



ISSN: 0976-3376

Available Online at <http://www.journalajst.com>

ASIAN JOURNAL OF
SCIENCE AND TECHNOLOGY

Asian Journal of Science and Technology
Vol. 08, Issue, 12, pp.6979-6985, December, 2017

RESEARCH ARTICLE

IMPACT OF THE INSTITUTION OF A PROTOCOL OF HYGIENE BUCAL UNDER PNEUMONIA RATES IN A HOSPITAL OF PALLIATIVE CARE

*Giacometti, S.H.N., Kallas, M.S., Toigo, M.C., Salman, S., Georgevich-Neto, R., Santos, C.C., Villalba, H. and Giovani, E.M.

Center for Studies and Special Service for Patients, Faculty of Dentistry, Paulista University, Institute of Health Sciences, São Paulo, Brazil

ARTICLE INFO

Article History:

Received 22nd September, 2017
Received in revised form
04th October, 2017
Accepted 13th November, 2017
Published online 29th December, 2017

Key words:

Protocol of oral hygiene,
Rates of pneumonia,
Hospital of palliative care.

ABSTRACT

The maintenance of quality of life, implies oral hygiene and oral health care; but this type of attention for long-term patients is still low, mainly because they are no longer able to perform hygiene due to lack of motor control or due to the limitations of the disease, depending, therefore, on the help of third parties. This critical issue becomes an important risk factor for ventilator-associated pneumonia due to the reduction of natural upper airway defenses, indicating the importance of a strategy for implementing a hygiene and oral care program based on clear evidences and protocols, to improve this reality through the training of a professional palliative care team, aiming at reducing both the mortality rates and the infection rates and the hospitalization time of this patient. The objective of this work, is to apply a dental hygiene training program to the nursing team and caregivers of a hospice hospital to raise awareness of the relevance of their role as providers of oral health care in identifying the conditions that may predispose a patient in need of mechanical breathing, to certain systemic conditions, mainly pneumonia. The project aims to formulate a comparison of the pneumonia rates, before and after the implementation of the training and calibration program of the oral hygiene prevention conduits and oral care, to be applied to the patients of this institution.

Copyright©2017, Giacometti et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

In front of pictures where the disease usually leads to a decrease in the effectiveness of curative treatments, as well as the inability of the patient to maintain his full functions, which leads to the evolution of other pathologies, and also the establishment of discomfort and pain, potentializing his suffering, that the World Health Organization (WHO) published in 1990 its first definition of Palliative Care. After reviewing in 2002, he stated that, "Palliative Care is an approach that promotes the quality of life of patients and their families, who face diseases that threaten the continuity of life, through prevention and relief of suffering. It requires the early identification, assessment and treatment of pain and other physical, psychosocial and spiritual problems." This approach should be carried out by a multidisciplinary team with specific knowledge, possibilities of clinical and therapeutic intervention, predicting performance according to principles established by WHO (1986): Promote pain relief and other unpleasant symptoms; To affirm life and consider death as a normal process of life; Do not accelerate or postpone death; Integrate psychological and spiritual aspects in patient care;

Provide a support system that enables the patient to live as actively as possible, up to the time of his death; Provide support system to assist the family during the patient's illness and to face the mourning; Multiprofessional approach to focus the needs of patients and their families, including grief monitoring; Improve the quality of life and positively influence the course of the disease; It should be started as early as possible along with other life-prolonging measures such as chemotherapy and radiation therapy and include all the investigations necessary to better understand and control stressful clinical situations. Brazil is a country that has as its culture to turn to hospital services when it comes to a case of more serious or continuing illness and this causes greater demand for Palliative Care teams in this environment, formed by trained medical and nursing care and or by making use of outsourced professional services that operate in a set of beds of a particular unit or area and are responsible for patients who remain hospitalized for an indefinite period of time. There is evidence that improved oral care can reduce these risks and this makes more relevant the role played by oral health care providers since their identification of conditions that may predispose a patient to certain systemic conditions, including pneumonia. In 2013, the Department of Dentistry and Nursing - AMIB, made available a Standard Operating Procedure, which aims to: Implement the routine of oral hygiene by interprofessional team - Nursing and Dentistry; Keep the oral

