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Palliative oral care in terminal cancer patients: Integrated review

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Abstract

BACKGROUND

Palliative care (PC) aims to improve quality of life in patients and its families against life threatening diseases, through suffering's prevention and relief. It is the duty of the dental surgeon to possess the knowledge needed to treat a patient with little life span, in order to establish an adequate treatment plan for each situation.

AIM

This integrative review aimed to synthesize the published evidence on oral conditions, impact, management and challenges in managing oral conditions among palliative patients.

METHODS

Articles were selected from PubMED and Scopus electronic platforms, using a research strategy with diverse descriptors related to "palliative care", "cancer" and "oral health". The article's selection was done in two phases. The first one was performed by the main researcher through the reading of the abstracts. In the second phase two researchers selected eligible articles after reading in full those previous selected. Data was tabulated and analyzed, obtaining information about what is found in literature related to this subject and what is necessary to be approached in future researches about PC

RESULTS

As results, the total of 15 articles were eligible, being one a qualitative analysis, 13 (92,8%) clinical trials and one observational study. Of the 15 articles, 8 (53,4%) involved questionnaires, while the rest involved: one systematic review about oral care in a hospital environment, 2 oral exams and oral sample collection, one investigation of terminal patient's (TP) oral assessment records, 2 collection of oral samples and their respective analysis and one treatment of the observed oral complications.

CONCLUSION

It can be concluded that the oral manifestations in oncologic patients in terminal stage are, oral candidiasis, dry mouth, dysphagia, dysgeusia, oral mucositis and orofacial pain. Determining a protocol for the care of these and other complications of cancer – or cancer therapy – based on scientific evidence with the latest cutting-edge research results is of fundamental importance for the multidisciplinary team that works in the care of patients in PC. To prevent complications and its needed to initial the dentist as early as possible as a multidisciplinary member. It has been suggested palliative care protocol based on the up to date literature available for some frequent oral complications in TP with cancer. Other complications in terminal patients and their treatments still need to have further studying.

INTRODUCTION

The World Health Organization (WHO), in its concept updated in 2002, defines palliative care (PC) as "an approach that improves the quality of life of patients and their families, in the face of problems associated with life-threatening diseases, through prevention and relief of suffering, early identification, impeccable assessment and treatment of pain and other physical symptoms, spiritual, psychological and social"[1].

In the final stage of life the human being becomes physically and psychologically vulnerable and for this reason requires constant care. Despite science evolution, most areas of medicine still encounter many difficulties to adequately care terminal patients. As stated in the Venice Declaration adopted by the 35th General Assembly of the World Medical Association in 1983, "the duty of the physician is to heal and when this is not possible, alleviate suffering and act in the protection of the best interests of his patient"[2].

Palliative care guarantees the best possible quality of life for the patient, according to their values, needs and preferences, in order to comfort him and his family. Such care must be interdisciplinary not only to reduce pain and other symptoms from the disease, but also to provide emotional support[3].

The latest WHO data shows that cancer is a leading cause of death worldwide, accounting for nearly 10 million deaths in 2020, with an incidence of 18,094,716 new cases of neoplasms that year[4]. According to McDonnell and Lenz, 2006 75-99% of person who underperforms chemotherapy will present adverse oral effects, such as oral mucositis[5].

The treatments of oral complications are crucial for maintaining comfort, feeding and phonation, since the most prevalent oral manifestations in terminally ill cancer patients are: mucositis, stomatitis, nausea, vomiting, candidiasis, nutritional deficiency, dehydration, taste impairment and xerostomia[6].

To date, there is scarce evidence on the preventive and therapeutic measures to be performed by dentists in terminal patients. Within the studies of the palliative care, the areas of medicine, nursing and physiotherapy are more frequent as can be seen in the manual written by WHO[7].

Nevertheless, dentists should be familiar with dental treatments of terminal patients to define appropriate actions and to cooperate with other health professionals to contribute to patients' well-being.

