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HOSPITAL INFECTION ASSOCIATED WITH PERIODONTAL DISEASE AS RISK FACTOR FOR NOSOCOMIAL PNEUMONIA

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ABSTRACT

Hospital infections are related to great morbidity and mortality in intensive care units, and the high cost of spending on treatment for the disease. Seeking to establish the profile of the need for oral health care of these patients in preventing periodontal disease as a risk factor for infection nosocomial. A search was made through articles correlated with efficacy in the prevention and efficiencies techniques suitable for oral health care of these patients. The objective of this study was to review the need for a dentist. Among the multidisciplinary teams and the effective of its work on the prevention of nosocomial pneumonia infection.

INTRODUCTION

The 100 patients with endotracheal ventilation 80 develops pneumonia, because the mouth has pathogens that help the development of this disease (Cardenosa Cendrero *et al.*, 1999). In a survey conducted with 16 patients admitted to ICU with mechanical ventilation can be identified 7 patients with xerostomia, and nine patients had 10 lip lesions, 8 tongue lesions and 8 mucosal lesions. And of these 44% had pneumonia frame. Gram-positive microorganisms were evidenced in the oropharynx (Treolar and Stechmiller, 1995). The nosocomial Pneumonia is the second leading cause of hospital infections and has a significant death rate is 10% to 15% of hospital infections, and 20-50% of patients with this type of pneumonia will die. Patients in the ICU and are mechanically ventilated are between 20% to 25% of hospitalized and the mortality can reach 80% (Kahn, 2008 and Amaral *et al.*, 2009). The mouth hygiene develops without an increase in the number of species of microorganisms in 24 hours that can be visible with the presence of dental plaque (Lindhe, 1999).

The mouth is an enabling means for colonization of respiratory pathogens, about 65% of ICU patients have these pathogens in the mucosa of the mouth and dental plaque (Scannapieco *et al.*, 1998). Thus, a systematic control of the oropharynx should be conducted to prevent the emergence and worsening of many infections, among them nosocomial pneumonia. This is possible with interdisciplinary care as it will result in better quality of life for ICU patients by preventing or minimizing the appearance of these oral pathologies rise. In this team the presence of the dental surgeon is of paramount importance, as the total percentage of bacteria in the mouth can reach 70% in the biofilm, 63% in the language, and 73% in gastro esophageal tube (Nunes *et al.*, 2014). The interdisciplinary in the care of the patient hospitalized in ICUs is not only the environment and the special equipment, but mostly treatment decisions based on the scientific expertise of each area. Therefore, this study aimed to conduct a survey of the literature to identify the mouth health control problems in the measures taken by dentists and nurses without the correct orientation.

MATERIALS AND METHODS

We performed a detailed search of scientific articles with themes common across a database, including the Medline,

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Pubmed, scielo and bireme with publication of criteria in 1999 will 2014 (Figure 1). The inclusion and exclusion criteria were to select 30 articles among all respondents with common themes. Through reading and reflection of the chosen. Discussion and identification was made on the common points and end a conclusion the observation of related studies and objectives presented by them.

Schubert *et al.*, 2012). In a survey which was conducted 402 interviews with members of the nursing board of public and private hospitals in the city of Belém-PA. From July to novembro 2007 (CardenosaCendrero *et al.*, 1999), in order to know what amounts of a dentist in the multidisciplinary team in ICUs of these hospitals.