*Corresponding author: Giacometti, S.H.N.,

Center for Studies and Special Service for Patients, Faculty of Dentistry, Paulista University, Institute of Health Sciences, São Paulo, Brazil

cavity clean; Reduce colonization of the oropharynx and, consequently, prevent contamination of the trachea; Control the biofilm in the oral cavity; Hydrate the intra and peribuccal tissues; Detect infectious foci, mucosal lesions, presence of foreign body, pain in the orofacial region or difficulty in the movement of the jaws; Reduce the risks of respiratory infection, due to the content present in the oral cavity; Provide comfort and well-being to the patient. He also instituted a frequency sequence of oral hygiene; listed materials / medicines / equipment / instrumental required; described the steps of the procedures; the steps of how to proceed to oral hygiene; as well as its recommendations. The implementation of these procedures aim to: Standardize routine procedures and materials / solutions used in oral hygiene for critically or critically ill patients; To effectively control the biofilm of the oral cavity; To contribute decisively to reducing the risk of nosocomial pneumonia; Detect and prevent oral lesions and temporomandibular dysfunction (TMD); Identify and eliminate infectious foci; Contribute to reduce the time of hospitalization / stay in bed and rationalize the use of antibiotics; Improve critical or critical patient care, resulting in improved indicators

Literature Revision

The palliative care in Brazil is recent and began in the 80's, has as a proposition the action of a multiprofessional team focused on patients who no longer receive curative medicine. This interdisciplinary team has the responsibility of assisting, working the physical, mental, social and spiritual aspects of the patient and his family, in coping with and adapting life changes caused by illness and pain, using reflection as conduct and information. technology has brought with it increased survival, turning death into a process that can be prolonged. There is a slow growth in palliative care, but the reality is that experience is still only acquired in practice, making it difficult for the work of the teams in general, since these professionals need to master their role in order to complement the knowledge of the group, for a broad and diversified performance at the terminal moment of the patient, when it needs to be fully assisted (HERMES, 2013). Pain, according to the International Association for the Study of Pain (IASP), in 1979, encompasses physical and psychological components that, with all their complexity and unfolding, have a strong social and economic impact on people's routine and quality of life. Researchers state that chronic pain is accompanied by somatic and psychosocial changes that are part of the problem as a whole, associated with the fact that it is an individual experience in its manifestation and intensity, which varies according to several factors, interfering considerably in the suffering. Given this situation, the disease requires a readaptation in the family and social context of this individual.

A proposal for treatment is found in palliative care institutions, which has an interdisciplinary team of health professionals trained in this subject. The main principles of palliative care are pain relief and stressful symptoms; minimize factors that have a negative impact on the patient's quality of life; empathy for a correct approach, since pain in demented or impaired patients is often under-diagnosed and under-treated. The hygiene of the body is already a practice in the routine of hospitals and the proposal of the practice of oral hygiene adds to the increase of comfort, well being and especially of the health of this patient, acting as a real motivating factor to the

continuity of life (LEMOS, 2011). In dentistry, palliative care is the treatment of patients with advanced or progressive disease, the oral cavity being involved in the disease or its treatment. The dental professional should be part of the palliative care team, since the oral cavity is one of the regions of the body most affected by the disease, including the maxillofacial region, by the side effects of other pathologies of diverse origin, such as xerostomia, mucositis, candidiasis, among others; in addition to its importance in relation to nutritional health, a goal to be achieved, including the possibility of feeding comfort to preserve the taste of food. Oral diseases such as periodontal disease, infected dental roots, odontalgias and masticatory myalgias should be diagnosed and treated to avoid aggravation and confusion of the patient's clinical condition. In these cases, oral hygiene reduces irritation, minimizes oral complications and tissue damage. The reevaluations should be periodic for evaluation of oral health conditions and possible recurrences (Siqueira *et al*, 2013; Miranda, 2015).

There are more than 300 species of bacteria present in the oral cavity that are in equilibrium under normal conditions, but if in disequilibrium, either for systemic reason, disease or caused by medication, they lead to a change in both its characteristic and the type, leading to an increase in the presence of Gram negative bacteria (more pathogenic) due to the high levels of protease that favor its fixation on the surface of the teeth, which, together with a precarious or non-existent hygiene, forms a reservoir that leads to the establishment of its colonization. In addition, endogenous factors associated with the use of contaminated respiratory equipment and the possibility of cross-contamination lead to a scenario favorable to the presence of pneumonia associated with mechanical ventilation. Even without strong evidence, the Center for Disease Control and Prevention (CDC) recommends the oral hygiene program and decontamination of the oral cavity with antiseptics such as chlorhexidine for patients in intensive care units (ICU) in an attempt to control respiratory infection (Sarin, 2008; Faema, 2016).

In the hospital setting, the presence of a Dentist Surgeon means a supporting role in medical therapy, bringing greater comfort to the patient regarding the diagnosis of oral changes and pathogenicities, emergency interventions against trauma, preventive action in relation to infection hospital and to the aggravation of systemic condition, restorative and curative procedures of adaptation to the buccal environment. This situation corroborates with studies that prove that professional follow-up improves oral hygiene, reducing the progression of respiratory diseases, especially in palliative and high-risk patients hospitalized in ICU. Oral hygiene often refers only to mouth and teeth, but the tongue also acts as a colonizing focus in the universe of the oral microbiota, which may interfere with the general health of the patient. Normally, the savory tongue consists of food remains, active enzymes of the digestive process, desquamated cells, fungi and bacteria, being related to halitosis. Studies evaluated the biofilm formed in the mechanical ventilation tube with dental biofilm and tongue, finding *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Klebsiella pneumoniae* and *Escherichia coli* and indicated that 63% of the biofilm were exclusively present on the tongue. For effective cleaning of the tongue flap, the use of a tongue cleanser is indicated along with other oral hygiene devices, overlapping with the use of the dental brush and gauze. (1988).