This integrative review aimed to synthesize the published evidence on oral conditions, impact, management and challenges in managing oral conditions among palliative patients.

MATERIALS AND METHODS

This integrative review was conducted utilizing the five steps outlined by review guidelines Souza *et al* (2010) [8] e Sladdin *et al* (2017) [9]:

1 Problem identification: "What oral manifestations are present and what dental interventions are indicated for patients diagnosed with end-stage cancer?"

2 Literature search: The search keys and databases were defined. PUBMED, Scopus databases and also selected articles found in the reference lists are used. The search strategy applied was: ("palliative care"[All Fields] OR "end of life care"[All Fields] OR "palliative medicine"[All Fields] OR "terminal patients"[All Fields]) AND ("oral health"[All Fields] OR "dental health"[All Fields] OR "dental"[All Fields] OR "oral complications"[All Fields]OR "oral treatments"[All Fields] OR "oral lesions"[All Fields] OR "oral diseases"[All Fields] OR "dentistry"[All Fields] OR "oral management"[All Fields] OR "dental care"[All Fields] OR "oral infections"[All Fields] OR "oral care"[All Fields] OR "special care dentistry"[All Fields] OR "oral interventions"[All Fields] OR "bucal management"[All Fields] OR "dental management"[All Fields] OR "bucal treatments"[All Fields] OR "dental treatments"[All Fields]) AND ("oncology"[All Fields] OR "cancer"[All Fields] OR "neoplasms"[All Fields]). To remove duplicate articles, Endnote web software was used.

3 Data evaluation: Based on the abstracts, a reviewer (ARPS) selected the full- text articles that met the following inclusion criteria: published in English, Portuguese or Spanish, systematic review articles, cross-sectional, longitudinal studies and clinical trials published up to 2022, which brought information about oral care in terminal cancer patients. Exclusion criteria were case reports, literature review articles, theses, dissertations and articles focusing on the quantity or quality of health professionals.

4 Data analysis: two researchers (ARPS and ESC) read in full the previously selected articles and included those that met the previously established criteria, independently. In case of disagreement, a third researcher (EAM) was consulted to define or not to include the article. Items included in the table: author(s), year of publication, objectives, study population and sample size (if applicable), methodology, important results and measures used (if applicable), important findings and possible methodological flaws).

5 Presentation: The articles were divided into studies or reviews. Possible research failures were analyzed and quantified. Aspects that require further investigation, the different types of dental interventions and the number of studies and evidence in the literature were pointed out.

RESULTS

The search in the databases recovered a total of 405 articles (Figure 1). Of these, 49 were duplicated and 293 were excluded because abstracts did not meet the inclusion criteria. Of the 63 articles with potential for inclusion, one was excluded because it was in Japanese and 3 could not be recovered by physical and digital means, leaving 59 articles. There was doubt in 1 abstract, which was excluded after a third expert analysis and discussion with the reviewers.

Of the 58 articles remaining and read in full, 27 were excluded because they were in disagreement with the inclusion criteria, 16 were excluded because they were not related to dentistry and 1 article was excluded because it was repeated. (Figure 1).

Of the 15 articles included (summarized in Table 1), Gillam *et al* (2006) [10] was based on qualitative analysis and the other 14 articles were based on quantitative analysis being 13 (92.8%) clinical trials [11,12, 13, 14,15,16,17, 18, 19, 20, 21, 22, 23] and one observational study [24].

Also among the included studies, 10 presented data on the site of origin of the tumour, being lung [13,15, 18, 23, 24] and gastrointestinal tract [11,16, 19, 21] breast [18, 22] and prostate [26] the most common. Five articles reported the prevalence of patients with head and neck cancer [15, 18, 19, 20, 24].

The prevalence of deleterious habits of patients was investigated in three studies [11, 13, 20].

