Use of audiovisual media to enhance patients' knowledge regarding the oral adverse effects of oncology treatment

Uso de mídia audiovisual para aprimorar o conhecimento dos pacientes sobre os efeitos adversos orais do tratamento oncológico

Mailon Cury Carneiro[*]
Milenka Gabriela Quenta Huayhua[**]
Bruna Trofino Garcia[***]
Gabriel Mulinari dos Santos[****]
Paulo Sérgio da Silva Santos[*****]
Cássia Maria Fischer Rubira[******]

Abstract

Objective: the present study aimed to evaluate the efficacy of didactic alternatives, namely the audiovisual media, in conveying information regarding the oral adverse effects of oncology treatment in cancer patients. Methods: cancer patients were randomly divided into two groups: control group (n = 40) and audiovisual group (n = 36). The control group received verbal information regarding the oral side effects of cancer treatment. Conversely, the audiovisual group received the same verbal information, along with an illustrative audiovisual media presentation. Additionally, questionnaires on the subject were administered before and after the intervention by the dental team. Results: the current study employed Fisher's exact test for statistical analysis, and the results showed statistical similarity between the two groups ($P > 0.05$). Both educational approaches achieved the intended objective. Conclusion: a well-conducted dialogue can create adequate awareness among cancer patients and improve adaptation. Optionally, the use of innovative techniques, such as audiovisual resources, was observed to be an accessible and efficient alternative that can also be used in patient education. Therefore, educational videos can be used to improve patients' understanding, adherence to therapeutic regimens, and quality of life and contribute to a better prognosis.

Keywords: oral manifestations; antineoplastic protocols; patient education as topic; video-audio media.

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[*] Cirurgião-dentista, mestrando do departamento de Cirurgia, Estomatologia, Patologia e Radiologia, Faculdade de Odontologia de Bauru, Universidade de São Paulo (FOB-USP), Bauru, São Paulo, Brasil.
[**] Cirurgiã-dentista, mestranda do departamento de Cirurgia, Estomatologia, Patologia e Radiologia, Faculdade de Odontologia de Bauru, Universidade de São Paulo (FOB-USP), Bauru, São Paulo, Brasil.
[***] Cirurgiã-dentista, Faculdade de Odontologia de Bauru, Universidade de São Paulo (FOB-USP), Bauru, São Paulo, Brasil.
[****] Cirurgião-dentista, Faculdade de Odontologia de Bauru – Universidade de São Paulo (FOB-USP), Bauru, SP, Brasil.
[*****] Cirurgião-dentista, doutor, professor associado do departamento de Cirurgia, Estomatologia, Patologia e Radiologia, Faculdade de Odontologia de Bauru, Universidade de São Paulo (FOB-USP), Bauru, São Paulo, Brasil.
[******] Cirurgiã-dentista, doutora, professora do departamento de Cirurgia, Estomatologia, Patologia e Radiologia, Faculdade de Odontologia de Bauru, Universidade de São Paulo (FOB-USP), Bauru, São Paulo, Brasil.

Introduction

Cancer is a leading cause of mortality worldwide. According to GLOBOCAN 2018 estimates, there were 18 million new cases of cancer worldwide (17 million excluding non-melanoma skin cancer cases), and 9.6 million deaths (9.5 million excluding non-melanoma cancers of skin)[1]. Tumor-related factors, such as complications of radiotherapy and chemotherapy, can negatively affect the quality of life and survival of cancer patients[2]. The adverse effects can be so intense that they bring about a decrease in the patient's tolerance levels and consequently, adherence to the planned therapeutic regimen becomes difficult[2]. These adverse effects can result in acute toxicities that affect various orofacial structures and result in conditions such as oral mucositis, opportunistic infections, xerostomia, dysgeusia, pain, and neurotoxicity. Moreover, cancer treatment can result in late complications, which usually take months or years to develop and include orofacial soft tissue fibrosis, trismus, radiation caries, and osteoradionecrosis[3].

Healthcare professionals are responsible for elucidating the prevention methods, risk factors, and possible adverse effects of antineoplastic treatment. Providing patients with controlled information on the topic culminates in a positive impact on patient compliance and cooperation during the treatment and their psychosocial well-being[4-7].