There are risk factors that contribute to a change in the colonization of microorganisms in the oral cavity and in the respiratory tract, such as increased gastric pH, sinusitis and antibiotic use, as well as decompensated diabetes mellitus, hypotension, acidosis, uremia, leukocytosis, leukopenia and ethylene, lead to increased colonization of bacteria in the dental plaque, nose, facial, oropharynx and gastrointestinal tract regions. There are also external factors, such as the use of contaminated respiratory equipment that lead to increased colonization through aspiration of secretions from the oropharynx or inhalation of aerosols with viable microorganisms, thus making bronchoaspiration and plaque formation as the main factors for the development of pneumonia (Silveira, 2010). Pneumonia is an acute respiratory disease of a multifactorial nature, according to the International Code of Diseases (CID-10), which affects the pulmonary parenchyma, causing an inflammatory process by agents of bacterial and viral origin and is the main cause of nosocomial infection in Intensive Care Units (ICU) due to adverse effects; already in the hospital environment, the main infection is pneumonia associated with mechanical ventilation (VAP) and has as general characteristic the development in 48 to 72 hours after the endotracheal intubation, together mechanical ventilation or 48 hours after its extubation, with varying rates between 9 and 40%. Studies show that the mortality rate for VAP can reach 76% when its etiologic agents are resistant microorganisms, but in general, it varies between 24% and 50%; this is due to the constant exposure of the patient to the wide variety of pathogenic microorganisms in the hospital environment, to the imbalance of their oral microbiota, to the constant use of potent antimicrobials and to a wide spectrum, besides the aggravating of the invasive procedures (COSTA, 2016).

Considering that microbiota of the oral cavity is a threat to critical patients, colonization prevention strategies have been studied: the use of nonabsorbable topical antibiotics was not recommended because it led to the induction and selection of resistant pathogens; the use of antiseptics in oral hygiene, especially chlorhexidine, a broad spectrum antimicrobial agent against Gram positive bacteria, showed a prolonged residual effect (for up to 5 hours after application) because it is absorbed by the tissues, favoring its use as a preventive measure to PAVM, being a safe, well tolerable component that showed no side effects and presented low hospital costs (BERALDO, 2008). According to the World Stroke Organization (UK) in 2015, stroke associated with pneumonia is a major cause of infection acquired in hospitals. The incidence of pneumonia and respiratory tract infection among elderly people living in nursing homes is reduced when they receive high-quality professional oral health care and there is evidence that adequate oral hygiene may reduce the incidence of stroke-associated pneumonia and improve health, comfort and quality of life of hospitalized patients. This theory is still inconclusive because of poorly designed designs, non-representative samples, inadequate reporting, and restricted descriptions of clinical interventions. The study states that oral hygiene in palliative care settings is inadequate, even with a motivated nursing team, due to a wide disparity in support and care needs (BRADY, 2015).

The nosocomial infection that occurs in Intensive Care Units (ICU) is ventilator-associated pneumonia (VAP), with an incidence ranging from 9% to 27% and a mortality rate of up

to 50% for tracheostomized patients. The prevention of VAP is a fundamental part of the management of patients undergoing mechanical ventilation, as it is associated with prolonged hospitalization, increased cost of treatment and rates of morbidity and mortality. The Centers for Disease Control and Prevention (CDC) in the United States reported mechanisms that may be responsible for VAP, inhalation of bacteria-containing aerosols, aspiration of oropharyngeal organisms, hematogenous dissemination of sites distant from the body, and bacterial translocation of the gastrointestinal tract. The most significant is the aspiration of oropharyngeal organisms in the distal bronchi. (Hoshijima, 2013). Oral health has shown to have low priority in the activities of the nursing team, but paradoxically, they are the ones that perform most of the oral health care in the patients. The problem is not learning about oral health care, but transmitting the acquired knowledge to others in the context of nursing. Changes require the commitment of the leadership, so that they motivate their team to participate in activities to improve the quality of life. Identifying specific professionals by daily oral care within the long-term care center can develop a new perspective on the oral health problem. Studies indicate that training some team members to make an assessment of oral health has increased the awareness of all nursing teams about the importance of oral hygiene (Wardh, 2003). JIEP (2016) addressed the guidelines of oral care practice for hospitalized adults and care dependents outside the intensive care unit where oral hygiene is an important intervention associated with the prevention of pneumonia and nurses often do not have knowledge based on evidences to recommend suitable oral care and as a result, it is observed that the oral hygiene of patients under palliative care is treated as a measure of comfort, making their clinical practice very low. This study aimed to develop practical guidelines for oral care for palliative care patients through the involvement of interdisciplinary team to identify evidence based on oral evaluation. Team members should work together to achieve a common purpose and resolve the problem of aspiration of the tracheostomized patient with reduced motor function as well as reduced tongue control, xerostomia or cognitive dysfunction - practice in several different disciplines: nursing, respiratory physiotherapy, speech pathologist and dentist (Nguh, 2016).