Among the 15 studies included, only 3 aimed to analyze therapies for different oral diseases [21, 22, 23], while 9 analyzed the prevalence of different oral manifestations [11,12, 13, 14.15,16,17, 18, 19]. The objective of the remaining 3 studies was related to the quality of life of terminal patients [20] and the dental management of these patients [10, 24].

The results found in the selected articles have a wide variety. A single article compared groups with long and short remaining life time [14].

Four studies reported the prevalence of caries disease in terminal patients [11, 14, 18, 20] and only one investigated the prevalence of dental plaque in these patients [11]. Regarding the presence of teeth, only the articles by Bagg *et al* (2003) [15] and Davies *et al* (2008) [12] calculated the prevalence of edentulous patients. Wilberg *et al* (2012) [11] found that 69% of patients aged ≥ 60 years had a ≥ than 20 teeth. The presence of prosthesis was evaluated by Bagg *et al* (2003) [15], Davies *et al* (2008), Sweeney *et al* (1998) [18] and Wilberg *et al* (2012) (26.7% of the articles), with a prevalence of 81%, 57%, 80% and 14%, respectively [11,12,15, 18].

A total of nine articles brought data on the prevalence of oral *Candida* species in patients with advanced stage cancer [11,12, 13, 14,15, 17, 18, 19, 23], seven of them approached microbiological analyses of the fungus [11,12,15, 18, 19, 21, 22] and three investigations evaluated susceptibility to different antifungals drugs [15, 21, 22].

Of the selected studies, seven involved analyses of microbiological isolates of the oral mucosa [11,12,15, 18, 19, 21, 22].

The percentage of patients with xerostomia was evaluated in 8 articles (Table 2) [11,12, 13, 14, 15, 17, 18, 23]. The only article that brought data on the type of treatment used for this condition was that of Oneschuk *et al* (2000) [13].

Table 2 presents ther variables also addressed in articles. Two studies reported, the prevalence of changes in taste or dysgeusia [11, 17] and three evaluated problems when eating [11, 14, 17].

Facial pain and intraoral pain were addressed in three articles [13, 17, 18] whereas oral mucositis or stomatitis was reported in two studies [19, 23]. Only Thanvi *et al* (2014) [20] investigated mouth opening limitation and only Xu *et al* (2013) [19] researched herpes simplex prevalence in terminal patients.

Fischer et. al. (2014) [17] also brings the prevalence of dysphagia (61%), dysgeusia (71%), facial pain (23%) and intraoral pain (52%) [17]. Oneschuk *et al* (2000) [13] and Sweeney *et al* (1998) [18] also studied oral pain, with a prevalence of 16.1% and 31%, respectively. In addition to these variables, Thanvi *et al* (2014) [20] obtained a 50% prevalence of patients with limited mouth opening, Xu *et al* (2013) [19] found 15.4% of patients with herpes simplex and 20.5% with oral mucositis, while Nakajima (2017) [23] obtained 13.9% of patients with stomatitis.

The only study based on qualitative analysis was a systematized review, published by Gillam *et al* (2006) [10], where 11 articles found in a nursing database were analyzed, published in 1995 and 1999. No demographic data was specified from the studies reviewed by Gillam *et al* (2006) [10].

DISCUSSION

From the results obtained, it was observed that the single study based on qualitative analysis had nurses providing oral care to palliative patients [10]. It should also be emphasized that four of the published articles were written by professionals from other health areas [10, 13, 16, 23]. The scarcity of investigations involving dentists demonstrates that this professional is not currently part of most teams that care for terminally ill patients. There seems to be a vast field of action for which dentists should be qualified. From the moment a dentist becomes part of the healthcare hospital team there happens an improvement of 37.25% in the accuracy of diagnosis of oral lesions [25].

Given that most studies analyzed were cross-sectional and not longitudinal, it makes impossible to gather information on the evolution of oral manifestations and therapeutic responses over time [11, 12, 13, 14,15,16, 17, 18, 19, 20, 21, 22, 24].

