

The importance of hospital dentistry: oral health status in hospitalized patients

Importância da Odontologia hospitalar: condição de saúde bucal de pacientes internados

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ABSTRACT

Objective

This research study aimed to evaluate the oral health status and the need for dental treatment in hospitalized patients, analyzing the importance of dentistry in hospitals. Therefore, the goal of this research study was to evaluate the oral health status, the need for dental intervention and the patient's opinion about the importance of having dental surgeons in hospital settings.

Methods

103 hospitalized patients were evaluated considering the DMFT index, gingival condition, visible biofilm index, and the need for invasive dental treatment. Volunteers were also asked about their opinion considering the importance of dentistry in hospital settings.

Results

68.9% of volunteers were male subjects and 31.1% female subjects. The mean DMFT was 17.9 and 96.1% of subjects had their oral hygiene kit with when came to hospital, 97.1% of subjects stated that the presence of dental surgeons is necessary in the hospital setting and 63.1% of subjects presented poor biofilm removal. The need for invasive dental treatment was as follows: restorations (68.9%), extractions (40.8%), endodontics (23.3%), dental pain (26.2%) and presence of abscess (7.8%).

Conclusion

Oral health and hygiene status of patients were classified as poor and most of patients showed the need for invasive dental treatment. The majority of patients reported that dental care is very important in hospitals settings.

Indexing terms: Hospital dental team. Dental care. Oral Health.

RESUMO

Objetivo

Avaliar a condição de qualidade de saúde bucal e as necessidades de intervenção odontológica em pacientes hospitalizados, analisando a importância da presença da Odontologia em ambiente hospitalar.

Métodos

Foram avaliados 103 pacientes hospitalizados, por meio do índice CPO-D, condição gengival, índice de biofilme visível e índice de necessidade de tratamento invasivo odontológico. Observando a importância que estes pacientes davam a Odontologia hospitalar.

Resultados

Dentre os voluntários avaliados, 68,9% do gênero masculino e 31,1% feminino. A média do CPO-D foi de 17,9. Dentre os pacientes examinados: 96,1% levaram kit de higiene bucal, 97,1% achavam importante a presença do cirurgião-dentista no hospital, 63,1% apresentaram remoção de biofilme deficiente. Os pacientes apresentaram necessidade de tratamento odontológico invasivo: restauração (68,9%), exodontia (40,8%), endodontia (23,3%), dor de origem odontológica (26,2%), presença de abscesso (7,8%).

Conclusão

A qualidade de saúde e de higiene bucal dos pacientes foi considerada insuficiente. A maioria dos pacientes necessitavam de algum tipo de tratamento odontológico invasivo, podendo levar a complicações na saúde bucal no momento da internação. A grande maioria dos pacientes acharam importante a assistência odontológica em hospitais.

Termos de indexação: Equipe hospitalar de Odontologia. Assistência odontológica. Saúde bucal.

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INTRODUCTION

Multiprofessional interaction should be a continuous action among health care teams in hospitals, comprising physicians, nurses, nursing technicians, nutritionists, physiotherapists, dentists and other areas with the single purpose of offering integral treatment to patients¹⁻³. Dental surgeons should be the team member responsible for the implementation of oral care educational and preventive actions in the hospital setting.

Oral hygiene of hospitalized patients is poor due to the patient's disability, motivation of companions, lack of oral hygiene material and devaluation of the multiprofessional team^{4,5}.

Dental surgeons should be a permanent member of the hospital staff, presenting skills and abilities to perform the dental care of hospitalized patients, aiming at eliminating possible infectious focus, installation of opportunistic infections and painful symptomatology, which contributes to the extension of the hospitalization period^{6,7}.

A subject cannot be considered healthy presenting compromised oral health^{8,9}. Unsatisfactory oral hygiene is frequently seen in hospitalized patients¹⁰, favoring bacterial colonization and developing oral biofilms composed of microorganisms found in the oral cavity and colonizers of the respiratory tract. The omission of biofilm control in hospitalized patients is related to the presence and development of severe gingivitis, periodontitis and additional buccal complications¹¹⁻¹⁷.

The implementation of preventive protocols, aiming at maintaining the oral health, is fundamental in reducing general health problems. Biofilm control using chemical (antiseptics) and mechanics methods play an important role in order to reduce the microbial load, decrease the risk of microorganism aspiration and the installation of pneumonia in critically ill patients¹⁸.

In hospital settings, preventive dental management should comprise actions as mechanical removal of biofilms and lingual sores, prosthetics hygiene and atraumatic restorations. Oftentimes, because the disease is installed, it is necessary to adopt healing actions in hospital dentistry, which includes the accomplishment of exodontics, surgery, diagnosis and treatment of oral lesions¹⁴.