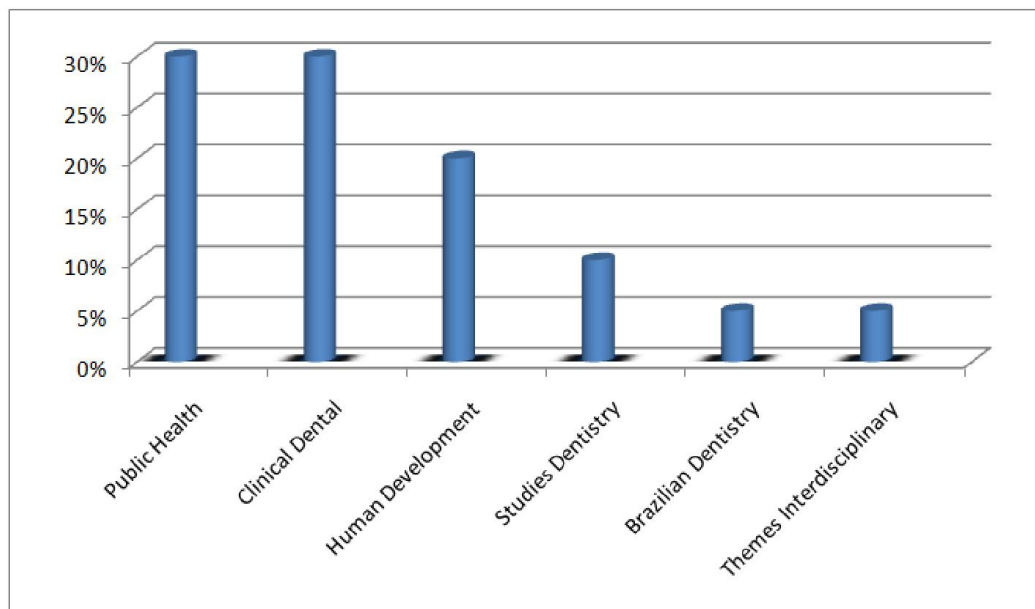


Figure 1. Graph showing the percentage of jobs posted on the current work in newspapers with various themes (from Pubmed, 2015)

Development - Literature Review

Nosocomial pneumonia is the second largest hospital infection, it is one that develops after 48-72 hours of admission of the patient in an Intensive Care Unit (ICU) (Baum, 2007; Beiklerand Flemmig, 2000; Camargo, 2011; Chandra, 2007 and Doro, 2006). Patients who are in intensive care are often immunologically committed to a critical state of health, with some particular requirements, among them the endotracheal ventilation, mechanical ventilation (MV) (Feijóand Coutinho, 2005; Godoi *et al.*, 2009; Gusmão *et al.*, 2004 and Koeman *et al.*, 2006). Because of their immune status happens to decreased salivary flow due to some procedures and therapeutic dehydration which aims to increase respiratory and cardiac function of the patient (Nunes *et al.*, 2014). The oral flora these patients immediately after their admission undergoes a change from the normal predominance of gram-positive streptococci and some dental pathogens to gram-negative organisms predominant form a more virulent flora that contains pathogens of pathogenic bacteria to the mucosa of the mouth and the trachea (Martinelli, 2011; Meira *et al.*, 2010 and Pasetti *et al.*, 2013).

The lack of oral hygiene coupled with power via the endotracheal tube and ventilated. Causes there is a plaque accumulation thus leading to inflammation of the gums and the dental calculus thus contributing to the opportunistic infections such as nosocomial pneumonia. The great difficulty in the control and prevention of this disease in the ICU. It has happened due to lack of trained and qualified professionals in multidisciplinary teams of hospitals (Pizzo *et al.*, 2010; Queluzand Palumbro, 2000; Rayaand Bezerra, 1997 and

That oral health is important in preventing a systemic disease and know how to make oral hygiene. With is research achieved the following results. That 86% of nurses surveyed consider necessary the presence of a dentist in their teams, and 99% of them agree that oral infection can lead to impaired health status of the internal in general (CardenosaCendrero *et al.*, 1999), and it is of utmost importance to hygiene the mouth during their stay in the ICU. And these professionals do not receive training on how to proceed and are not trained for this. Through the bill 2.776 / 2008 authored by Congressman Neilton da Costa (PR / RJ). It was established the requirement of a dental surgeon in ICU public, private and also in clinics where there is intensive treatment of patients. Together with the code of ethics of Art.18 of dentistry (Chapter IX) where it says it is for the CD and watch patients admitted in public or private hospitals with or without philanthropic character (Senpuku *et al.*, 2003; Souza *et al.*, 2013 and Stevão, 2011).

In Art. 19 it states that dental care services performed in hospitals. Obey the rules of the Federal Council along with Art.20 which says establishing constitute ethical violations even in a hospital environment, perform surgery outside the scope of dentistry (Camargo, 2011). The main task of the CD on the team in ICUs are present in the care of the oral health of these submitted or not to mechanical ventilation patients. Through tongue dental cleaning brushing, chlorhexidine gluconate applying 0.12% throughout the oral cavity. In addition to the cleaning and care of prostheses caused injuries and traumas due to intubation. The clorixidina is used with a concentration of 0.12% which allows its over 30% withholding buca cavity, it is to date the most effective agent

in controlling biofilm and antimicrobial (Chandra, 2007) inhibitor plaque which can prevent inflammation of the gums thus helping in the prevention of nosocomial pneumonia infection. Another factor to consider is the importance of promoting oral health for inpatients. The simple realization that a simple dental prophylaxis, fluoride application and teaching efficient brushing techniques. They helped all to prevent an infection as it is and his health in general.