Demographically, the majority of the patients studied were women with a mean age of 63.8 years and diagnosed with lung and gastrointestinal tract cancer and for this reason special attention is needed for the diagnosis of oral lesions in this specific audience [11, 12, 13,15,16, 17, 18, 19, 20, 23, 24].

As most studies were published between 2006 and 2016, it can be inferred that dental treatment and management in PC among PT is a subject considered recent and constantly growing, which justifies the scarcity of qualified data found on the topic in the literature [10,12, 14, 17, 24].

Most studies used the questionnaire tool [11, 12, 13,16, 17, 18, 20, 24], either to obtain demographic information [20] or to record symptoms of patients [11, 13, 16, 17, 18] and caregivers' opinions [24]. Such a tool can be useful even to record the symptoms of PT by caregivers, besides being a complement to oral examinations performed, either by caregivers or researchers.

Oral complications

1. Oral candidiasis:

The prevalence of candidiasis in the oral mucosa of patients under palliative care [11] was investigated in nine of the selected articles [12, 13, 14,15,17, 18, 19, 23]. The mean prevalence of oral candidiasis presented in those was high when compared to the mean detected for the healthy population (2 to 14%) [26]. Oral candidiasis is a frequent disease in systematically compromised patients, such as patients with end-stage cancer. which reflects that more knowledge is still needed about the diagnosis and treatment of this disease in PT.

Mothibe *et al* (2017) suggested that patients using prosthesis with cancer have a higher capacity for growth of oral candida. However, Bagg *et al* (2003) found no associations between the use of prosthesis and the presence of oral candida in terminal patients [15]. Another interesting finding was that the presence of oral candida seems to be related to the low food intake by patients [23].

On the microbiology of the oral cavity of palliative patients with cancer, the presence of C. albicans was identified in 58.2% of the patients included in the seven studies analyzed whereas C. glabrata was present in 24.5% [11, 12, 15, 18, 19, 21, 22]. Although the second most prevalent species in oral fungal infections, *C. glabrata* is not susceptible to certain antifungals [21, 22].

The most prevalent oral candidiasis were erythemenous candidiasis and acute pseudomembranous candidiasis [12,15]. Erythemate candidiasis was prevalent in patients who used removable prostheses. Since a high percentage of palliative patients uses removable oral prostheses [11], it is important that patients and/or caregivers make the correct and regular hygiene of both the oral cavity and prostheses to prevent prosthetic stomatitis [15, 18].

Pseudomembranous candidiasis of multifocal type was reported in 48% of patients investigated being the oral/jugal mucosa (48%) and the tongue (44%) the most affected sites [12,15].

A positive association was found between hyposalivation and oral candidiasis [12]. The hypofunction of the salivary glands can decrease the function of superficial cleansing of saliva, decrease its antifungal activity (because it decreases the amount of enzymes such as histatins and lysozymes) and reduce the pH of saliva which favors the proliferation of candida in the mouth.

About 75% of fungi were susceptible to fluconazole [21] and for this reason it will likely continue as the first treatment option. 53% of the isolated C. glabrata was resistant to fluconazole and also presented a low rate of therapeutic response to voriconazole [15, 21] usually effective on more resistant candida species [21]. These results are in agreement with those of Wilberg *et al* (2012) [11], where 27% of patients undergoing antifungal treatment still had clinical signs of the disease.

Regarding the form of prescription of fluconazole, the latest cutting-edge research results state that the administration of daily doses of 100 to 200 mg can be recommended [27, 28], and dose adjustment is needed for a renal patient [29] (Table 3). The susceptibility of fungi to melaleuca oil with positive results was also studied,

concluding that this agent should be considered as a potential preventive agent and can be used as an adjuvant to oral hygiene [22].