Proposition

- To compare the rates of pneumonia in patients hospitalized at the Hospital Premier - São Paulo, under palliative care, before and after the institution of a program of hygiene and oral care, as well as training and calibration of the prevention and oral hygiene conduits for the nursing team and caregivers, to be applied in the patients of this institution.
- Awareness of the palliative care team for the standardization of the patient's oral hygiene program, aiming at a qualitative analysis of the development of consistent competencies.
- To overcome the resistance of the nursing team and caregivers in relation to increased responsibility in the implementation of a hygiene and oral care program, verifying if the practice is being followed according to the established protocol and if there is continuity of the process, validating the concept of health integrated.

- Early detection of oral cavity abnormalities in hospitalized patients under palliative and tracheostomized care.

MATERIALS AND METHODS

Materials

Patients hospitalized at the Premier Hospital in São Paulo, undergoing palliative care, of both sexes, of all races and over 18 years of age, with low level of consciousness, unable to self-care, requiring mechanical ventilation (orotracheal intubation) and without compromising oral opening, totalizing 72 individuals. From the beginning of the project until the effective implementation of the oral hygiene protocol, there were 8 casualties, of which 2 were discharged and 6 were discharged, thus the sample was represented by 64 patients.

Among the patients who required orotracheal intubation, only 12 had the consent of the relatives responsible to participate in the program with the collection of oral substances, to be referred for laboratory analysis, before and after the institution of oral hygiene protocol. The inclusion was made through the signing of the Term of Free and Informed Consent for persons legally incapable, illiterate, functional illiterate or with hearing, visual or motor deficiency. All patients whose caregivers did not consent to their participation were excluded. During the course, one patient died, totaling a table with 11 participants. The referred research was approved under the number of the protocol of approval in the Ethics Committee: CAAE 57756716.2.1001.5512, starting date 04/05/2016.

Methods

A presentation on the main oral complications in hospitalized patients was developed for the institution of the oral hygiene protocol for the nursing team and caregivers, evidencing the mouth as a systemic risk factor due to its characteristic of infectious focus, mainly for pneumonia, in patients dependent on mechanical ventilation, and thus demonstrating the importance of oral hygiene. The necessary materials listed for the operation of oral hygiene consisted of: cap, disposable latex gloves, gauze, 10 ml of Clorexidine 0.12%, toothbrush with soft bristles for oral hygiene and brush with normal bristles for hygiene of the plaque bite when present, toothpaste, tongue scraper and dental floss. For the control of the hygiene done by the nursing team and caregivers, a daily questionnaire of each patient was implemented, with identification of the person responsible for hygiene, schedule and analysis of difficulties encountered during the procedure. The following indices were used for the data collection: CPO-D index for evaluation of decayed, lost and obturated teeth; the evaluation of oral hygiene was measured by the Oral Hygiene Index - Simplified (IHO-S); the Lingual Saburra Index (ISL) and halitosis. The exams were performed in bed, with indirect lighting and the collection of the saber made with wooden spatula, gauze, glass plates and use of fixative. The analysis was performed by the Microbiology Laboratory of the Paulista UNIP University of Sorocaba.

For the analysis of the presence of pathogenic microorganisms in the buccal environment, saliva was collected with the Pasteur pipette, deposited in eppendorf, stored in Styrofoam box with dry ice during transport and suitable refrigeration for later analysis in the POLI Analysis Laboratory -USP. The data

were annotated in the clinical records of the exams and all the procedures performed within the universal biosafety standards, using personal protective equipment (PPE). The evaluation of the oral clinical condition was performed through the collection of material for laboratory analysis in two moments in patients with orotracheal intubation: before the institution of the Oral Hygiene Protocol and soon after its institution. The first step of the data collection consisted of the evaluation of the CPO-D of each patient, followed by the ISL collection through tongue scraping, posterior fixation of the material on glass slides and analysis of halitosis. In the second stage, saliva was collected for analysis of the oral microbiota by means of eppendorfs with a minimum of 1ml of secretion and refrigeration in dry ice for 3 hours, until definitive rest at -80°C, to await the moment of analysis. The methodology used was MALDI-TOFMS.