DISCUSSION

We know from some studies that nosocomial pneumonia is the second most common nosocomial infection, patients in ICUs and are mechanically ventilated are between 20% to 25% of hospitalized and the mortality can reach 80% (Kahn, 2008; Amaral *et al.*, 2009; Nunes *et al.*, 2014 and Godoi *et al.*, 2009). Pneumonia is an acute infection of the lungs that produces respiratory signs and symptoms such as cough, shortness of breath, production of mucus and secretions such as chest pain and fever including muscular fatigue and loss of appetite. Their means of more frequent contamination is infection by tracheal intubation in patients who require the use of mechanical ventilation (MV). Due to the patient's depression delibitação your level of consciousness using the probe or nasográstica cannula, in association with decreased salivation (xerostomia) and the use of poorly cleaned dentures and lack of daily cleaning and plaque build-up Bacterial (Chandra, 2007; Feijóand Coutinho, 2005 and Godoi *et al.*, 2009).

Thus, through the accumulation of plaque and the inversion of gram-positive bacteria to Gram-negative will be the development of periodontal disease. This disease is known as infectious inflammatory disease involved in the destruction of the tooth supporting tissues (Chandra, 2007). In some of the literature we can learn the correlation between oral health to systemic diseases as a whole. The oral cavity is the input port and through the powder body in reversing especially bacterial gram negative rods in the respiratory tract through the suction secretions present in the oropharynx and inhalation of contaminated aerosols by patients in ICUs which makes use of the VM It is the development of nosocomial pneumonia (Beiklerand Flemmig, 2000; Camargo, 2011 and Doro, 2006). These patients are affected by this disease as shown in the literature by the lack of proper oral hygiene.

In most hospitals with ICUs people responsible for the oral hygiene of these patients are the nursing staff. The fact is that they do not receive training nor are taught so that should be the oral hygiene of these patients (Godoi *et al.*, 2009; Baum, 2007; Camargo, 2011 and Doro, 2006). And one of the main problems currently found in the literature is the lack of a dentist among the multidisciplinary teams of hospitals with intensive care units (ICU). With other factors the literature indicates the lack of hygiene in the realization of these patients both by the nursing staff and the chaperones themselves; it happens by the lack of oral health promotion within the hospital environment (Doro, 2006). One technique that has proven most effective for the prevention of such contamination in the ICU, is the use of chlorhexidine. Chlorhexidine is a chemical antiseptic compound having antifungal and bactericidal action which are capable of

eliminating the gram-positive bacteria. Also possessing bacteriostatic inhibitory action of bacterial proliferation. Its action is to place the dental surfaces, gum and buccal mucosa (Baum, 2007). Combined with mechanical control, chlorhexidine shows its effective. Because of its antiseptic property and power adsorption (power to retain the oral surface and released slowly). Helping in the prevention of caries and periodontal disease are the doorways to the nosocomial infection (Baum, 2007).

Other studies have shown that treatment for patients with nosocomial pneumonia are also associated with higher spending a day with these patients hospitalized in ICUs, both in public and private hospitals. Besides the increase in the permanence in ICUs that can lead overcrowding especially in the hospitals of public health system (Beikler and Flemmig, 2000). Thus, the dentist can work together with the team in diagnostics help, prevention, treatments, oral health promotion and with the use of antimicrobial solution as an adjunct or primary method for oral hygiene of these patients resulting in the prevention of pneumonia nosocomial and goals achieved in preventing systemic complications for the same. It was observed that the treatment for a patient who contracts the infection is nosocomial pneumonia average R \$ 602.17 per day. As with blood stream infections of the higher spending and high economic impact for the NHS (Beikler and Flemmig, 2000).

Conclusions

We can understand the importance of oral care for patients in intensive care units as well as the need for oral health promotion as a means of prevention in hospitals. For these patients receive proper treatment that there is a need for the presence of a dentist among the multidisciplinary teams of both public and private hospitals.

Competing interests

The authors declare que they have no competing interests.

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