2. Xerostomia and hiposalivation

Dry mouth sensation in patients with end-stage cancer was the second most frequent complication reported in studies [11,12, 13, 14, 15, 17, 18, 23]. The prevalence of xerostomia in palliative patients ranged from 91% to 48% (Table 2) [15,17], indices relatively high when compared to those of normal population (0-30%) [30, 31]. Matsuo *et al* (2016) [14] observed that palliative patients with a short life expectancy had a significantly higher prevalence of xerostomia than those with longer life estimative. Adverse effects of drugs used to reduce pain such as opioids could justify those high indices [17]. Interestingly, only 22% of patients received information about xerostomia as an adverse effect of the drugs used in antineoplastic therapies [17]. In severe cases, the dentist should discuss with the doctor the possibility of replacing the medications that cause this symptom [23].

Hyposalivation has also a significant association with the functional and social impact of patients as well as low food intake [17]. Improving dry mouth sensation can thus help with other oral problems [23]. The adequacy of oral hygiene improves dry mouth symptom regardless of the degree of food intake [23] but only 31% of patients were informed about the importance of oral hygiene [23].

Despite being a frequent complication, patients classified xerostomia as of moderate importance when compared to other symptoms experienced at that palliative moment [13]. In the study of Oneschuk *et al* (2000) [13] about half of the patients (56%) who reported xerostomia also reported the symptom to the doctor and of these only 69% were advised to seek one or more treatments for symptom relief. Patients may believe that this information is of no clinical importance, that there is no need to treat it or that treatment options are limited.

The recommended treatments for xerostomia are to drink frequently sips of water and to use artificial saliva in spray [13] (Table 3).

3.Caries and plaque:

In the only study on the topic included in this review, 24% of patients presented with moderate or severe amount of visible plaque [11]. Consumption of easy-to-chew carbohydrates (dietary supplement) and cognitive restrictions to perform adequate oral hygiene contribute to plaque accumulation. Besides, hyposalivation increases the tooth's susceptibility to demineralization.

Patients closer to death need greater help with oral care and that the inability of self-care is an indicator for the caregiver to perform oral hygiene properly. Matsuo *et al* (2016) [14] found a positive correlation between caries incidence and the number of days of life remaining. Poor oral hygiene is associated with oral diseases including caries and periodontitis. Teeth with active caries may cause pain and discomfort in the terminal phase of life, hindering feeding and compromising well-being.

This demonstrates the necessity to improve the quality and frequency of oral hygiene, within the limits of the patient's hematological parameters, as well as therapeutic measures to stop cavities progression and to preserve teeth function [32].

The prevalence of caries and plaque in the mouth of the patients studied was addressed in a few articles and it was not determined what posture should be taken in front of these cases, requiring to determine to what extent the dentist should intervene and perform the treatment of these cases [11,14, 18, 20].

4. Dysphagia

Difficulty in swallowing seems to be a comorbidity less prevalent than poor oral health among patients with terminal-stage cancer [33]. Wilberg *et al* (2012) [11], however, described a significant relationship between the patient's feeding difficulties and their perception of oral morbidity.

The cause of dysphagia in patients with advanced cancer is different from that found in neurological diseases or strokes, as there is a decrease in muscle volume due to malnutrition or cachexia [14].

Dysphagia was significantly more prevalent in patients with a short life time [14 FURUYA, and may be considered a strong criterion of palliactive care necessity [14,17 WALSH; AKTAS. Fischer *et al* (2014) [17] observed a prevalence of "swallowing problems" almost three times higher than that of Matsuo *et al* (2016) [14]. In contrast, Furuya *et al* (2022) [34] described that the swallowing function was relatively well-conserved and 46.3% of the participants were capable of nutrition intake solely by mouth [34].

In the study of Furuya *et al* (2022) [34], more than half of the participants did not wear their removable dentures despite needing them. Wearing removable dentures improves the ability to masticate and facilitates the swallowing of food. Dentists have a key role in palliative care in terms of supporting nutritional intake *via* dentures [34].