Over the years, the methods used for patient education have evolved from printed or written information to audiovisual resources, concurring with technological advances[7]. Nevertheless, the quality of information provided by the Internet or social media is not always reliable or resolutive. Therefore, educational videos can be used to assist the patient and provide information with greater consistency and retention, consequently improving adherence to planned therapy and preventing possible complications associated with noncompliance to medical recommendations[8,9].

Hence, the present study aimed to evaluate the effectiveness of didactic alternatives, namely the audiovisual resources, in conveying information to cancer patients, focusing on the adverse effects of antineoplastic therapies in the oral environment.

Methods

The current study was carried out at the Multidisciplinary Clinic at the University of São Paulo (USP). The present study was approved by the National Human Research Ethics Committee (CAAE: 37646614.4.0000.5417). Inclusion criteria included patients diagnosed with cancer who had not received a dental appointment to obtain information regarding the oral complications of radiotherapy and/or chemotherapy. Patients with limited knowledge or any other impediment in answering the questionnaires (unawareness of the condition, unwillingness to be fully informed about the subject, cognitive or psychiatric disorders) were excluded from the present study.

After the selection, 76 patients agreed to participate in the research. Informed consent was obtained. Participants were divided into two groups: control group (CG) and audiovisual group (AG), by random selection of numbers corresponding to the number of participants (1 to 76). Thereafter, the identification numbers of each participant were randomly added in Microsoft Office Excel 2016 (Microsoft Corporation, Redmond, WA, USA) to define the group in which they would participate. In the end, the CG received 40 participants and the AG, 36 participants.

The patients in the CG received standard patient support information from a member of the team, in Portuguese, which included verbal advice on the dental treatment provided, prior to the initial consultation. This standard information was carried out in a reserved room on the premises of the clinic without contact with other patients, with an approximate duration of 5 minutes. Conversely, the patients in AG received the same verbal information from the same professional, along with an illustrative video in Portuguese, with a duration of 7:31 minutes.

The audiovisual presentation (Annex A) was produced by the team at the Multidisciplinary Clinic, with the help of technical support. It presented didactic information about cancer, such as possible causes of the disease, therapeutic pos-

sibilities, and the possible oral adverse effects of the treatment. The video used popular and easy-to-understand terms to convey information, so that patients from different educational backgrounds could understand the message being delivered. The audiovisual presentation was shown to the patient and a family member/companion on a 42-inch television screen in a reserved room on the premises of the clinic, before the initial consultation. During the presentation, only the patient, researcher, and possibly a family member were in attendance.

Furthermore, questionnaires were administered to all the patients in both groups at two different stages: the first, immediately before the conversation and audiovisual presentation, and the second, after the patients in the CG received verbal information, and the patients in AG received the same information, along with the audiovisual presentation. They had 13 and 11 questions, respectively, and had the option to answer "no" and "yes". The last question in the second questionnaire, however, gave the participant the option to writing any considerations or doubts that remain. Both questionnaires used in the current study were adapted from a study by González-Arriagada *et al*.[10] (2013). The questionnaires were modified to include radiotherapy and questions regarding the oral adverse effects of antineoplastic chemotherapy.

The results were tabulated using Microsoft Office Excel 2016 (Microsoft Corporation, Redmond, WA, USA). The variables were assessed using Fisher's exact test. *P* values less than 0.05 were considered statistically significant.

Results

The current study included 76 patients who consented to participate in the study. The selected patients were divided into two groups: control group (CG) (n = 40) and audiovisual group (AG) (n = 36). All oncologic patients were referred from the Unified Health System to our Research Center for dental care treatment at the initial stage of antineoplastic treatment. The average age of the patients was 59 years (range, 30 – 85 years). Females accounted for 60.52% of the total number of participants. Among the patients involved in the current study, only one patient needed help from a family member to answer the questionnaires. In the present study, breast cancer was observed to be the most common type of tumor, representing 30.26% of the total cases.

The questionnaires and percentage of responses are shown in Tables 1 and 2. An analysis of the responses to the first questionnaire revealed that one of the most common doubts among the patients in both groups was related to question 1.10, which questioned whether radiotherapy and/or chemotherapy could harm bone healing, in case the patient needs to undergo dental extractions in the future. The present study observed that 52.5% of the patients in the CG thought that dental extraction was not contraindicated, whereas 50% of the patients in the AG thought the same.

