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## Research Article

### PREDICTABILITY OF CHANGES IN ORAL CONDITIONS IN PATIENTS IN A HOSPITAL UNDER PALLIATIVE CARE

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## INTRODUCTION

In palliative care, as in other areas of health, dental care includes prevention, cure and palliation, which consists of the management of patients with advanced progressive diseases, particularly when there is impairment of the oral cavity that impose in an impactful way the functions that are primordial to quality of patients. Their participation also includes diagnosis, treatment and, where possible, prevention of diseases specific to their area of action, which may worsen the delicate condition of these patients. Pain and odontogenic infections are determining factors and modifiers that weaken patients with compromised health, data presented by the National Academy of Palliative Care (2012).

Oral complications such as xerostomia, dysphagia, stomatitis and opportunistic infections are common in geriatric patients, but may also reach patients on cancer treatment, usually more intensively. This makes important the role of the dentistry team as part of the multidisciplinary team that cares for these patients, where control of chronic infections, such as periodontal diseases, is essential to avoid that acute local complications become systemic through bacteremia or via installed devices in the digestive or respiratory tract.

(Paunovich, *et al.*, 2000; Wiseman, 2006; Arpin, *et al.*, 2008; Jales, *et al.*, 2012)

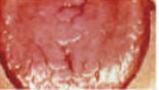
The oral conditions of patients undergoing palliative care have been described in the literature as bad, since broken teeth, absence of prostheses, caries and periodontal diseases are signs observed in institutionalized mouths throughout the world. (Mersel, 1989; McMillan, *et al.*, 2003; Mulk, *et al.*, 2014; Seo, *et al.*, 2016).

Steinmassi, *et al.*, Carried out a study in Austria and analyzed the deficiencies of tissue conditions and retention of 192 removable dentures of the elderly and observed problems of mastication, aesthetics, phonetic difficulties, traumatic ulcers and fractures of prosthesis pieces and loss of teeth from these devices.

Wiseman in India in 2006 and Mulk *et al* in Canada in 2016 described in their research respectively the poor oral conditions of patients undergoing palliative care and among the changes showed marked indices of xerostomia, angular cheilitis, bacterial plaque, caries and candidiasis may probably be due to the adverse side effects of systemic treatment such as the lack of daily care with oral hygiene, confirming with other studies by Wilwert, 2003; Saini, *et al.*, 2009; Pires, *et al.*, 2014.

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Bedside Oral Exam (BOE)				
Perform each Shift				
Category	Methods of Measurement	Numerical and Descriptive Ratings		
		1 Normal	2 Moderate Dysfunction	3 Severe Dysfunction
Swallow	Observe while patient swallows, check gag reflex	Normal swallow	Pain or difficulty with swallow	Unable to swallow (intubated, absent gag)
Lips	Observe	 Smooth, pink	 Dry or cracked	 Ulcerated or bleeding
Tongue	Observe appearance of tissue	 Pink, moist, papillae present	 Coated or loss of papillae with shiny appearance, with or w/o redness	 Blistered, cracked, or bleeding
Saliva	Observe Use tongue blade, touching the center of tongue and floor of mouth (optional)	 Watery	 Thick or ropy	 Absent
Mucous Membranes	Observe appearance of tissue	 Pink, moist	 Red or coated, no ulcers	 Ulcers with or w/o bleeding
Gingiva	Observe Use tongue blade, may gently press tissue with tip of blade (optional)	 Pink, firm	 Edema, with or w/o redness; with or w/o bleeding	 Bleeds easily
Teeth or dentures	Observe appearance of teeth or denture	 Clean or no teeth	 Local debris (between teeth)	 General debris, decay
Odor	Smell	Normal	Slightly to moderately foul	Strong foul odor

Modified from: Eilers, et al. (1988) "Development, testing, and application of the oral assessment guide." *Oncol Nurs Forum* 15(3): 325-30.

Figure 1 Inpatient Bedside Examination (Prendergast et al, 2013)

Dahn, et al., 2015, in their research in the United States, concluded and suggested that the use of oral health technicians, aim and are effective in improving the oral hygiene conditions of institutionalized elderly.