In addition to the absence of teeth and incompatibilities of removable prostheses, reduction of saliva and diseases such as candidiasis and mucositis could also be related to dysphagia [23,35].

The treatment of dysphagia is still a challenge. More recent studies show that exercises can improve dysphagia symtoms [36] and that electrical stimulation has not brought benefits [37].

5. Hypogeusia and dysgeusia

Changes in taste are extremely common in cancer palliative patients due to the adverse effects of drugs such as keratolytic agents, chemotherapeutic and cancer medication, antihistamine, antibiotics and angiotensin-converting enzyme inhibitors, analgesics, bisphosphonates and antidepressants [11, 38]. The study by Wilberg *et al* (2012) [11] stated that the change in taste is related to higher oral morbidity.

In the two articles included, taste changes were reported by 62% [11] and 78% of individuals [17]. This complication can have a great influence on oral function and, consequently, on the nutritional status and quality of patients' life.

Dentists can help alleviate this symptom through identification, discussion with the multidisciplinary team, oral hygiene improvement and prescription of potential therapies such as anti-xerostomia agents and photo biomodulation [39].

6. Orofacial pain

Orofacial pain is a concern that affects social interaction of palliative patients and interferes with their quality-of-life [17]. The mean number of patients that reported orofacial pain in the studies included was 23.3% to orofacial and 52% to intraoral pain [17].

Ten of the 16 terminal patients included in the study by Oneschuk *et al* (2000) [13] complained of localized pain in the gums. Although the gum may be a painful oral site, oral cavities and prostheses incompatibilities were not examined by a dentist to rule out potential sources of referred pain.

No studies were found on the treatment of orafacial pain in terminal patients, however the subject is widely studied in patients in general. Up to date studies shows several therapies reported, among them counseling therapy; occlusal appliances; manual therapy; laser therapy; dry needling; intramuscular injection of local anesthesia (LA) or botulinum toxin-A (BTX-A); muscle relaxants; hypnosis/relaxation therapy; oxidative ozone therapy; and placebo [40].

7. Oral mucositis

Oral mucositis is an acute and painful side effect of antineoplastic therapies (chemotherapy and head and neck radiotherapy). It affects non-ceratinized surfaces such as the entire gastrointestinal tract and is characterized by pain, ulceration and difficulties in feeding and phonation [41].

In the two studies included on the subject, 17.2% of the patients investigated had mucositis [19, 23]. This incidence is lower than that found for mucositis during chemotherapy and radiotherapy treatment probably because these therapies are often interrupted when the patient are in palliative care. These authors, also, did not relate the type of antineoplastic therapy (radiotherapy or chemotherapy) to the prevalence of mucositis and, for this reason, the toxicity of these therapies in the oral mucosa could not be analyzed. In the study by Xu *et al* (2013) [19], chemotherapy in conjunction with radiotherapy were associated with a higher prevalence of oral infections in general (68.4%) compared to chemoterapic (52%) or radiotherapy (53.9%) treatments in an isolated way [19].

Pain caused by mucositis is poorly tolerated by patients and is accentuated especially during the act of food intake [41]. The lack of information on this complication in the selected articles is worrisome because in addition to its prevalence being relatively high, the pain caused is poorly tolerated by patients and the reduction of this symptomatology should be studied more deeply.

In the literature there are many studies on mucositis during cancer treatment or during hematopoietic stem cell transplantation [42,43], however, there is a gap in the literature when it comes to respective therapeutic oncological PT.

With regard to oral mucositis in particular, we found that cryotherapy, where the patient makes the use of ice stones, ice cream or ice cream in the oral cavity 5 minutes before and 30 minutes after chemotherapy or longer periods, can contribute to the reduction of the degree of oral mucositis and the time of pain caused by the lesions [44,45]. In addition to cryotherapy, on recent studies, researchers recommend the use of low-power laser therapy, photodynamic therapy, honey, the use of chamomile tea as a mouthwash with good results [46,47,48,49, 50, 51,52].

