age between 10 and 84 years⁽⁹⁾.

The present study aimed to analyses the epidemiological profile of the population of users who performed chemotherapy treatment in CICAN in 2014 and 2015 and verify the perception of these patients about disease, oral mucositis and development of low-power laser treatment. Additionally, examination of the oral cavity in search of lesions resulting from adverse effects from chemotherapy on oral mucosa with emphasis on developing mucositis.

METHODOLOGY

This was a cross-sectional study whose population sample included patients with malignant neoplasms, obtained from the Sistema Único de Saúde and CICAN users. In the State of Bahia, the State Centre of Oncology (CICAN) is one of reference centers for the treatment of cancer that integrates the unified health system (SUS). Its mission is to prevent, diagnose early, treat, rehabilitate and develop actions of teaching and research in Oncology in SUS network in the State of Bahia.

Fifty patients were interviewed users of the reference center, between 2014 and 2015. Of these, 29 have submitted data for the classification of neoplasia underwent physical examination of the oral cavity; however, only 17 had complete records with information about the staging and graduation of the tumor and medications used in the infusion,

which constituted the sample.

As a tool for data collection used, a standardized plug that added individual socio-demographic information (gender, age, date and place of birth, color of skin, education) and family (family income, family history) and health of the patient (presents other changes). In addition, asked participants the degree of knowledge about neoplasia, oral mucositis and adjuvant therapy with low-power laser.

From the analysis of complete charts, data collected regarding the type of neoplasm, graduation, staging and proposed treatment (chemotherapy, radiation therapy, or both). Such information was stored in a standard Excel spreadsheet.

In order to follow the development of oral mucositis, a form for registration of possible signs and symptoms delivered to patients so that they could take notes of initial clinical manifestations of the disease. To keep control as to the appearance of the first injuries, the researchers kept in touch with patients every three days after chemotherapy.

Descriptive statistics held of the studied variables and values presented as a percentage.

This study submitted to the Research Ethics Committee of the School of medicine and public health of Bahia, Salvador, Bahia, and pass through the protocol number 46909315.1.0000.0047.

RESULTS AND DISCUSSION

The 50 patients in the study were age ranged from 32 to 83 years, mean of 57.1 years, with the majority (72%) female (table 1). More than half (54%) were married, half-attended elementary school and only 6% have completed higher education.

The most prevalent Neoplasms were breast cancer (62%), prostate and stomach (both with 10%) and cervical cancer (7%). Three patients were graduates with distant metastasis (table 2). Regarding the staging of malignant tumors, a patient presented the T1, T2 and graduation three had five and eight individuals with staging indicative of T3 and T4 respectively. Finally, 10 individuals had metastasized and six regional metastasis at distance. Only four individuals not met.

Table 1. Socio-demographic characteristics of the study population.

Variables	n	%
Sex		
Male	14	28

Female	36	72
Marital Status		
Married	27	54
Single	18	36
A widower	5	10
Schooling		
Elementary School	25	50
First Degree	6	12
Second Degree	11	22
Technical Course	3	6
Higher Education	3	6
Not studied	1	2
Not declared	1	2
Family Income		
Up to 1 minimum wage	21	42
1 to 2 minimum wages	10	20
2 to 5 minimum wages	12	24
Has no income	4	8
Not declared	2	4
It is unknown	1	2
Self-perception of color		
Black	16	32
White/Yellow	7	14
Brown	25	50
Indigenous	1	2
Not declared	1	2
Total	50	100

The number of new cancer cases estimated to 2014/2015, according to data from the National Cancer Institute (INCA), is approximately 576,000, including cases of melanoma skin cancer, which is the biggest incident to both sexes (182,000 new cases), followed by female breast (75000), prostate (69000), colon and rectum (33000), Lung (27000), stomach (20000) and cervix (15000). These data indicate that breast cancer is second in incidence of new cases. The results of this study confirm greater numbers of women composed this percentage since the sample and these showed this kind of neoplasia⁽⁹⁾.

However, it is still apparent that men have a certain resistance to seek health services, especially for socio-cultural issues. This condition may justify the fact usually a smaller number of men participate in epidemiological surveys, the example of what was done at CICAN-BA. Moreover, women tend to be more careful and attentive to their health⁽¹⁰⁾.

According to estimates for the year 2014, Brazilian demographic profile changes in recent years, called "ageing of the population, with the increase in life expectancy. In this way, there was a significant change in the profile of morbidity and mortality, decreasing the occurrence of infect-contagious diseases and chronic degenerative diseases as the new center of attention the problems of disease and death of the Brazilian population.

