



Bucomaxillofacial cancer and major considerations and treatments: a concise systematic review

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Abstract

Introduction: According to National Cancer Institute, a total of 16,290 new cases of oral cancer are estimated in Brazil in 2017, with 12,370 new cases of oral cavity cancer in men and 4,010 in women corresponding to an estimated risk of 11.54 cases new for every 100 thousand men and 3.92 for each 100 thousand women. In this sense, oral cancer therapy is associated with a multitude of head and neck sequelae including hyposalivation, increased risk of tooth decay, osteoradionecrosis of the jaw, radiation fibrosis syndrome, mucositis, chemotherapy-induced neuropathy, dysgeusia, dysphagia, mucosal lesions, trismus, and infections. **Objective:** The present study addressed the main considerations about maxillofacial cancer and possible treatments based on the literary findings through a narrative and integrative review. **Methods:** Clinical studies with qualitative and/or quantitative analysis were included, following the rules of the systematic review-PRISMA. **Results and Conclusion:** A total of 86 articles were found involving "Bucomaxillofacial Treatment in Cancer Patients". A total of 29 articles were evaluated in full, and 24 were included and discussed in this study. Oral cancer or oral carcinoma is a chronic, complex, multifactorial pathology resulting from the interaction of intrinsic and extrinsic factors that leads to an imbalance in the process of cell proliferation and growth control. There is an association between periodontal disease, nutritional status parameters, and antimicrobial protein levels, in

the case of erythroplakia, 70.0 % to 95.0 % of these lesions are cancerous at the time of initial biopsy or will progress to cancer. In invasive squamous cell carcinoma, cancer cells have penetrated deeper layers of the oral cavity and oropharynx. Therefore, preparing a comprehensive treatment plan for cancer patients is essential to help minimize the risks of developing these oral and dental complications. In addition, dentists should consider a patient's ongoing cancer therapy for those patients who come to the dentist while receiving cancer treatment.

Keywords: Oral cancer. Cancer treatment. Bucomaxillofacial treatment. Bone regeneration.

Introduction

According to National Cancer Institute, a total of 16,290 new cases of oral cancer are estimated in Brazil in 2017, with 12,370 new cases of oral cavity cancer in men and 4,010 in women corresponding to an estimated risk of 11.54 cases new for every 100 thousand men and 3.92 for each 100 thousand women [1,2]. Currently, it can be considered a public health problem in developing and developing countries like Brazil and has been responsible for 13.0% of all causes of death worldwide [3].

The number of cancer cases has increased significantly worldwide, especially since the last century, and is currently one of the most important public health

problems in the world [4]. Of all malignancies that affect the oral region, 94.0% correspond to oral squamous cell carcinoma (OSCC). OSCC is an aggressive malignant epithelial neoplasm, which mainly affects ill. The scientific literature is unanimous regarding the language being the preferred location for the development of OSCC, followed by the floor of the mouth [5].

However, there is no consensus regarding the frequency of other anatomic sites. Cytopathology is a method based on the possibility of analyzing the cells collected from the lesions and interpreting, through light-field microscopy, the stained smear obtained from the collected material [6].

Several studies address the importance of the dental surgeon in reducing oral cancer, with their participation in prevention, the anticipation of diagnosis, treatment orientation, and rehabilitation of patients. In this context, smoking is one of the main risk factors for oral cancer, becoming an important object for dentistry students and dental surgeons who are directly involved in the early diagnosis, treatment, and orientation of patients [7-9].

In this sense, oral cancer therapy is associated with a multitude of head and neck sequelae including hyposalivation, increased risk of tooth decay, osteoradionecrosis of the jaw, radiation fibrosis syndrome, mucositis, chemotherapy-induced neuropathy, dysgeusia, dysphagia, mucosal lesions, trismus, and infections [11].

Therefore, the present study addressed the main considerations about maxillofacial cancer and possible treatments based on the literary findings through a narrative and integrative review.

Methods

Study Design

The present study was followed by a systematic literature review model, according to the PRISMA rules. Access available at: <http://www.prisma-statement.org/>

Data sources and research strategy

Clinical studies were included as case reports, retrospective, prospective and randomized trials with qualitative and/or quantitative analysis. Also, some review studies were included. Initially, the keywords were determined by searching the DeCS tool (Descriptors in Health Sciences, BIREME base) and later verified and validated by the MeSH system (Medical Subject Headings, the US National Library of Medicine) to achieve consistent search.