The second questionnaire presented questions regarding cancer treatment and possible complications. Although both groups showed statistical similarities ($P > 0.05$) based on Fisher's exact test, it was observed that patients in the AG presented with a better comprehension of some issues, compared to the patients in the CG. For instance, when asked if there were any oral complications that were not reported in the conversation or video, a higher percentage of patients in the AG responded with a "no" (86.1%), compared to the patients in the CG (75%). Nonetheless, the current study observed that patients in both groups considered that the information received through the educational intervention was sufficient to prepare them for the treatment.

Table 1 – Questionnaire administered before the educational intervention and patient responses

(continua...)

			NO	YES	*P* VALUE
1.1 Do you know why you are going to undergo radiotherapy/chemotherapy?	CG	Count	3	37	0.617
		%	7.5%	92.5%	
	AG	Count	1	35	
		%	2.8%	97.2%	
1.2 Do you know if there are any complications involving the mouth, teeth, bones, and skin, which may occur due to radiotherapy/chemotherapy?	CG	Count	8	2	1.000
		%	20.0%	80.0%	
	AG	Count	7	29	
		%	19.4%	80.6%	
1.3 Do you think that only the people with teeth in their mouth require a dental evaluation before radiotherapy/chemotherapy?	CG	Count	30	10	1.000
		%	75.0%	25.0%	
	AG	Count	27	9	
		%	75.0%	25.0%	
1.4 Do you think that the patients who undergo radiotherapy/chemotherapy are more susceptible to dental caries?	CG	Count	16	24	0.474
		%	40.0%	60.0%	
	AG	Count	11	25	
		%	30.6%	69.4%	
1.5 Do you think that radiotherapy can burn your skin?	CG	Count	8	32	0.082
		%	20.0%	80.0%	
	AG	Count	14	22	
		%	38.9%	61.1%	
1.6 Do you think that you may get mouth ulcers because of radiotherapy/chemotherapy?	CG	Count	10	30	0.146
		%	25.0%	75.0%	
	AG	Count	4	32	
		%	11.1%	88.9%	
1.7 Do you think that thrush can appear during radiotherapy/chemotherapy?	CG	Count	11	29	0.089
		%	27.5%	72.5%	
	AG	Count	4	32	
		%	11.1%	88.9%	
1.8 Do you think that you can lose the taste of food because of radiotherapy?	CG	Count	5	35	0.148
		%	12.5%	87.5%	
	AG	Count	10	26	
		%	27.8%	72.2%	
1.9 Do you think that you may have no or little saliva because of radiotherapy/chemotherapy?	CG	Count	9	31	0.785
		%	22.5%	77.5%	
	AG	Count	7	29	
		%	19.4%	80.6%	
1.10 Can radiotherapy/chemotherapy impair bone healing, if you need to remove any teeth in the future?	CG	Count	21	19	1.000
		%	52.5%	47.5%	
	AG	Count	18	18	
		%	50.0%	50.0%	

(conclusão)

1.11 Do you still have questions about radiotherapy/chemotherapy treatment?	CG	Count	34	6	1.000
		%	85.0%	15.0%	
	AG	Count	30	6	
		%	83.3%	16.7%	
1.12 Are you afraid to undergo radiotherapy/chemotherapy?	CG	Count	26	14	0.813
		%	65.0%	35.0%	
	AG	Count	22	14	
		%	61.1%	38.9%	
1.13 Do you know someone (friend or relative) who has undergone radiotherapy/chemotherapy?	CG	Count	1	39	0.011
		%	2.5%	97.5%	
	AG	Count	8	28	
		%	22.2%	77.8%	

CG= control group; AG= audiovisual group; *P< 0.05, Fisher's exact test.

Source: adapted from González-Arriagada *et al.*[10] (2013).

Table 2 – Questionnaire administered after verbal explanation/presentation of audiovisual media by the dental team and patient responses

(continua...)