The aim of the orientation of the oral hygiene protocol was to standardize an oral hygiene method to be performed as a daily routine in patients. Due to the difficulty of bringing all the team together during the working hours without causing any harm to the patients, 2 groups of different shifts were formed, with the presence of the nurses responsible for the wings, and their mission was to capture the knowledge presented in the workshop format, interactive, with demonstration made in a macro model, with room for doubts and debate about clinical and theoretical performance, in order to become replicators for the other team members who were not present. The first group, of the morning shift, had 13 participants; The second group, of the afternoon shift, was attended by 8 members. The night shift, by the advanced time they took, found the patients already at rest, so they did not participate at this time.

Here are the step-by-step guidelines for the procedure: (Protocol)

- Step 1:** Serene conversation with the patient, informing about the procedure to be performed, because understanding can result in more collaboration. Light up the bedroom and position the bed in sloped mode.
- Step 2:** Preparation of the professional through the paramentação with cap and mask; perform hand washing with liquid soap (degermante, pH neutral), rubbing from the fingertips towards the palm of the hand; dry your hands with paper towel and put on the first pair of latex gloves.
- Step 3:** Observe if the patient uses bite plate, if yes, advise on the intention to sanitize the plate. Use the index finger in the corner of the mouth to stimulate the opening, pushing away the lips; remove the plaque before the procedure, leaving it immersed in a little Chlorhexidine 0.12%, in the plate itself.
- Step 4:** Observe the patient's reactions and in case of jaw clenching, light massage the cheek and joint in order to relieve the muscles, push away the lips with the index and middle finger, or use the 2 pointers through the corners of the mouth. The ideal is always to talk quietly and not to do the opposite force. The patient can not feel trapped, as this will cause negative memory and may compromise future attempts. Respect and delicacy must always prevail.
- Step 5:** The ideal amount of toothpaste is the equivalent of a grain of rice in the soft bristle brush; do not exaggerate

the amount because it makes difficult the posterior removal, since often the patient can not spit.

- Step 6:** When brushing your teeth, use the Modified Bass technique, positioning the bristles of the brush in the area between the edges of the gingiva and the tooth at a 45 degree angle; then make small and smooth vibrating tooth-to-tooth movements, or at most a group of two teeth, without taking the brush away. Brush the upper arch with sweeping up and down, starting from the left side to the right, on both sides of the teeth. Brush the lower arch with sweeping movements, with slight vibrations from the bottom to the top, from left to right. With the brush vertically, support the palatal / lingual face of the anterior teeth, making movements of back and forth vibrations, both on the upper and lower teeth
- Step 7:** Floss if possible, to remove plaque that deposits between the teeth and where the brush bristles do not reach. It is a region of great plaque accumulation, causing cavities and gum disease in its most severe form. Separate approximately 40 cm of dental floss, mostly wrapping the middle finger of one hand and only a few cm around the middle finger of the other hand. Hold the wire stretched between your thumb and forefinger, keeping the space between them about 5 cm. Traction to form a "C" and slide the wire from the gingival groove to the dental surface. Do not forget to get past the last teeth.
- Step 8:** Cleaning the tongue is done with a tongue scraper moistened with 0.12% chlorhexidine (tapping well not to drip) on the surface of the patient's tongue. Clean the scraper with gauze with each wipe, until it comes out almost clean. Be careful not to go too deeply and cause nausea in the patient.
- Step 9:** Finish the oral hygiene with 2 or 3 gauzes rolled in the index finger or wooden toothpick, moisten in chlorhexidine 0.12%, squeezing well the excess, leaving almost dry. Rub on the teeth, gums, all mucosa and inner part of the patient's cheek. Repeat procedure until sanitizing everything. Finally, pass 2 dry gauzes, rolled in the finger to dry the oral cavity and prevent the patient from choking. Dispose of used gloves.
- Step 10:** Put on a pair of clean gloves to sanitize the materials used. Brush the bite plate for cleaning with toothpaste or 0.12% Chlorhexidine using the normal bristle brush; wash well and dry before putting it back into the patient's mouth, as well as his case. Wash the tongue scraper with running water, rubbing with your fingers or brush and chlorhexidine 0.12%, drying well before storing. Wash both toothbrushes, soft and normal bristles with chlorhexidine, dry thoroughly with paper towel and store.

The oral hygiene protocol was extended for a period of 30 consecutive days, with the ideal scenario being hygiene at least 3 times a day, with the minimum expected, at least once a day. In this period, a questionnaire to be completed by the nursing team was fixed in all the patients' rooms and served as an indicator of the individual hygiene frequency of the team members, providing data on the level of difficulty encountered during the procedure. Subsequently, it acted as a motivator to increase responsibilities in the daily routine of its patients: the data were processed and there was an award for the 3 most engaged in this activity. After 30 days, the second data collection was done: ISL, halitosis and saliva collection for a

new analysis of the existing microbiota. Data were tabulated for statistical analysis.