There seems to be a relationship between the development of breast and prostate cancer and aging. It estimated that between 10 to 85 years the risk of cancer increases exponentially⁽⁹⁾. The data of this research revealed that the average age of individuals who sought the CICAN-BA was 57.1 years. This result may reflect the statistics cited, but can also hide an even more cruel reality, namely, that the diagnoses of cancer in Brazil still carried out belatedly.

Table 2. Neoplasia-related variables and oral amendments found

Variables	N	%
Type of neoplasm		
Breast cancer	18	62.06
Prostate cancer	3	10.34
Uterine cancer	2	6.89
Gastric cancer	3	10.34
Metastasis	3	10.34
Total	29	100.0
Degree of tumor		
T1	1	5.55
T2	5	27.77
T3	3	16.66
T4	8	44.44
Total	17	100.0
Staging		
Without metastasis	4	22.22
Regional metastasis (N)	10	55.55
Distant metastasis (M)	6	33.33
Total	20	100.0
Oral changes		
Cariou lesions	5	17.24
Periodontal lesions	10	34.48
Opportunistic infections	2	6.89
Hyperplasia's	1	3.44
Oral mucositis	1	3.44
Not held	7	24.13
Without changes	6	20.68
Total	29	100.0

According to the family income, 42% (n = 21) of the sample had income of up to one minimum wage, representing the highest percentage found. 20% (n = 10) from 1 to 2 MW and 24% (n = 12) of 2 to 5 minimum wages. Like most, 8% of respondents (n = 4) stated do not have income 4% (n = 2) chose not to inform and 2% (n = 1) I could not answer this question (table 1). With regard to self-perception of skin color, most patients designated brown, corresponding to 50% (n = 25) of the final sample evaluated 32% (n = 16) black, 14% (n = 7) whites, 2% (n = 1) and 2% (n = 1) chose not to declare.

The high rate of patients who had just attended the elementary school and with monthly income of minimum wage found confirmed the similar epidemiological study involving users from public

institutions. The authors reported there is a strong relationship between the presence of neoplasms and the low degree of education, low social class, and lack of access to information and to health⁽⁸⁾. In fact, the diagnosis and treatment of cancer can vary according to socio-economic and cultural determinants of every individual^(3,8). Another study also States that the lower the level of education, the greater the risk of Advanced diagnosis of tumors⁽¹¹⁾.

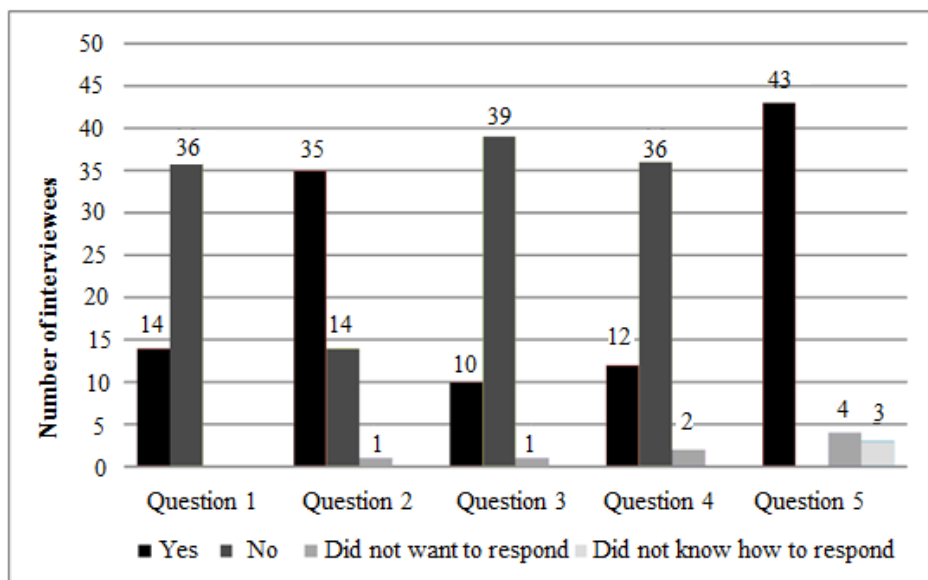
Most of the patients who participated in this inquiry in CICAN-BA self-declared blacks and Browns (82%). In study, epidemiological factors evaluated previously related to breast cancer, emphasizing that the variable race/color used as a marker of demographic health inequalities to which social groups are exposed⁽¹²⁾. Thus, this variable used as a social marker related to the environmental factors to which women exposed than to genetic factors.