			NO	YES	*P* VALUE
2.1 Do you know why you underwent radiotherapy/chemotherapy?	CG	Count	1	39	1.000
		%	2.5%	97.5%	
	AG	Count	1	35	
		%	2.8%	97.2%	
2.2 Did you notice any complications due to radiotherapy/chemotherapy treatment?	CG	Count	3	37	1.000
		%	7.5%	92.5%	
	AG	Count	2	34	
		%	5.6%	94.4%	
2.3 Did you have any complications during the radiotherapy/chemotherapy that you were not informed about?	CG	Count	30	10	0.261
		%	75.0%	25.0%	
	AG	Count	31	5	
		%	86.1%	13.9%	
2.4 Do you think that dental evaluation before radiotherapy/chemotherapy is necessary?	CG	Count	6	34	0.268
		%	15.0%	85.0%	
	AG	Count	2	34	
		%	5.6%	94.4%	
2.5 Do you think that the patients who underwent radiotherapy/chemotherapy are more likely to have dental caries?	CG	Count	6	34	0.556
		%	15.0%	85.0%	
	AG	Count	8	28	
		%	22.2%	77.8%	
2.6 Do you know if future dental extractions should be avoided in the patients who have undergone radiotherapy/chemotherapy?	CG	Count	0	40	0.221
		%	0%	100%	
	AG	Count	2	34	
		%	5.6%	94.4%	

(conclusão)

2.7 Do you think that the information received before radiotherapy/chemotherapy was sufficient to prepare you for the treatment?	**CG**	Count	3	37	0.617
		%	7.5%	92.5%	
	AG	Count	1	35	
		%	2.8%	97.2%	
2.8 Are you still afraid to undergo radiotherapy/chemotherapy?	**CG**	Count	1	39	0.095
		%	2.5%	97.5%	
	AG	Count	5	31	
		%	13.9%	86.1%	
2.9 Did you think about quitting radiotherapy/chemotherapy?	**CG**	Count	3	37	0.617
		%	7.5%	92.5%	
	AG	Count	1	35	
		%	2.8%	97.2%	
2.10 Did you feel more concerned about maintaining/ taking care of your oral health during radiotherapy/chemotherapy?	**CG**	Count	11	29	0.791
		%	27.5%	72.5%	
	AG	Count	8	28	
		%	22.2%	77.8%	
2.11 Would you include any other information before the initiation of radiotherapy/chemotherapy?	**CG**	Count	37	3	1.000
		%	92.5%	7.5%	
	AG	Count	34	2	
		%	94.4%	5.6%	

CG= control group; AG= audiovisual group; *P< 0.05, Fisher's exact test.

Source: adapted from González-Arriagada *et al.*[10] (2013).

Discussion

A patient who is newly diagnosed with a malignant neoplasm needs a comprehensive explanation of the treatment process. Therefore, providing targeted information regarding cancer therapy is crucial to prepare the patient in the best possible way[7]. Healthcare professionals need to have resources to provide such information in the most comprehensive and didactic way possible[11]. Consequently, educational videos have been suggested as a valuable tool that can be used to convey information prior to complex treatments. The aforementioned technique has displayed promising results and enhanced patient knowledge[12].

The current literature on the oral repercussions of antineoplastic treatment mainly focuses on the complications associated with radiotherapy. Consequently, the available literature is restricted to studies involving patients with head and neck tumors (since the adverse effects affect the regions close to the irradiated area). In contrast, our institution has a different approach towards cancer patients and attend to the patient as a whole, which includes providing dental therapy, speech therapy, physiotherapy, and psychological and nutritional treatment, in a multi- and interdisciplinary manner, without any discrimination based on the site of malignancy. Furthermore, although chemotherapy acts in a systemic manner, it can cause oral complications, making our research feasible and free of restrictions based on size or anatomical location of the tumor and the treatment performed.

The present study was controlled by administering questionnaires before and after verbal explanation or audiovisual presentation by the dental team. Although the results showed significant similarities between the two groups in the responses to the questionnaires, it was observed that the patients who watched the video were satisfied with the educational approach and stated that they would recommend it to other patients.

Conveying adequate information can benefit a patient significantly from the resolution of the clinical condition and thus accept his/her health condition and improve the quality of life[11]. Some studies have reported that the use of audiovisual media[10,13,14] is an accessible and effective method of patient education, which should be incorporated in patient education practice for better understanding and consolidation of useful information.