In Brazil, this line of research is recent, because as we are still a "young" country and our age pyramid is aging, they reveal little research in the area, and it is predicted until the year 2050 that our population of will triple as long as developed countries will double. (IBGE, 2008; Jales, et al., 2012).

It is also worth noting that the physical sequelae of patients undergoing palliative care can cause impairments in speech and senses, paralysis and disability. Patients who become unable to perform their own oral hygiene are susceptible to caries and periodontal diseases, which generate pain, infection and systemic health problems. Thus, pain control and oral-buccal infections, including oral hygiene measures, contribute to a healthy mouth, reduce the risk of opportunistic infections, and facilitate the nutritional support of these patients by reducing oral discomforts that influence speech, eating and deglutition, which justifies the presence of the dentist in the multiprofessional team of palliative care in a hospital (Paunovich, et al., 2003; Saini, et al., 2009; Katz, et al., 2010; Berry, et al., 2011; Prendergast, et al., 2013).

This paper aims to describe the oral health conditions of patients admitted to a Hospital for Palliative Care in São Paulo.

## METHODOLOGY

This research was approved by the Ethics Committee in Research - CAAE 61265917.5.0000.5512-Plataform a Brasil and after all the clarifications and benefits that the research can bring, the relatives and / or caregivers when in agreement, signed the Term of Free and Informed Consent authorizing the research.

Data collection of medical records and clinically 66 patients previously authorized and consented to a palliative care hospital, Hospital Premier - São Paulo, a hospital that gives priority to offering patients and families dignified conditions of general and oral health of the best quality, and in addition it has as a vocation and humanization, which is a great differential for the patients / family / careers and the professionals who work there.

General data were collected: age, sex, hospitalization time, basic disease, type of palliative care, type of diet, and dental data: DMFT (decayed, lost and filled teeth), dependency for oral hygiene, use and need of prosthesis, dental mobility,

presence of dental calculus and Bedside oral exam index (figure 1).

The Bedside Oral Care Exam (BOCE) ranks the critical patient's oral dysfunction according to the status of 8 buccal categories. Each patient receives a final score ranging from 8 to 24 and classifies it as normal, with moderate dysfunction or with severe dysfunction (figure 1).

Patients considered normal for this classification score 8 to 10. Meanwhile, patients with moderate risks score between 11 and 14 and those with severe dysfunction score 15 to 24 (Prendergast *et al.*, 2014).

The same researcher performed all the dental examinations using the EPIs, in the interval of 1 week, in January of 2016.

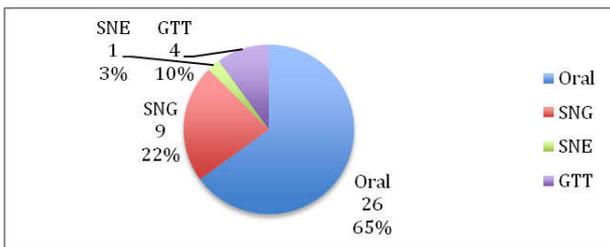
**RESULTS**

The results obtained from the oral conditions of 66 patients from a palliative care hospital are as follows:

Of the patients studied the mean age was 74 years (Standard Deviation - SD: 13.6). In relation to sex, 35.53% were female and 31.47% were male. Regarding race / color: white 58 - 87.87%, black 3 - 4.55%, and yellow 5 - 7.58%.

As a result of the sample characterization, we observed the length of hospitalization in months: 17 (SD: 16.2), the types of palliative care were 1 patient (2%) oncologic and the remaining 65 (98%) patients with neurological impairments.

Regarding the type of diet, we observed in figure 1 below:

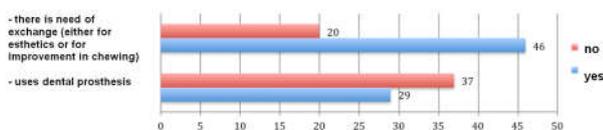


Clinical exams revealed presence of teeth in 39% (26 patients) and edentulism in 61% of the patients (40 patients).