Are scarce studies on self-perception of health among the elderly that administrators will explain a

model that combines age, sex, family arrangement, education, income, diseases and functional capacity, especially in developing countries, as is the case of Brazil⁽¹³⁾. This condition brings out the importance of the analysis of the variables used in this study and the relationship with the data found, showing a significant interaction.

When it investigated the understanding of the term neoplasm, 72% (n = 36) of patients denied understand your meaning (graph 1), 70% (n = 35) believed that the treatment with chemotherapy could cause some kind of change in the body, and 78% (n = 39) did not know what the oral mucositis meant, 20% (n = 10) claimed meet the mucositis and 2% (n = 1) didn't want to answer. As for the understanding of it, 72% (n = 36) of respondents claimed not to understand the laser treatment, 24% (n = 12) responded that they understood the mechanism of action of laser and 4% (n = 2) not opined. Finally, 86% (n = 43) finds this very important therapeutic modality.

Chart 1. Percentage of patients who responded to the questions: (1) understand what the word means "neoplasm"? (2) Believes that the treatment for cancer can affect your body in any way? (3). You know what oral mucositis is? (4) Do you know what laser therapy is? In addition (5). You think that is important the laser treatment?



When asked about the benefits of the laser for your organism, 70% (n = 35) claimed to believe that the use of this therapy could improve your health and 30% (n = 15) I could not answer. There was, therefore, a relationship directly between the perception of the disease by the patient and the knowledge of the neoplasm, by means of questions,

and the variables associated with education and socioeconomic level. Epidemiological study confirms this close relationship when assessing the knowledge about HPV and these same variables corresponding to the sample⁽⁸⁾. Thus, the present study showed that the highest percentage of the determinants of family income and education were

related to income up to 1 minimum wage and people who completed elementary school, justifying, possibly the ignorance of terms, such as neoplasm and Mucositis oral, although these patients are included in the public health service and an understanding of the cancer from the clarifications provided by health professionals.

In this same context, the importance of understanding of patients in relation to the neoplasm has been explained in a paper that States that the need for secure communications and enlightening, adapting the transmitted information to the specific needs of each patient into the reality of your life and your way of coping, is of the utmost importance on the quality of life of these patients⁽¹⁴⁾.

In the present study, the approach results in relation to inquiries made about it suggest conflicts. Most patients do not understand the therapeutic modality, although believe your benefit when implemented. In a meta-analysis which brought together several studies on the application of laser in controlling Mucositis oral, efficacy was observed in case groups (patients who received it) and control (patients who received the laser with the appliance off) in some selected studies, suggesting that patients of the control group believed in the benefits and had positive expectations about the implementation of it for an improvement in the quality of life, corroborating with good results, indicating probably a placebo effect⁽¹⁵⁾. By analyzing the results of this study, even unaware of it, patients also believed in the importance of technique and in contributing to the improvements during cancer treatment.

Theoral examination, it was found that five patients (17.24%) had clinically visible carious lesions and 10 (34.48%) exhibited periodontitis. Other changes identified were candidiasis (two cases), fibroepithelial hyperplasia (a) and oral mucositis (a). Points out those seven patients failing oral examination and six attended with clinically apparent oral amendments.

The recurrent oral manifestations during chemotherapy treatment are the Mucositis oral, opportunistic infections, dry mouth and bleeding gums⁽¹⁶⁾. In a paper on the changes of oral chemotherapy, oral mucositis was the manifestation of a higher incidence in patients undergoing chemotherapy, oral treatment effects⁽¹⁷⁾. In the present study, the mucositis represented the lowest

percentage of oral lesions found.

The drugsadminister in chemotherapy can have a decisive impact on the development of oral lesions, in particular, of oral mucositis⁽¹⁸⁾, seen that some medicines are more stomatotoxic than others, providing the appearance of a large number of side effects. Among these drugs, fluorouracil, which can increase the occurrence of this type of injury when combined with another drug.

In relation to most chemotherapy drugs administered, six patients used cisplatin, Adriamycin, two three cyclophosphamide and two, the fluorouracil. Highlights that in 65.55% (n = 19) of the sample were used drugs whose records were not specified in the charts at the time of inspection of these. In the sample of this study, the low incidence of mucositis can be explained by the fact that the majority of patients are on maintenance phase and the reduced use of fluorouracil in patients with breast cancer, this being the most representative neoplasia in this study.