RESULTS

The simplified analysis of patients' DMFT indicated that 54.5% of the sample had good teeth, 18.2% had 28 teeth in the mouth, 9.1% had 22, 21, 20 and 18 teeth in the mouth. In relation to 45.5% of the sample or made use of bruxism plaque or presented jaw locking, which prevented the analysis of this index. The CPOD index was measured on the first collection and remained the same on the second. The IHOS was positive for plaque presence in 27.3% of the sample, 63.7% had no plaque and 9% could not be analyzed for lack of collaboration. IHOS was collected in the first phase and remained the same on the second, because no plaque scraping procedure and calculation were done in the patients. Halitosis, evaluated in the first collection, indicated presence in 45.5% of the patients, absence in 45.5%, and 9% was not analyzed due to non-cooperation of the patient. The second collection indicated presence in 18.2% of the patients, absence in 63.6% and 18.2% was not analyzed due to lack of collaboration and death.

The first ISL collection indicated 45.5% positive, 45.5% negative and 9% was not analyzed due to non-cooperation of the patient. The second collection went to 27.3% positive, 54.5% negative 18.2% was not evaluated due to lack of collaboration and death. Laboratory analysis at the first saliva collection indicated the presence of microorganisms: 45.5% *Corynebacterium striatum*, 27.3% *Staphylococcus aureus*, 18.2% *Streptococcus oralis*, 18.2% *Staphylococcus epidermidis*, 9% *Proteus mirabilis*, 9% *Serratia marcescens*, 9% *Staphylococcus capitis*, 9% *Streptococcus aureus*, 9% *Streptococcus agalactiae*, 9% *Streptococcus pneumoniae*. The laboratory analysis of the second saliva collection indicated the presence of the following microorganisms: 27.3% *Corynebacterium striatum*, 27.3% *Staphylococcus aureus*, 27.3% *Staphylococcus epidermidis*, 18.2% *Serratia marcescens*, 18.2% *Enterococcus faecalis*, 9% *Alcaligenes faecalis*, 9% *Streptococcus mitis*, 9% *Citrobacter koseri*, 9% *Morganella morganii*, 9% *Pseudomonas aeruginosa*, 9% *Cyriaciogenic nocardia*, 9% *Klebsiella oxytoca*. There was no evidence of microorganisms associated with pneumonia. Although the sample is reduced after oral hygiene in patients, there was a reduction in the margin of contamination in patients with mechanical ventilation, improving their systemic status by reducing the focus of local infection. After the institution of the oral hygiene protocol, the new routine obtained adhesion of 64% of the nursing team, being the morning shifts were the most collaborative and motivated. Only 1% of the professionals reported having encountered difficulties during the procedure due to patient locking of the jaw.

DISCUSSION

The Premier Hospital has a differentiated approach in relation to the general care of its patients, which has to be "Specialist in care", thus acting in relieving pain, stressing symptoms, minimizing factors that have a negative impact on the quality of life of their patients, since the majority of their public is no longer able to perform their own personal hygiene due to lack of motor control or due to limitations of the disease. It also

works with a dentistry nucleus within its structure, believing that systemic care includes the mouth as the entry point for infectious processes and this posture reflects in a table with decreased rates of pneumonia as a cause of death. The collection of materials for laboratory analysis done in two stages: before and after the institution of the oral hygiene protocol, indicated that the presence of pathogenic microorganisms for pneumonia was extremely low in relation to the general picture in the hospital environment in Brazil, according to a citation by COSTA, 2006.

This result reinforces the positive impact of oral hygiene on reducing the presence of microorganisms in the oral cavity and is in agreement with the data obtained in the HOSHIJIMA studies, 2013, reducing the occurrence of oral changes related to systemic diseases, resulting from the use of medications and artificial respiration equipment, especially in patients undergoing long stay in hospice. In view of this situation, *Streptococcus pneumoniae* is common, probably due to the difference in the measures of oral hygiene adopted and demonstrated, the presence of gram negative and fungal bacterial microbiota increased considerably during the period of intubation. Pneumonia is an opportunistic disease that is lodged by finding a favorable environment due to poor oral hygiene, together with the presence of mechanical ventilation and systemic vulnerability of the patients, by the reduction of their natural defenses of the upper airways; fact also affirmed by SILVEIRA, 2010.

PROBE, 2002 already stated that maintaining oral health had significant value and the most effective way to educate would be through demonstrative programs and group discussions. This information is in line with the way this study implemented the oral hygiene protocol, through a workshop addressed to the nursing team, revealing that, despite the initial resistance due to increased responsibility and service load, after awareness of the causative factor and the effect of poor oral hygiene, aroused a personal interest in knowledge about the pathologies that begin in the mouth, especially silent diseases such as periodontitis, which cause devastating and irreversible damage to the bone structures, reaffirming the results obtained by WARDH, 2003, which training the nursing team, stimulated increased awareness and the importance of daily oral hygiene.