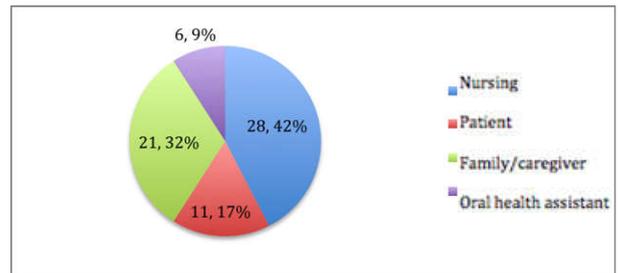
The Bedside Oral Examination Index, shown in Table 1 below, was applied in the evaluations.

Criterion	Average
swallowing	2
lips	1
tongue	2
saliva	2
mucous membrane	1
gum	1.5
teeth or prosthetics	1.5
breath	1.5
Total AVERAGE	12

**Table 2** below illustrates the use and necessity of mouth prostheses



Evaluating tooth by tooth were diagnosed dental mobility in 10 patients and the presence of calculus in 36 patients.



**Table 3** below illustrates who is responsible for and performs oral hygiene of patients

**DISCUSSION**

The basic principle of oral care in palliative care is that good hygiene is fundamental to oral integrity. Early clinical diagnosis of lesions and oral conditions should be performed in patients undergoing palliative care. And so, appropriate actions must be instituted to minimize pain and suffering, offering symptomatic relief. The causes of oral lesions may be fungal, viral, bacterial, ulcerative, immunosuppressive, radiation, and deficient hygiene. Most patients had at least one symptom (Silva, *et al.*, 2014; Reis *et al.*, 2005). As demonstrated in a study by Jales and Siqueira in 2012, with patients presenting head and neck cancer and exclusive palliative care, where all had multiple complaints, of the orofacial signs and symptoms of the disease, and even of treatments and / or associated morbidities, and sometimes evidenced as minimal and common interventions necessary for the quality of life of these patients positively making the big difference. The development of protocols for this type of care contributes to the reduction of the number of complaints, the use of drugs and improvement of the oral condition of these patients.

In Brazil, the last epidemiological survey of oral health showed that the loss of dental elements reached 91.9% of the population aged 65-74 years (Ministry of Health, Secretariat of Basic Attention - Brazil 2016). Reis *et al.*, 2009, mapped the oral conditions of 46 institutionalized elderly and found a high prevalence of caries and edentulism. In 2000, Silva *et al.* carried out a similar study and showed the quality of life impairment due to edentulism, periodontal disease and inadequate or maladaptive prostheses to these patients.

Elderly patients are susceptible to complications caused by prolonged bed rest during hospitalization, which is considered a risk for this population, which has its functional capacity diminished over time and also according to the general state of admission, and China, France, Canada, the United States and Norway described the poor oral health conditions of their institutionalized elderly (Lo, *et al.*, 2004; Samson, *et al.*, 2008). In our study, 83% of patients are totally dependent on their own oral hygiene and it is worth noting that elderly people with poor self-perception of oral health increase the responsibility of the health team to diagnose and treat signs of oral changes, as they can cause pain, dental fracture and possible inhalation of the fragment, in addition to bronchoaspiration pneumonia, prevention becomes the key word.

Thus, palliative care should include the investigations necessary to better understand and alleviate complications and symptoms related to both treatment and disease progression. Despite the negative or passive connotation of the palliative term, the approach and palliative treatment should be eminently active. Considering the devastating burden of physical, emotional and psychological symptoms that increase in patients with end-stage disease, it is necessary an early diagnosis and early, dynamic and active therapeutic behavior, respecting the patient's own limits (Jales and Siqueira, 2012).

Facial expressions of pain observed during the physical examination performed by the dentist who cares for these patients with cognitive decline, should be well observed as well as all involuntary reflexes (Hsu et al., 2007; Deyo et al., 2007; Jales and Siqueira, 2012). Caregivers of this population should be trained to be alert to expressions such as crying, tightening of the eyes, sweating, or sudden limitation of mouth opening at the time of tooth brushing or manipulation of the orofacial region (Eritz et al., 2011; Delwel et al., 2017). Dental surgeons should also constantly update themselves in relation to pathologies, seeking to implement effective and recommended therapeutic measures regarding the diagnosis and treatment of orofacial pain (Deyo, et al., 2004; Berzin, et al., 2009).

