



Analysis of oral complications related to cancer therapy

Análise das complicações bucais relacionadas à terapia do câncer

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Abstract

Introduction: The side effects and adverse reactions related to cancer therapies may cause significant alterations in the oral cavity, discomfort or even severe pain in parts of the body, patient's nutritional deficiency, delay in the administration of oncologic drugs or dose limitation, an increase of hospitalization time and of the related expenses, as well as a decrease in the patient's quality of life. **Objective:** The purpose of this study was to determine the deleterious effects of cancer therapies in the oral cavity. **Material and methods:** Data was gathered from medical records of the treatment of 643 cancer patients at the São José Hospital, in Joinville, state of Santa Catarina, from January to September 2012. Among the records selected for this study, 59.41% were female patients, with a mean age of 51 to 60 years. **Results:** Oral complications were reported in 72.47% of the patients, and the complication with the highest prevalence was mucositis (14.62%) followed by dry mouth (10.58%). Most of the patients had not received dental care prior to the cancer treatment, and no dental record was found. **Conclusions:** Several different oral disorders were reported as a result of cancer treatment, and a significant number of patients needed dental evaluation prior to the treatment.

Keywords: Chemotherapy. Drug toxicity. Mouth. Neoplasm. Radiotherapy.

Resumo

Introdução: Os efeitos colaterais e as reações adversas relacionadas às terapias contra o câncer podem causar alterações significativas na cavidade oral e proporcionar desconforto ou mesmo dor nos locais de tratamento, carência nutricional do paciente, atraso na administração de medicamentos oncológicos ou de limitação de dose, aumento do tempo de internação e das despesas relacionadas, bem como uma diminuição da qualidade de vida do paciente. **Objetivo:** O objetivo deste estudo foi determinar os efeitos deletérios das terapias contra o câncer na cavidade bucal. **Material e métodos:** Os dados foram obtidos a partir dos prontuários de 643 pacientes que fizeram tratamento contra o câncer no Hospital Municipal São José, em Joinville, estado de Santa Catarina, de janeiro a setembro de 2012. **Resultados:** Nos registros do estudo, 59,41% eram pacientes do sexo feminino, com média de idade de 51 a 60 anos. As complicações bucais foram relatadas em 72,47% dos pacientes; a complicação de maior prevalência foi a mucosite (14,62%), seguida de xerostomia (10,58%). A maioria dos pacientes (71,85%) não havia recebido atendimento odontológico antes do tratamento do câncer. **Conclusão:** Diversos distúrbios bucais foram reportados como efeitos colaterais da terapia oncológica, e um número significativo de pacientes necessitou de avaliação odontológica antes do tratamento.

Palavras-chave: Quimioterapia. Toxicidade de drogas. Boca. Neoplasias. Radioterapia.

Introduction

The number of cases of malignant neoplasms has increased over the years, clearly indicating a major public health problem in developed and developing countries (1).

According to the population-based records of the Brazilian Cancer Institute (INCA) estimated up to 2012, the most common types of cancer prevalent in Santa Catarina State, not including non-melanoma skin cancer (the most common of all), are prostate, trachea and lung cancer in male individuals, and breast, uterus cervix cancer (2) in female individuals.

Among the available treatment options, only surgery is specific to cancerous tissue. Because radiotherapy and chemotherapy do not distinguish cancerous and normal cells (3), side effects and adverse reactions are inevitable. Approximately 70% of cancer cases are indicated for chemotherapy, and 60%, for radiotherapy (4, 5).

Side effects resulting from radiotherapy are related to total dose of radiation, fractionation plan, means of administration, extent and location of the area to be irradiated, quality and power of penetration of irradiation and individual variables of patients (6), whereas the side effects in patients undergoing chemotherapy depend on the chemotherapy agent itself, and on the dose administered and treatment duration (7). The parameters set for both radiotherapy and chemotherapy vary according

to gender, age and where the neoplasm is located (8-11).

Oral side effects may be observed during and after cancer therapy (12) in approximately 90% of patients with head and neck cancers, and in 40% of patients submitted to chemotherapy for the treatment of other cancers in other parts of the body. These oral side effects are divided broadly into acute and chronic, and further subdivided into mucositis, gingivitis, candidiasis, dry mouth, trismus, cavities, osteoradionecrosis, cellulitis, and mucosal rash (13).