The presence of a companion can alter the patient's psychological state or responses, consequently giving a false impression regarding patient knowledge that often belongs to the companion and not to the patient himself/herself. However, in the current study, only one patient needed assistance from his companion. This implies that the results of the current study indicate the actual knowledge gained by each patient regarding their conditions.

Among the patients involved in the current study, two interviewees wrote, in the last question of the second questionnaire, about the poor supply of medical information regarding the course and procedure of their therapies. This can be

verified, based on the observation that most of the patients in the present study were not aware of the fact that cancer treatment could impair bone healing, in case the patient needed to undergo any future oral surgical procedures. Hence, the initial dental consultation, which enables the establishment of oral health adequacy before the initiation of treatment, is very important to minimize the adverse effects of radiotherapy and chemotherapy.

Healthcare professionals must ensure uniform comprehension of information among all patients. Considering the limitations that patients may have, health professionals must provide and reinforce information regarding the main features and adverse effects of oncology treatment. This practice makes the patients and companions aware of the challenges to be faced during and after the treatment and consequently, makes the situation safer for them, in order to go through all the stages of cancer therapy.

Some limitations of our study must be considered. The first is due to the small sample of cancer patients studied. Another limitation is due to the inclusion of patients with different types of cancer and different stages of the disease, generating a heterogeneous sample that could influence the results obtained.

Hence, the use of audiovisual media along with verbal communication may be the easiest method to provide information regarding therapeutic modalities and related complications, thereby facilitating patient comprehension and adherence to the treatment plan. Improved knowledge on the subject may facilitate the early detection of complications that would have otherwise been overlooked by the patient.

Conclusion

Patients who are about to undergo cancer treatment need timely and didactic information. In the present study, both methods achieved the objective of patient comprehension of the oral side effects of cancer treatment. The results of the present study indicate that a well-conducted dialogue in simple language, which can be carried out during the consultation, is sufficient for patient comprehension and adherence to treatment plans. Nonetheless, the use of a more innovative tool, such as audiovisual media, is an effective and alternative mechanism that can be used in conjunction with verbal and written information to improve comprehension and consolidation of patient information, and can be incorporated into the patient education strategy.

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Conflicts of interest

The authors report no conflicts of interest pertaining to this manuscript.

Resumo

Objetivo: o presente estudo teve como objetivo avaliar a eficácia de alternativas didáticas, como a mídia audiovisual, na transmissão de informações sobre os efeitos adversos orais do tratamento oncológico em pacientes com câncer. Métodos: pacientes oncológicos foram divididos aleatoriamente em dois grupos: grupo controle (n = 40) e grupo audiovisual (n = 36). O grupo controle recebeu informações verbais sobre os efeitos colaterais orais do tratamento do câncer. Por outro lado, o grupo audiovisual recebeu a mesma informação verbal, juntamente com uma apresentação ilustrativa de mídia audiovisual. Além disso, foram aplicados questionários sobre o assunto antes e após a intervenção da equipe odontológica. Resultados: o presente estudo empregou o teste exato de Fisher para análise estatística, e os resultados mostraram similaridade estatística entre os dois grupos (P > 0,05). Ambas as abordagens educacionais alcançaram o objetivo pretendido. Conclusão: um diálogo bem conduzido pode criar uma compreensão adequada entre pacientes com

câncer, melhorando a sua adaptação. Opcionalmente, o uso de técnicas inovadoras, como recursos audiovisuais, pode ser uma alternativa acessível e eficiente, que também pode ser usada na educação desses pacientes. Dessa forma, vídeos educacionais podem ser usados para melhorar a compreensão dos pacientes, a adesão a esquemas terapêuticos e a qualidade de vida, além de contribuir para um melhor prognóstico.

Palavras-chave: manifestações bucais; protocolos antineoplásicos; educação de pacientes como assunto; mídia audiovisual.

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Endereço para correspondência:

Cássia Maria Fischer Rubira
Alameda Octávio Pinheiro Brisola, 9–75,
Vila Universitária
CEP: 17012-901 – Bauru, SP, Brasil.
Telefone: +55 14 32358254;
Fax: +55 14 32358258
E-mail: rubira@fob.usp.br

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