There was a marked discrepancy in the participatory performance in oral hygiene in the patients by the teams, and the morning shift exceeded almost twice the afternoon shift performance. This fact may be linked to the type of leadership profile of the team: a more motivating leader can properly stimulate his team, thus obtaining more engagement and improvement of the overall performance, making difficulties in challenges and not obstacles, replicators of the information to colleagues who did not attend the workshop, sowing and spreading the new knowledge. Studies such as COKER, 2016 indicate that the absence of oral care standards hinders the procedures and correct information directed by dental health professionals generate more confidence and consistency in the performance of specific activities; which is in agreement with the one proposed in this work, which had as objective to define a standard protocol for the method of oral hygiene, which facilitated the understanding and performance before the patient.

Nowadays, interdisciplinarity and multidisciplinary have obtained more openness in the processes related to health, mainly by dentists, since they complement, aiming at the common goal of recovery of patients' health, where oral hygiene is predominant for the prevention of risks of pneumonia. This openness allows better training and clarification of inconsistent and outdated information by the team that takes care of the patients directly, avoiding the negligence or perpetuation of erroneous actions, allowing them to have a broader and clearer view of the causes, stimulating their need for recycling and evolution to improve the quality and life expectancy of their patients.

Conclusion

This study confirms that the impact of the institution of an oral hygiene protocol under pneumonia rates in a hospital with palliative care is positive, effectively interfering in improving the quality of life of patients who use mechanical ventilation and who have their immune system thus being more susceptible to the opportunistic proliferation of the microorganisms of pneumonia, the main agents that increase the mortality rate in the hospital environment. There is a pressing need to continue this research, expanding the target population in order to control and reduce the incidence of this risk.

REFERENCES

- Altani, A.; Wyatt, C. C. L. Oral hygiene and institutionalized elders. PROBE, v. 36, n. 3, p. 91-96, mai./jun. 2002.
- Beraldo, C. C.; Andrade, D. Higiene bucal com clorexidina na prevenção de pneumonia associada à ventilação mecânica. *Jornal Brasileiro de Pneumologia*, v. 34, n. 9, p. 707-714, 23 jan. 2008.
- Brady, M. C. *et al.* Clinical and cost effectiveness of enhanced oral healthcare in stroke care settings (SOCLE II): A pilot, stepped wedge, cluster randomized, controlled trial protocol. *World Stroke Organization*, v. 10, p. 979-984, aug. 2015.
- Coker, E. *et al.* Observations of oral hygiene care interventions provided by nurses to hospitalized older people. *Geriatric Nursing, Ontario*, v. xx, p. 1-5, 27 jun. 2016. Disponível em: <www.gnjjournal.com>. Acesso em: 14 jan. 2017.
- Costa, J. B. *et al.* Os principais fatores de risco da pneumonia associada à ventilação mecânica em UTI adulta. *FAEMA*, v. 7, n. 1, p. 16-26, jan./jun. 2016.
- Dias, F. G. M. *et al.* A educação permanente na equipe de enfermagem para prevenir a infecção hospitalar. *REUOL, Recife*, v. 8, n. 5, p. 1337-1346, mai. 2014.
- EL-Rabbany, M. *et al.* Prophylactic oral health procedures to prevent hospital-acquired and ventilator-associated pneumonia: A systematic review. *International Journal of Nursing Studies*, Toronto, n. 52, p. 452-464, 2015.
- Figueiredo, M. F.; Neto, J. F. R.; Leite, M. T. S. Modelos aplicados às atividades de educação em saúde. *REBEn, Brasília*, v. 63, n. 1, p. 117-121, jan./fev. 2010.
- Hermes, H. R.; Lamarca, I. C. A. Cuidados paliativos: uma abordagem a partir das categorias profissionais de saúde. *Ciência & Saúde Coletiva*, v. 18, n. 9, p. 2577-2588, 17 jun. 2013.
- Hoshijima, H. *et al.* Effects of oral hygiene using chlorhexidine on preventing ventilator-associated pneumonia in critical-care settings: A meta-analysis of