Oral health status without infectious focus and dental pain, and the establishment of a routine in oral hygiene habits of hospitalized patients considerably reduces the period of hospitalization. Strengthening the

importance of the dental surgeon in the clinical staff of hospitals, as a member of the multiprofessional team, responsible for the motivation, oral health education and training of hospitalized patients is a need^{15,23}.

This study is justified by the importance of maintaining the oral health of hospitalized patients because the presence of problems and oral diseases can damage the general health condition of patients. Hospital Dentistry plays an important role in the integral treatment of patients. Dental surgeons should be part of the hospital's multidisciplinary team, assisting in the improvement of the patient's integral health.

The goal of this research study was to evaluate the oral health status of hospitalized patients, as well as the need for dental intervention, and their opinion considering the importance of a dental surgeon in a hospital setting.

METHODS

This is a clinical, observational, cross-sectional, uncontrolled research study carried out in hospitalized patients, evaluating conditions that, during hospital stay, may aggravate the oral health status of patients, compromising their general health.

This research study was submitted to the 'Research Ethics Committee' of UNOESTE and was approved under protocol number 617.699. Patients who participated in this research were informed about the purpose of the study, as well as the methods applied, and signing the 'Informed Consent Term'.

Research location and study population

The evaluation was carried out in the wards of the hospitalization sector of the Regional Hospital of Presidente Prudente, a public hospital in the region attending almost fifty cities, in which the following hospital wards were addressed: surgical, orthopedics and traumatology, medical clinic, infectious diseases and cardiology wards.

In this research study, the criteria for participation were the following ones: total edentulous subjects with over 18 years of age, with hospitalization period greater than five days, being conscious and not dependent on oral hygiene, not during feeding hours, only at meal intervals. There was no exclusion as to gender or race. Individuals who needed hospitalization caused by trauma or orofacial diseases, psychiatric patients or patients with neurological diseases with cognitive impossibility of cooperation were excluded from the sample. Furthermore, immunodepressed

subjects and subjects presenting coagulation disorders were also excluded from the sample.

Procedures for data collection

This research study comprised 103 patients approached by the researchers in the ward's bedside. An anamnesis was carried out, including age, gender, place of origin, general health status, oral health status, dental history, oral hygiene habits, oral hygiene kit presence. The importance the patient gives to dental surgeons working in hospitals was also considered.

Data collection considering the period and the reason for hospitalization, systemic diseases and medication used were taken from the hospital's records. After the interview and annotation of the medical records, the bucco-dental clinical evaluation was carried out.

The dental examination was performed by one examiner, so as not to have differences in diagnosis. The researchers used personal protective equipment (PPE) and the examination was carried out in the patient's bedside, with the aid of a manual flashlight, for better evaluation, and a clinical autoclaved instrument (mirror, forceps and exploratory probe). In the clinical evaluation, the following points were determined in all the volunteers: caries experience by the DMFT index, gingival health, biofilm checking, and need for invasive dental treatment (INI).

The DMFT index was applied to verify the past and current history of dental caries disease in patients. Data were recorded according to the criteria for the diagnosis of dental condition proposed by the World Health Organization.

The presence or absence of dental biofilm was determined by the visible biofilm index, consisting of evaluating the dental biofilm of all dental faces, verifying and checking the patient's ability to control dental biofilm.

The evaluation of the presence of dental biofilm was performed using the visible biofilm index presented by Ribeiro²⁴, being evaluated as follows: Score 0: absence of visible biofilm; Score 1: presence of fine biofilm only on the anterior teeth; Score 2: presence of fine biofilm distributed on the anterior and the posterior teeth; Score 3: presence of thick biofilm only on the anterior or the posterior teeth; Score 4: presence of thick biofilm on the anterior teeth and thin biofilms on the posterior teeth or vice versa; and Score 5: presence of thick biofilm on the posterior and the anterior teeth. Score 0: excellent hygiene, score 3 and 4 regular hygiene and score 4 and 5: poor hygiene.

The gingival health status was evaluated observing

the presence of gingivitis and the deficiency in biofilm control. Scores for gingival condition were established according to Ribeiro²⁵: The checking was performed through the following scores: Score 0: visibly healthy gingiva. After using the probe, the gingiva did not show induced of spontaneous bleeding; Score 1: After using the probe, the gingiva bled; Score 2: With the use of gauze pad to dry the gum, there is spontaneous bleeding without the use of a clinical probe.

Considering the modified index need for invasive dental treatment (INI) proposed by Lobão et al.¹⁸ the following types of invasive dental procedures were verified: Score 0: Oral cavity with no need for invasive treatment; Score 1: Need for restorative treatment-dental cavity: acute caries lesion, absence of restoration, fractured restoration; Score 2: Need for endodontic treatment: clinical visual analysis considering the need for endodontic treatment; Score 3: Need for exodontics; Score 4: Need for periapical or periodontal abscess drainage; Score 5: Dental pain.