Management of terminal cancer patients

Professionals involved in the treatment of terminally ill cancer patients are the key to establishing adequate oral health care [24]. In a hospital setting will be cared for by

nurses and other health professionals, ideally including a dentist on the team. However, if you live with family members in a permanent care home, the nearest caregiver may be a family member or person hired by the family [10, 24]. In the study by Ezenwa *et al* (2016) [24], 79% of the caregivers were family members, most of them women (77%) aged between 50 and 64 years (46%) [24] and only 48% became caregivers from formal training. Furthermore, more than half of the caregivers interviewed in the study reported that the patient's oral hygiene is one of the functions under their responsibility and of these, 81% mentioned the importance of this task in detecting potential oral problems developed by the patient. However, 30% of the caregivers examined the oral cavity only when necessary and 13% had never questioned the patient about possible oral problems. Furthermore, through the responses obtained from caregivers and patients, xerostomia was evaluated less frequently, suggesting that this symptom is underestimated by caregivers [24].

Gillam, *et al* (2006) [10], reviewed 11 articles and 7 of them highlighted the lack of training and education of nurses [18, 53, 54, 55, 56, 57, 58].

Most nursing courses do not adequately teach oral health care, which reflects the lack of training of nurses working in CP centers. The training of oral hygiene techniques performed by dentists for caregivers can improve the quality of care offered, the speed in the diagnosis of oral alterations and the response to patient complaints

Determining a protocol for the care of these and other complications of cancer – or cancer therapy – based on scientific evidence with the latest cutting-edge research results is of fundamental importance for the multidisciplinary team that works in the care of patients in PC. The protocols used in the articles included in this review were not standardized, a fact that hindered the analysis, interpretation of discussion of the data analyzed by this study. The authors summarized on Table 3 the Suggested palliative care protocol based on the up to date literature available for some frequent oral complications in TP with cancer.

The care of patients under PC should not be neglected by professionals in this area, it should be treated seriously for us dentists, to be more effective in care.

Based on the information obtained and all aspects discussed, it is noted that the literature is still scarce when it comes to oral manifestations in terminal cancer patients under CP. Data such as the prevalence of mucositis, orofacial pain, dysgeusia and dysphagia were addressed in a few articles of the review, and a better evaluation is needed to determine the real prevalence of these diseases.

As a consequence, the treatment of mucositis, dysgeusia, dysphagia and oral pain should be studied in depth in PT.

CONCLUSION

Finally, it can be obtained through this integrative review that the most prevalent oral manifestations in end-stage cancer patients are xerostomia, oral candidiasis, dysphagia, dysgeusia, oral mucositis, and orofacial pain.

The information on the behavior of oral manifestations and their treatments in patients under palliative care, especially in the long term, is lacking and there is little participation of the dental community in research on the subject and training of caregivers of terminal lye patients under palliative care. Dentists can be helpful on alleviate the symptom of these oral manifestations in TP, improving the quality of live in these final days.

ARTICLE HIGHLIGHTS

Research background

Resume the scientific evidence on oral conditions among palliative patients and its management

Research motivation

Update the dentist for diagnosis and treatment of oral complication in a multidisciplinary palliative care team

Research objectives

Synthesize the published evidence on oral conditions, impact, management and challenges in its managing among palliative patients.

Research methods

Integrative review

Research results

The total of 15 articles were eligible, analyzed and a protocol established.

Research conclusions

Oral manifestations are, oral candidiasis, dry mouth, dysphagia, dysgeusia, oral mucositis and orofacial pain. Determining a protocol for the care, based on scientific evidence, is fundamental for the multidisciplinary team that works in the care of terminal patients

Research perspectives

Other complications in terminal patients and their treatments still need to have further studying.

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