Mesh Terms

The main MeSH Terms were *Oral cancer. Cancer treatment. Bucromaxillofacial treatment. Bone regeneration*. For further specification, the "Bucromaxillofacial Treatment in Cancer Patients" description for refinement was added during searches. The literature search was conducted through online databases PubMed, Periodicos.com, Google Scholar, Ovid, Scopus, Web of Science and Cochrane Library.

Study quality and risk of bias

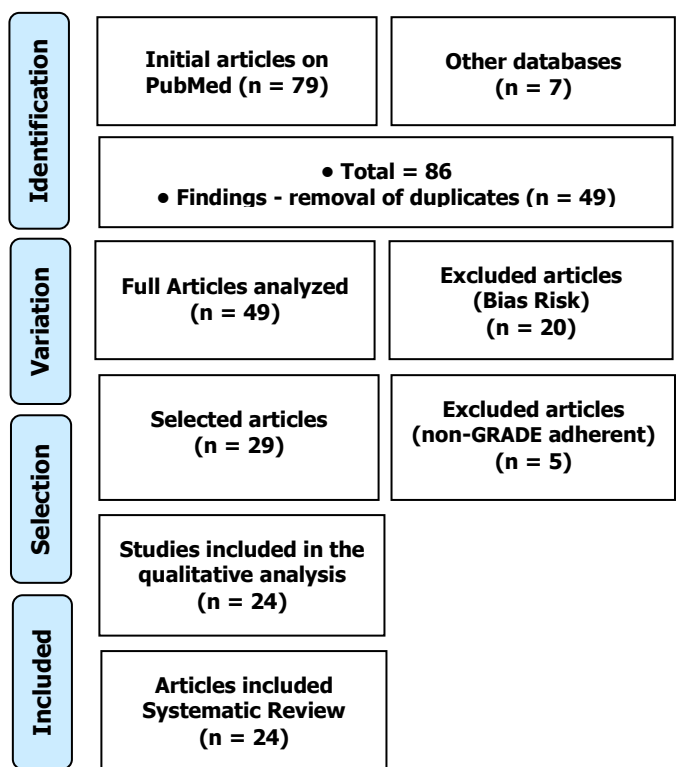
The quality of the studies was based on the GRADE instrument, with randomized controlled clinical studies, prospective controlled clinical studies, and studies of systematic review and meta-analysis listed as the studies with the greatest scientific evidence. The risk of bias was analyzed according to the Cochrane instrument.

Results

Literature Review and Discussion

A total of 86 articles were found involving "Bucromaxillofacial Treatment in Cancer Patients". Initially, was held the exclusion of existing title and duplications following the interest described in this work. After this process, the summaries were evaluated and a new exclusion was held. A total of 29 articles were evaluated in full, and 24 were included and discussed in this study (Figure 1).

Figure 1. The selection process of scientific articles.



Oral cancer or oral carcinoma is a chronic, complex, multifactorial pathology resulting from the interaction of intrinsic and extrinsic factors that leads to an imbalance in the process of cell proliferation and growth control [1,2]. The main risk factors for the development of oral tumors are smoking, alcohol, ethnicity, age, gender, genetic predisposition, solar radiation, diet, chronic trauma, poor oral hygiene, low carotene consumption, family history of cancer, human papillomavirus, irritation caused by rough teeth, uneven surfaces in fillings, crowns or dentures against the tongue or cheekbones, microorganisms, and immune deficiency [3].

According to National Cancer Institute (NCI), mouth cancer can develop in several places, with the tongue having the largest amount with 26.0% of all tumors followed by the lips with 23.0%, especially the lower floor of the mouth with 16.0% and the glands Salivary with 11.0% [14].

In this context, a study evaluated in the oral cancer patient population the influence on the quality of life of two dental treatment protocols unregulated hospital treatment versus regular hospital treatment. A quasi-experimental approach was used, justified for ethical reasons. A total of 41 patients were included in the control group (untreated outpatient health center) and 40 in the experimental group (inpatient treatment). A total of 14 questions for both groups were performed in three steps: before starting cancer treatment, during treatment, and after treatment. The proportions of positive responses in the different groups and times were compared by the chi-square test. Based on similar situations during cancer treatment, six questions were identified in favor of the experimental group difference. This number increased to nine after the end of cancer treatment. From our data, we can confirm that the planned dental treatment performed during oral cancer treatment produces an improvement in the quality of life of oral cancer patients [1].