- randomized controlled trials. *Journal of Dental Sciences, Taiwan*, n. 8, p. 348-357, 13 mar. 2013. Disponível em: <www.e-jds.com>. Acesso em: 3 fev. 2017.
- Jesus, M. C. P. *et al.* Educação permanente em enfermagem em um hospital universitário. *Revista Escola de Enfermagem USP, São Paulo*, v. 45, n. 5, p. 1229-1236, 2011.
- Kallás, M. S. *et al.* Dental Management of Oral Self-Injury in a Stroke Patient: Case Report and Literature Review. *J Palliative Care & Medicine, São Paulo*, v. 3. N. 5, p. 1-3, 2013.
- Lemos, N. D.; Besse, M. Força - tarefa na dor em idosos. São Paulo: Grupo Editora Moreira Jr, 2011.
- Miclos, P. V. *et al.* Prática da promoção e educação em saúde bucal nos hospitais de grande porte da região metropolitana de Belo Horizonte, Minas Gerais. *AODONTOL, Minas Gerais*, p. 1-6, 2013.
- Miranda, A. F.; F, A. O. Cuidados Paliativos e Odontogeriatrics: Breve Comunicação. *Revista Portal de Divulgação, São Paulo*, n. 44, p.63-69, mar/abr/mai. 2015. Disponível em: <www.portaldoenvelhecimento.com/revista-nova>. Acesso em: 24 mar. 2017.
- Moros, C. L.; Navarrete, M. Recomendaciones para la prevención de la neumonía asociada a ventilación mecánica. *Medicina Clinica, Barcelona*, v. 135, n. 11, p. 503-504, 2010. Disponível em: <www.elsevier.es/medicinaclinica>. Acesso em: 23 mar. 2017.
- Nguh, J. Oral care practice guidelines for the care-dependent hospitalized adult outside of the intensive care unit setting. *Journal of Interprofessional Education & Practice, Baltimore*, n.4, p.59-67, 27 Mai. 2016.
- Par, M.; Badovinac, A.; Plancak, D. Oral hygiene is an important factor for prevention of ventilator-associated pneumonia. *Acta Clin Croat, Croatia*, v.53, n.1, p. 72-78, 14 jan. 2014.
- Paulsson, G. *et al.* Evaluation of an oral health education program for nursing personnel in special housing facilities for the elderly. *SCD*, v. 18, n. 6, p. 234-242, 1998.
- Rabelo, G. D.; Queiroz, C. I.; Santos, P. S. S. Atendimento odontológico ao paciente em unidade de terapia intensiva. *Arquivos Médicos dos Hospitais e da Faculdade de Ciências Médicas da Santa Casa de São Paulo, São Paulo*, v. 55, n. 2, p. 67-70, 13 jul. 2010.
- Salamone, K. *et al.* Oral Care of Hospitalized Older Patients in the Acute Medical Setting. *Nursing Research and Practice*, v. 2013, p. 1-4, 30 abr. 2013.
- Sandrin, R. *et al.* Comparação entre a citologia em base líquida e a citologia esfoliativa convencional no diagnóstico da candidose bucal. *Revista de Odontologia da UNESP, Araraquara*, v. 39, n. 1, p. 33-39, 23 fev. 2010.
- Santos, P. S. S. *et al.* Impacto da remoção de biofilme lingual em pacientes sob ventilação mecânica. *Revista Brasileira de Terapia Intensiva, São Paulo*, v. 25, n.1, p. 44-48, 28 fev. 2013.
- Sarin, J. *et al.* Reducing the Risk of Aspiration Pneumonia among Elderly Patients in Long-Term Care Facilities through Oral Health Interventions. *JAMDA*, n. 9, p.128-135, 2008.
- Silveira, I. R. *et al.* Higiene bucal: prática relevante na prevenção de pneumonia hospitalar em pacientes em estado crítico. *ACTA*, v. 23, n. 5, p. 697-700, 4 jun. 2010.
- Siqueira, J. T. T.; Jales, S.; Vilarim, R. C. B. Dor orofacial e cuidados paliativos orais em pacientes com câncer. *Onco&, São Paulo*, p.25-28, mai. 2013. Disponível em: <www.resvistaonco.com.br>. Acesso em: 7 fev. 2017.
- Stallinga, H. A. *et al.* Nurse practitioners' focus on health care in terms of cure and care: analysis of graduate theses using the International Classification of Functioning, Disability and Health. *Journal of Advanced Nursing, Netherlands*, n. 72, p. 1654-1665, 26 jan. 2016.
- Vilela, M. C. N. *et al.* Cuidados bucais e pneumonia nosocomial: revisão sistemática. *Einstein*, v. 13, n. 2, p. 290-296, 2015.
- Wardh, I. *et al.* Oral health education for nursing personnel; experiences among specially trained oral care aides: One-year follow-up interviews with oral care aides at a nursing facility. *Scand J Caring Sci*, n.17, p. 250-256, 2003.
- Weening-Verbree, L. *et al.* Oral health care in older people in long term care facilities: A systematic review of implementation strategies. *International Journal of Nursing Studies*, n. 50, p. 569-582, 2013. Disponível em: <www.elsevier.com/ijins>. Acesso em: 24 jan. 2017