FINAL CONSIDERATIONS

The present study carried out in a specific Cancer Treatment service of the unified health system (SUS) in the State of Bahia and its results suggest that users are in your most individuals with low income and education level. This seems to justify the lack of understanding about cancer and its therapeutic approaches. In particular, it observed the unknowing participants in terms of developing Mucositis oral quimioinduzida and the use of adjuvant therapies such as laser therapy, for example. Although report believe that it can be beneficial for the treatment of your medical condition, you did identify the mechanism of action. In addition, the oral lesion most commonly found in the population of the study was to periodontitis, which suggests the emphasis on general health care of oncological patient, to the detriment of oral health. Thus, the highest percentage of late metastasis detected in this research may indicate that early diagnosis of cancer still represents a huge challenge for public health services in the country.

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ESTUDO EPIDEMIOLÓGICO E NÍVEL DE CONHECIMENTO DE PACIENTES ONCOLÓGICOS ACERCA DA MUCOSITE ORAL E LASERTERAPIA

RESUMO

O presente estudo objetivou analisar o perfil epidemiológico e o nível de conhecimento acerca da mucosite oral e laserterapia de uma população que realizou tratamento quimioterápico em um serviço público de saúde (CICAN-BA) nos anos de 2014 e 2015. Foram analisados 50 prontuários e aplicados questionários semiestruturados a fim de verificar a percepção dos pacientes. Adicionalmente, o exame da cavidade bucal permitiu identificar lesões resultantes dos efeitos adversos da quimioterapia sobre a mucosa oral. Observou-se que a maioria dos pacientes era do sexo feminino (72%) e o tipo de câncer mais prevalente foi o de mama (62.06%). Cerca de 50% dos pacientes possuíam apenas o Ensino Fundamental e 42% tinha renda familiar correspondente a um salário mínimo. Nessa amostra, constatarem-se maiores percentuais de tumores graduados como T2 e T4 (72.21%). O exame bucal evidenciou maior frequência de periodontopatias e lesões cáries (51.72%). Ao avaliar o conhecimento, 78% não souberam conceituar a mucosite e 72% desconheciam o uso do laser como terapia adjuvante. Logo, os dados indicam que a maioria dos usuários do CICAN-BA é de baixa renda e baixo nível de escolaridade, fato este que pode justificar a falta de compreensão acerca do câncer e de suas abordagens terapêuticas.

Palavras-chave: Epidemiologia. Estomatite. Neoplasias. Sistema Único de Saúde.

ESTUDIO EPIDEMIOLÓGICO Y NIVEL DE CONOCIMIENTO DE PACIENTES ONCOLÓGICOS ACERCA DE LA MUCOSITIS Y LASERTERAPIA

RESUMEN

Este estudio tuvo como objetivo analizar el perfil epidemiológico y el nivel de conocimiento sobre la mucositis oral y laserterapia de una población que llevó a cabo el tratamiento de quimioterapia en un servicio de salud pública (CICAN-BA) en los años 2014 y 2015. Se analizaron 50 registros médicos y se aplicaron cuestionarios semiestructurados para verificar la percepción de los pacientes. Además, el examen de la cavidad bucal nos ha permitido identificar las lesiones resultantes de los efectos adversos de la quimioterapia en la mucosa oral. Se observó que la mayoría de los pacientes era del sexo femenino (72%) y el tipo más frecuente de cáncer fue el de mama (62.06%). Un 50% de los pacientes poseían solo estudios primarios y el 42% tenía ingreso familiar correspondiente a un salario mínimo. En esta muestra, se encontró un mayor porcentaje de tumores graduados como T2 y T4 (72.21%). El examen bucal reveló una mayor frecuencia de las enfermedades periodontales y las lesiones cariosas (51.72%). Al evaluar los conocimientos, el 78% no supo conceptualizar la mucositis y el 72% desconocían el uso del láser como terapia adyuvante. Así, los datos indican que la mayoría de los usuarios del CICAN/BA tiene bajos ingresos familiares y nivel de educación, lo que puede justificar la falta de comprensión sobre el cáncer y sus enfoques terapéuticos.

Palabras clave: Epidemiología. Estomatitis. Neoplasias. Sistema Único de Salud.