Statistical methodology

The results were evaluated applying the Fisher's Exact test and the Chi-Square test. 5% significance level was considered in the study. The analyzes were performed with SAS * (SAS Institute Inc., Cary, NC, USA, Release 9.2, 2010).

RESULTS

This research study aimed at verifying the possible causative factors that could interfere in the oral health condition of hospitalized patients. Table 1 shows that the mean age of subjects was 53.1 years of age, with a minimum age of 18-year old subjects and a maximum of 83-year old subjects. The average DMFT is 17.9, with a minimum of 2 and a maximum of 32.

Table 2 shows that, from the total sample, 31.1% were female subjects and 68.9% were male subjects. Among these subjects, 96.1% brought the oral hygiene kit to the hospital, 92.2% could do the cleaning alone, 28.2% felt pain in the oral cavity, 34.0% were happy with their oral health status and 97.1% found it very important the presence of dental surgeons in the hospital setting.

Table 3 shows that 63.1% of subjects presented poor oral hygiene, 44.7% of subjects presented gingival bleeding after conducting the probing procedure (induced bleeding) and 17.5% of subjects presented gingival bleeding with spontaneous bleeding.

Table 1. Descriptive analysis of variables, Age, DMFT.

Variables	Mean	Standard deviation	Median	Minimum	Maximum
Age	53.14	16.04	54.00	18.00	83.00
DMFT	17.9	7.24	18.00	2.00	30.00
D	1.95	2.68	1.00	0.00	13.00
M	12.22	8.46	11.00	0.00	30.00
F	3.70	3.49	3.00	0.00	13.00

Table 2. Distribution of frequencies according to the studied variables in hospitalized subjects.

Variables	Category	Frequency	Percentage
Age group	18-34 years	14	13.6
	35-49 years	27	26.2
	50-64 years	37	35.9
	≥65 years	25	24.3
Sex	Females	32	31.1
	Males	71	68.9
Oral Hygiene Kit	No	4	3.9
	Yes	99	96.1
Dental pain at the time of evaluation	No	74	71.8
	Yes	29	28.2
Pleased with oral health	No	39	37.9
	Partially	29	28.2
Importance of the dentist's presence at the hospital	Yes	35	34.0
	Very important	100	97.1
	Partially	2	1.9
	Do not know	1	1.0

Table 3. Frequency distribution of analyzed variables.

Variables	Category	Frequency	Percentage
DMFT	< median (18)	44	42.7
	≥ median	59	57.3
Oral hygiene-visible biofilm	Excellent	12	11.6
	Satisfactory	26	25.2
	Handicapped	65	63.1
Gingival health	Healthy	39	37.9
	Caused bleeding	46	44.7
	Spontaneous bleeding	18	17.5

Considering the invasive procedures, the evaluation of the description is shown in Table 4, in which 68.9% of subjects showed the need for restorative treatment due

to acute caries lesion, absence of restoration or fractured restoration, 40.8% of subjects needed exodontics and 26.2% reported pain of dental cause.

Table 4. Frequency distribution of the types of invasive procedures required.

Dental needs	Frequency	Percentage
No invasive or rehab dental treatment need	18	17.5
Restorative treatment indicated	71	68.9
Endodontic treatment	24	23.3
Surgical treatment - Exodontia indicated	42	40.8
Abscess	8	7.8
Pain from dental origin	27	26.2

Table 5 shows an association considering the type of invasive procedure, gingival condition and presence of biofilm. For invasive procedures, it was necessary to apply the test for each category because the same volunteer could show more than one category.

Table 5. Association Considering Age and Type of Invasive Procedure, Gingival Status and Presence of Biofilm.

Variables	Category	Age (yers)				p-value
		18-34	35-49	50-64	65 ou mais	
		N(%)				
Dental Procedures	No need	7 (38,9)	2 (11.1)	7 (39.9)	2 (11.1)	0.0019
	Restorative	4 (5.6)	24 (33.8)	22 (31.0)	21 (29.6)	<0.0001
	Endodontic	1 (4.2)	9 (37.5)	8 (33.3)	6 (25.0)	0.3300
	Exodontia	2 (4.8)	9 (21.4)	14 (33.3)	17 (40.5)	0.0063
	Abscess	2 (25.0)	0 (0.0)	3 (37.5)	3 (37.5)	0.2023
	Dental pain	6 (22.2)	8 (29.6)	8 (29.6)	5 (18.5)	0.3809
Gingival health	Healthy	7 (18.0)	14 (35.9)	13 (33.3)	5 (12.8)	0.2682
	Caused bleeding	6 (13.0)	10 (21.7)	16 (34.8)	14 (30.4)	
	Spontaneous bleeding	1 (5.6)	3 (16.7)	8 (44.4)	6 (33.3)	
Oral hygiene / Visible Biofilm	Excellent	6 (50.0)	5 (41.7)	0 (0.0)	1 (8.3)	0.0019
	Satisfactory	3 (11.5)	6 (23.1)	12 (46.2)	5 (19.2)	
	Handicapped	5 (7.7)	16 (24.6)	25 (38.5)	19 (29.2)	