Periodontal diseases are the most prevalent oral diseases associated with systemic diseases. It has established its relationship with systemic diseases such as diabetes, kidney disease, heart disease and osteoporosis (Prendergast, et al., 2009; Bingham, et al., 2010).

With respect to those weakened by their systemic condition and limitations become more susceptible, to the outbreaks of infection, often chronic and asymptomatic and even lethal (Lo, et al., 2004; et al., 2013).

A simple way to prevent these conditions is to remove oral biofilm by daily tooth brushing and cleaning of buccal mucosa including tongue, lips and cheeks (Berry et al., 2007; Scannapieco et al., 2009). Prendergast, et al., 2009 and Prendergast, 2013, have shown that it is a safe procedure even in intubated and unconscious patients. They described an illustrated oral disease protocol that can be used by the entire multidisciplinary team. The mouth is divided into 7 segments to observe: swallowing reflexes, tongue, lips, saliva, mucous membranes, gums, teeth or dentures and odor. According to each score of all aspects, a score is given and the end result indicates three levels of risk (mild, moderate and severe) with your hygiene routines. We used this index in our study and obtained a mean of 12, that is, moderate oral health conditions.

There are oral hygiene protocols in hospitalized patients published in Brazil. The Department of Dentistry of the Faculty of Medicine of the University of São Paulo, published in 2014, how they performed oral decontamination in their patients by hygiene with 0.12% of chlorhexidine gluconate 2 times a day. Franco, et al., 2014, also published, the same protocol of researchers of AMIB 2013. (Association of Intensive Medicine of Brazil).

Mersel, 1998; Binkley, et al., 2004 reported the following rates of UTI care in the United States: 66% of the nursing staff found

that oral hygiene was important, 31.7% said it was an unpleasant activity, 46% reported being difficult to accomplish this task, while 65.3% report having had adequate training.

In 2007, Lorente et al. Carried out a similar study and described the oral care performed by nursing teams in 59 European ICUs. Oral hygiene with chlorhexidine is usually performed once a day, 81% of centers have the necessary supplies, 63% have reported that the use of suitable toothbrushes can improve their processes and 27% of preferred electric toothbrushes. Regarding attitudes, 88% think oral care is a priority, 10% reported that it is an unpleasant activity, 25% found it difficult and 66% reported having had adequate training.

In 2014, Bellissimo-Rodrigues, et al., Published a study in which they described the addition to the benefits of routine oral hygiene and the importance of removing infection outbreaks and fractured teeth, scraping of dental calculi, atraumatic restorations of cavities and teeth brushing them. The study included 254 patients in the control groups and the results indicated that in addition to brushing the mouth, dental procedures aimed at removing local outbreaks of infection are effective in controlling infections of the lower respiratory tract. Johnson, et al., 2012; Ganz, et al., 2013, showed similar results and performed a pre- and post-descriptive study after and before the introduction of an oral hygiene protocol in two intensive care units of a hospital trauma and also showed that nurses' attitudes are and that adherence to team support should be considered when initiating changes in the oral care protocol and evidence-based practices. There are other similar studies published in Hong King, China and the United States (Berry, et al., 2011; Yeng, et al., 2012).

## CONCLUSIONS

The clinical implications of this study were very beneficial for the Department of Dentistry of the Hospital Premier, in São Paulo, where the data were collected and revealed as safe sources of a diagnosis, for the implementation of conduits aimed at improving the patients' oral health conditions, and the diagnosis found we suggest:

- Greater knowledge of patients' oral health status
- Dimensioning of the dentistry team for curative treatment
- Need for a hygiene protocol in a joint work of the nursing team with the dentistry team
- Continued collection of data on oral diseases found throughout the work of the teams with the objective of constant reassessment and re-adaptation of the strategies used.

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