In sum, cancer treatment and its oral complications may lead to discomfort and even severe pain in the injured part of the body, patient's nutritional deficiency, delay in the administration of oncologic drugs or dose limitation, increase of hospitalization time and the related expenses, as well as septicemia and life threatening diseases in some cases (14, 15).

Methods

This study was conducted at the oncology ward of the São José Hospital, in Joinville, state of Santa Catarina, Brazil, a reference hospital in the northern part of the state. Data was gathered from the medical records of 643 patients undergoing cancer treatment by radiotherapy, chemotherapy, surgery and/or associations of these, from January to September 2012.

The ages of the patients ranged from 9 to 95 years old, and the patients were organized into 10-year age intervals. They were then compared for disease prevalence, gender and age, and according to data of the cancer therapies administered.

All data collected were put in a protocol and then into a Microsoft Office Excel 2010 Spreadsheet. The data were then analyzed and distributed in separate spreadsheets to produce tables and graphs describing the results.

Results

From 643 selected medical records, 261 (40.59%) were male patients and 382 (59.41%) were female patients. In regard to age group, 10 patients were 0-20 years old (1.56%), 19 were 21-30 years old (7.31%), 47 were 31-40 years old (7.31%), 132 were 41-50 years old (20.53%), 159

(the largest group) were 51-60 years old (24.73%), 147 were 61-70 years old (22.87%), 89 were 71-80 years old (13.84%), 35 were 81-90 years old (5.44%), and 5 were over 91 years old (0.77%).

The mean age was 52 years. Table 1 shows the distribution of cases according to age bracket.

It was observed that 72.47% (n = 466) of the patients developed oral complications.

When analyzed separately, oral mucositis was the most frequent lesion among the oral manifestations, found in 14.62% of the cases (n = 94), followed by dry mouth in 10.58% of the cases (n = 68), and decrease in the sense of taste in 9.64% of the cases (n = 62).

Mucositis and dry mouth were the most frequent concomitant oral manifestations associated with cancer therapies (16.33%, n = 105). Table 2 shows all the acute oral complications observed according to the therapies administered.

Table 1 - Distribution of cases according to age

Patient age brackets (mean = 52 years.)	9-20	21-30	31-40	41-50	51- 60	61- 70	71-80	81-90	91-95
Number of cases (Total = 643)	10	19	47	132	159	147	89	35	5
Percentage (Total = 100%)	1.56	2.95	7.31	20.53	24.73	22.87	13.84	5.44	0.77

Source: Oncology sector, Hospital Municipal São José, Joinville (Santa Catarina state), Brazil.

From 643 medical records selected, 462 (71.85%) were of patients who had received no dental care prior to cancer therapies, and for whom no oral health information was reported (Figure 1).

Discussion

Side effects from cancer therapies have been the subject of many studies and affect patients

undergoing both radiotherapy and chemotherapy, with variations according to gender, age, injured part of the body and treatment duration (16). Special care must be provided to relieve the symptoms of these side effects and preserve the quality of life of these patients (10).

In our sample, the results for female patients (59.41%) contrasted with the results of the study by Bittencourt et al. (15), who found 24% of female patients in a group of 288 cases. In relation to age

Table 2 - Distribution of oral manifestations according to therapies administered

Reported oral manifestations	R	C	R/C	S/R/C	S/C	S/R	H	H/A	Number of cases	%
Mucositis	32	9	18	14	9	10	-	2	94	14.62
Dry mouth	15	7	16	11	5	9	2	3	68	10.58
Taste decrease	11	6	14	15	4	3	5	4	62	9.64
Candidiasis	6	3	10	3	1	4	-	-	27	4.20
Aphtha	2	5	3	5	-	3	1	-	19	2.96
Herpes	5	3	3	3	2	1	-	-	17	2.64
Trismus	6		4	3	1	-	-	-	14	2.18
Mucositis + Dry mouth	38	18	29	8	5	7	-	-	105	16.33
Mucositis + Dry mouth + Taste decrease	19	10	15	8	2	4	-	2	60	9.33
Not informed	-	-	-	-	-	-	-	-	177	27.52
Total informed	124	61	112	70	29	41	8	11	643	100