DISCUSSION

Hospitals are composed by multiprofessional groups comprising nurses, doctors, nutritionists, psychologists, biomedical, pharmacists and physiotherapists; however, most of the time, dental surgeons are not part of the team. Considering this research study, 97.1% of patients found it necessary that dental surgeons are present in hospital settings. In a previous study⁹ it was reported that all hospitalized patients considered that it is important to keep their oral health care and, for this, they stated that the presence of dental surgeons in the clinical staff of health care institutions is essential. Dental professionals should join efforts in the search for positive results, focusing on the patient's overall health status²³. Dentistry should be an integral part of the multiprofessional group, aiming at treating and monitoring hospitalized patients²³.

Results reported in this study about the importance of dental surgeons in hospitals, the oral

care status of hospitalized patients and the dental impairments during the hospitalization period allow the production of epidemiological information considering the oral health status of hospitalized patients, showing that the presence of dental surgeons in hospital settings are important for the achievement of the integral health of patients.

Volunteers evaluated in this study had mean age of 53.1 years of age, with a minimum age of 18 years and a maximum age of 83 years, being 31.1% female subjects and 68.9% male subjects. The need for restorative treatment and exodontics were significantly higher in volunteers aged over 34 years of age. The status excellent for oral hygiene was significantly higher in younger volunteers and poor in older volunteers. The literature suggests a correlation between older age and worse oral health status, as well as more severe systemic conditions, due to the increase in the life expectancy of the population³.

Considering hospitalized patients, 96.1% of

subjects had the oral hygiene kit at the time of admission, however, 63.1% of subjects presented poor oral hygiene and thick biofilm. There is a deficiency regarding the oral hygiene of hospitalized patients, both by professionals, and by patients and their companions^{4,5}. This situation can worsen the systemic condition that may arise from oral status, such as periodontal diseases, caused by the large variety of bacterial species present in the biofilm^{4,9,20}. In this study, 62.2% of patients presented spontaneous or induced gingival bleeding.

Monitoring of the oral health status is done through evaluation and approach of patients in the bedside, observing the neurological and physical limitations caused by their systemic condition⁷. Most of patients considered dental care to be important in the hospital setting, however, only 34% of subjects are happy with their oral health status. Such values are lower than those found in a research study published by Gondim et al.²², who reported that 53% of patients evaluated in the hospital setting said to have good oral health status. However, during hospitalization time, patients and relatives do not care about the oral health status, because the systemic condition has a higher priority, presenting a more severe clinical condition^{8,22}.

The experience of caries disease found in the evaluated patients (DMFT) was 17.9 with a minimum of two and a maximum of thirty affected teeth. The literature is homogeneous when it shows an increase in the number of patients requiring dental treatment in a hospital setting^{1,9}, in which only 17.5% of the patients had no need for invasive treatment. The need for restorative treatment that can cause pain and discomfort was found in 68.4% of hospitalized subjects. At the time of examination, the need for endodontic treatment was observed in 23.3% of the patients, and 40.8% of the patients needed dental extractions, which are dental infections that can cause pain, edema and aggravation of the dental status during hospitalization. A fact of concern was that 7.8% of subjects needed

abscess drainage and 26.2% of subjects felt dental pain at the time of examination, which demonstrates the importance of the dental surgeon in the hospital setting, working together with the multiprofessional team, providing better assistance when approaching hospitalized patients¹⁻⁵. According to Santana et al.⁶ having the dental surgeon as part of the hospital's multiprofessional team contributes to the prevention of infections, reducing the period of hospitalization and use of medication.

Dental surgeons should be aware of this new working opportunity, learning to work in specific hospital conditions that are different from the routine in the office, working in multiprofessional teams, learning about equipment and medication, interpreting laboratory and imaging tests. These are actions that will make dental surgeons to integrate to the teams, providing integral health care to patients in hospitals²³.

CONCLUSION

Health and oral hygiene status of patients were considered poor. Most of patients needed invasive dental treatment, which could cause complications to oral health during hospitalization. Most patients recognized the importance of dental care in the hospital setting.

Collaborators

COF AMARAL, lead author, design, advisor, literature review and writing of the article. LMR BELON, EA SILVA and A NADAI participated in the data collection, dental and oral clinical tests, dental appointments, and writing the article. MSP AMARAL FILHO, was responsible for monitoring the hospitalized patients's follow-up during the research, checking records, collecting systemic data and writing the article. FG STRAIOTO was responsible for part of the analysis of results and discussion of the results and writing the article.

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