REFERENCES

1. Pozer MZ, Silva TA, Regino PA, Fernandes Junior PC, Silva SR. Sinais e sintomas de mielodipressão por quimioterapia no domicílio, entre portadoras de câncer ginecológico. *Cienc Cuid Saúde*. 2012; 11(2):336-42.
2. Freire MEM, Sawada NO, De França ISX, Da Costa SFG, Oliveira CDB. Qualidade de vida relacionada à saúde de pacientes com câncer avançado: uma revisão integrativa. *Rev Esc Enferm USP*. 2014; 48 (2):357-67.
3. Da Silva JA, Hansel CG, Da Silva J. Qualidade de vida na perspectiva de idosos com câncer: implicações para enfermagem na atenção básica. *Rev Enferm UERJ*. 2016; 24(3):e9321.
4. Botelho ASC, Pereira MG. Qualidade de vida, otimismo, enfrentamento, morbidade psicológica e estresse familiar em pacientes com câncer colorrectal em quimioterapia. *Estud Psicol. (Natal)* [online]. 2015; 20(1):50-60.
5. Trotti A, Bellm LA, Epstein JB, Frame D, Fuchs HJ, Gwede CK, et al. Mucositis incidence, severity and associated outcomes in patients with head and neck cancer receiving radiotherapy with or without chemotherapy: a systematic literature review. *Radiother Oncol*. 2013; 66(3):253-62.
6. Al-Dasooqi N, Sonis ST, Bowen JM, Bateman E, Blijlevens N, Gibson RJ, et al. Emerging evidence on the pathobiology of mucositis. *Support Care Cancer*. 2013; 3233-41.
7. Medeiros NJS, Medeiros NFS, Santos CCM, Parente GVV, Carvalho JN. Laser de baixa intensidade na mucosite oral quimioinduzida: estudo de um caso clínico. *Braz J Otorhinolaryngol*. 2013; 79(6):792-2.
8. Kakagia D, Trypsiannis G, Karanikas M, Mitrakas A, Lyrtzopoulos N, Polychronidis A. Patient-related delay in presentation for cutaneous squamous cell carcinoma. A cross-sectional clinical study. *Oncol Res Treat*. 2013; 36(12):738-44.
9. Facina T. Estimativa 2014: incidência de Câncer no Brasil. *Rev Bras Cancerol*. 2014; 60(1):63.
10. Knauth DR, Couto MT, Figueiredo WS. A visão dos profissionais sobre a presença e as demandas dos homens nos serviços de saúde: perspectivas para a análise da implantação da Política Nacional de Atenção Integral à Saúde do Homem. *Cienc Saúde Coletiva*. 2012; 17(10):2617-26.
11. Albrecht CAM, Amorim MHC, Zandonade E, Viana K, Calheiros JO. Mortalidade por câncer de mama em hospital de referência em oncologia, Vitória, ES. *Rev Bras Epidemiol*. 2013; 16(3):582-91.
12. Medeiros GC, Bergmann A, Aguiar SS, Thuler LCS. Análise dos determinantes que influenciam o tempo para o início

do tratamento de mulheres com câncer de mama no Brasil. Cad Saúde Pública. 2015; 31(6):1269-82.

13. Pagotto V, Bachion MM, Silveira EA. Autoavaliação da saúde por idosos brasileiros: revisão sistemática da literatura. Rev Panam Salud Publica. 2013; 33(4):302-10.

14. Andrade CG, Costa SFG, Costa ICP, Santos KFO dos, Brito FM. Cuidados paliativos e comunicação: estudo com profissionais de saúde do serviço de atenção domiciliar. Rev Fund Care Online. 2017; 9(1):215-21.

15. Figueiredo ALP, Lins L, Cattony AC, Falcão AFP. Laser terapia no controle da mucosite oral: um estudo de metanálise. Rev Assoc Med Bras. 2013; 59(5):467-74.

16. Frazão COB, Alfaya TA, Costa RC, Rocha ML, Gouvêa CVD, Moraes AP. Pacientes oncológicos pediátricos: manifestações bucais da terapia antineoplásica. Saud Pesq. 2012; 5(3):587-92.

17. Velten DB, Zandonade E, Miotto MHMB. Prevalence of oral manifestations in children and adolescents with cancer submitted to chemotherapy. BMC Oral Health. 2017; 17:49.

18. Zheng S, Zhou S, Qiao G, Yang Q, Zhang Z, Lin F, et al. Pirarubicin-based chemotherapy displayed better clinical outcomes and lower toxicity than did doxorubicin-based chemotherapy in the treatment of non-metastatic extremity osteosarcoma. Am J Cancer Res. 2014; 5(1):411-22.

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