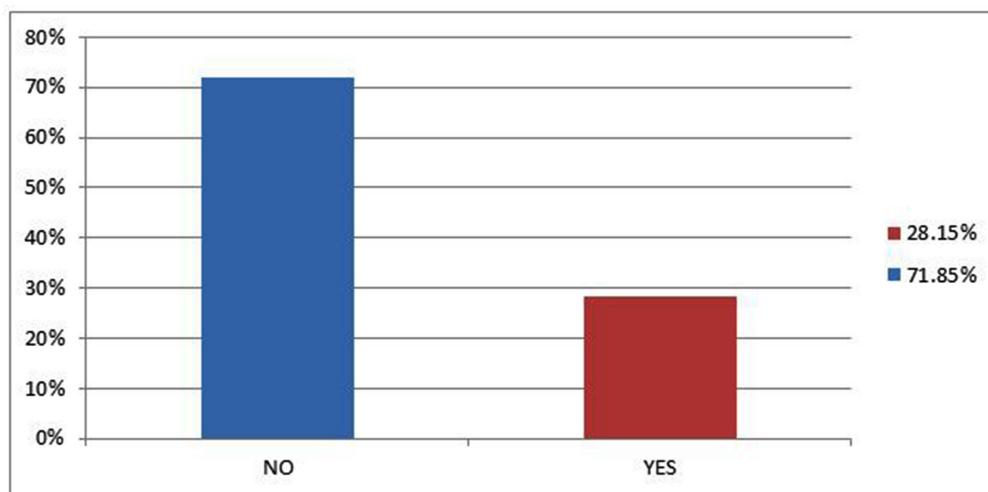
Source: Oncology sector, Hospital Municipal São José, Joinville (Santa Catarina state), Brazil.

group, our research corroborates the literature, which reports a higher incidence of cancer from the 5th decade on (8).

Cancer type and degree of malignancy, drug dose, radio- and chemotherapy duration and fractionation, age, and oral hygiene quality before and

after therapy are determinant factors for complication severity (12, 16, 17-20).

Mucositis is the most significant adverse effect related to radiotherapy to treat head and neck cancers (18-20). It is characterized by frequent and painful mucosal inflammation, which occurs 5 to

Figure 1 - Distribution of cases according to prior dental care.

Source: Oncology sector, Hospital Municipal São José, Joinville (Santa Catarina state), Brazil

7 days after cancer therapy (chemo/radio) and depends on the amount of tissue loss and pathogen aggression (12, 18).

In our study, 72.47% of the patients (n = 466) eventually had oral complications. When analyzed separately, the most frequent oral manifestations were oral mucositis (14.62%), followed by dry mouth (10.58%) and decrease in the sense of taste (9.64%). Mucositis was observed associated with other oral changes in 25.66% of the patients, contrasting with the rates of 28.6% (10), 42% (8), and 81.82% (14) reported by other studies.

There are few studies in the literature that evaluate an effective protocol for inhibiting or diminishing oral damage from cancer treatment. This damage, along with poor oral hygiene, may give rise to several lesions (4).

The dentist must be part of the multidisciplinary oncology team following up the patient, to provide proper dental evaluation. He should require the physician in charge to provide further information on the diagnosis of the neoplasm (12), its progression, overall health condition of the patient, and treatment being administered. According to Arisawa et al. (6), patients with cancer in parts other than the mouth seek a dentist only when an oral change is perceived.

In our study, 71.85% of the patients had received no dental treatment prior to cancer therapies, and no further information on the patient's oral health condition was provided.

A better quality of life should be the goal pursued by all of those participating in the treatment of a cancer patient (19).

Conclusion

Based on the results of this study, we can conclude that several different oral complications were observed in the population analyzed, and mucositis was the most frequent manifestation, whether associated to other lesions or not. There is no established protocol for dental evaluation in patients with cancer.

Knowledge of the cytotoxic severity of certain anti-cancer agents in the oral cavity reinforces the dentist's role in the multidisciplinary team for cancer treatment, whether in the initial phases of diagnosis or during the therapy itself.

There was no conflict of interest of any nature that could interfere in the results of the study.

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