Also, given the low prevalence of infections and the potential for complications after third molar extractions, partial protocols for dental evaluation/treatment before intensive chemotherapy is suggested; where minor caries, asymptomatic third molars, or asymptomatic teeth without excessive probing depth (<8 mm), mobility I or II or with periapical lesions <5 mm is a viable option when there is not enough time for complete dental assessment/treatment protocols. Chlorhexidine, fluoride mouthwashes, composite resin, resin-modified glass ionomer cement, and conventional resin amalgam restorations are recommended for patients with fluoride-compatible post-head and neck radiation [12].

A study with a total of 50 newly diagnosed head

and neck carcinoma patients had saliva and plasma samples collected, along with periodontal clinical records. The nutritional status parameters consisted of body mass index, serum albumin, hemoglobin, and total lymphocyte count. Cystatin C and lysozyme were the antimicrobial proteins. A logistic regression model showed that periodontal parameters were inversely related to their nutritional status; However, antimicrobial protein levels were directly related to the periodontal condition. Therefore, there is an association between periodontal disease, nutritional status parameters, and antimicrobial protein levels [13].

Besides, Tumors found in the mouth and throat are Leukoplakia and Erythroplasia. Leukoplakia is characterized by a whitish area and erythroplasia by a slightly raised red area, usually asymptomatic, which does not go away when the lesion is scraped [14]. These whitish or reddish areas may present with dysplasia or neoplasia. Leukoplakia is a benign condition and rarely develops into cancer. The finding may rule out the possibility of cancer [16-19]. Only 25.0 % of leukoplakias, when detected, involve precancerous changes that progress to cancer in 10 years if not treated properly [20]. However, in the case of erythroplakia, 70.0 % to 95.0 % of these lesions are cancerous at the time of initial biopsy or will progress to cancer [21-23].

Also, more than 90.0 % of cancers of the mouth and throat are from squamous cells, known as squamous cell carcinomas or squamous cell carcinomas. Squamous cells are flattened, from the lining of the oral cavity and throat. Squamous cell carcinoma begins as a set of abnormal squamous cells known as carcinoma in situ, present only in the cells of the lining layer of the epithelium. In invasive squamous cell carcinoma, cancer cells have penetrated deeper layers of the oral cavity and oropharynx [24].

The main signs and symptoms are ulcers in the mouth that do not heal constant pain, persistent lump or thickening in the cheek, reddish or whitish area on the gums, tongue, tonsils, or lining of the mouth, throat irritation, or feeling of something stuck or pinched in the throat, difficulty in chewing and swallowing, paresis of the mandible or tongue, paresthesia of the tongue or other areas, jaw edema, loose or soft teeth in the gingiva, sialorrhea, trismus, bleeding, dysphonia, mandibular or teeth pain, persistent halitosis, nodules, Cervical lymphadenopathy and weight loss in the late stages [3,14].

In this sense, according to Cimardi et al. [15], the main reason that leads to a low rate of early diagnosis is the low adherence of the dentist's early diagnosis and referral of patients to the treatment of oral cancer in specialized units. Some conditions favor early diagnosis

as knowledge of the groups at greater risk and the region of easy access to clinical examination, which does not require special equipment. Deficiencies in professional training or continuing education are pointed as the main factors for the late diagnosis of oral cancer [11].

To better assist and assist patients in cancer treatment, the dental professional should be able to diagnose, prevent, control, and treat the oral complications that arise during the various stages of cancer treatment. "Simple clinical attitudes such as oral hygiene, control of oral biofilm, use of specific mouthwashes, can prevent or ameliorate secondary manifestations in the mouth caused by cancer treatment [12-16].

Conclusion

Preparing a comprehensive treatment plan for cancer patients is essential to help minimize the risks of developing these oral and dental complications. In addition, dentists should consider a patient's ongoing cancer therapy for those patients who come to the dentist while receiving cancer treatment.

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Informed consent

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Data sharing statement

No additional data are available.

Conflict of interest

The authors declare no conflict of interest.

Similarity check

It was applied by Ithenticate@.

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