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Original Research Article

Knowledge, attitudes and practices of doctors and nurses of Family Health Strategy towards the bilateral relationship between diabetes mellitus and periodontal diseases, Anápolis, GO

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Health knowledge, attitudes, practice; periodontal diseases; diabetes mellitus; Family Health Strategy.

Abstract

Introduction: It has been reported that diabetes mellitus and periodontal disease present a two-way association. Accordingly, it is important to disclose this relationship, as well as to perform preventive actions for individuals with diabetes, sensitizing them to become responsible for their health and main agents in changes their habits, aiming at mitigating the damage from this interaction. The health team from primary health care is responsible for such action, acting on the systematization of the assistance and service organization, aiming at the integral assistance and resolution. **Objective:** To analyze the knowledge of doctors and nurses on the two-way relationship between periodontal disease and diabetes mellitus and the assistance provided to the health of individuals with diabetes. **Material and methods:** we conducted a cross-sectional study, from January to June 2016, with a sample of 85 doctors and nurses, ofboth genders, aged between 22 and 34 years, from the family health strategy of the city of Anápolis-GO, all health units

were covered in the study. Socio-demographic data and knowledge of the bilateral relationship between diabetes mellitus and periodontal diseases were collected through a self-administered questionnaire. For the data analysis, group comparison tests (Chi-square) were used. **Results:** 85 professionals participated in the study (response rate of 82.5%). The professionals have knowledge of the periodontal disease, but little knowledge regarding the relationship between this and the diabetes mellitus. The professional neither have the habit to check changes in the mouth, nor reffer the individuals with diabetics to the dentist. **Conclusion:** The data indicate deficiencies in the knowledge of the professionals on the bilateral relationship between the diseases and demonstrate the absence of important approaches for a comprehensive care to individuals with diabetes.

Introduction

Diabetes mellittus is characterized by a dysfunction on the action or secretion of the insulin, that is, when not compensated, it can cause chronic systemic complications [27]. The deficiency in the production of the insulin decreases the glucose transport towards the interior of the cell, increasing the presence of the glucose in bloodstream [2, 19].

The periodontal disease is characterized as an inflammatory disease because of the presence of biofilm and bacteria that act on periodontal protection and support tissues of [1]. Periodontal disease can be revealed as reversible and irreversible processes, known as gingivitis and periodontitis, respectively. Gingivitis is characterized clinically for an alteration in the color of the gingiva, gingival bleed, edema, inflammatory exudate, but without loss of insertion and, when the cause is removed, the situation is reverted. On the other hand, periodontitis causes destruction of periodontium and, in general, it occurs when the gingivitis progressed, destroying the periodontal ligament and the junction epithelium [4, 7, 11].

It is known that diabetes mellittus and periodontal disease has a bidirectional association, where the first one favors the development of the second and this, when not treated, aggravates the metabolic control of diabetes mellittus [20]. Studies have emphasized the importance of the periodontal treatment in the metabolic control of the diabetic patient, showing that the non-surgical conventional treatment significantly interfere in the reduction of the glucose levels in blood [9, 15].

The interference of diabetes mellittus is evident in the alteration of the gingival crevicular fluid, collagen metabolism, host response, including defective polymorphonuclear leukocytes, chemotaxis, and phagocytosis, and bacterial flora. On the other hand, the periodontal disease interferes in the glycemic control because of the deriving inflammatory mediators of the gingival inflammation, as the interleukin 1 (IL-1), interleukin 6 (IL-6), and tumoral necrosis factor (TNF-alpha), which harm the intracellular signaling of the insulin, leading to insulin resistance [22].

Thus, it is important to spread this relation, as well as carrying preventive and recovering actions towards the patients with diabetes, sensitizing them to become responsible for their health and main agents in changes of habits, aiming at decreasing the damages of this interaction [8]. The health team of primary attention is responsible for such action, acting in the systematization of the assistance and organization of the attendance, objectifying the installment of integral assistance and resoluteness [10, 23].

It is evident the importance of the health professionals to know the repercussions of this relation and to organize a multiprofessional performance, preventing and treating the possible complications, as well as the considered one for the Plan of Reorganization of the Attention to the Arterial Hypertension and Diabetes Mellittus [18], to contribute for a better quality of life of individual with diabetes [26].

Despite of the relevance of this subject, the number of studies regarding the knowledge of doctors and nurses on this bidirectional relation and the assistance given to the individuals with diabetes is limited. The existing research is generalist when dealing with the relation between the periodontal and systemic diseases, not emphasizing the narrow relation with diabetes mellittus [5, 13, 24, 28].

The present study aimed to verify the knowledge of doctors and nurses towards the bilateral relation

between diabetes and periodontal disease and care given to the health of individual with diabetes.

Material and methods

This study was approved by the Institutional Review Board regarding ethical issues (protocol #1.222.212) and supported by FUNADESP/ UniEvangélica. This was a transversal observational quantitative research, conducted in the Hiperdia program of the Strategy Health of Family (SHF), in the city of Anápolis (GO), in the period from January to June 2016.

The population of the study consisted of professionals, doctors, and nurses, working at the SHF of Anápolis, which agreed in participating of the research by means of the signature of the Free and Clarified Consent Form. The number of professionals registered in the City department of Health, in September of 2015, was of 103 doctors and nurses. Of the registered professionals, 85 accepted to participate in the research (response rate of 82.5%). The professionals that were not in activity in the period of data collection, that is, inactive, during vacations or moved away were excluded (medical licenses, maternity, prize, and particular interest). The sample was non-probabilistic, of convenience, in accordance with the presence in the place, and the units were visited at least two times when the professionals were not present.

The collection of data was carried through by means of a structuralized questionnaire (self-administer) delivered to the professionals, containing ten closed questions on socio-demographic information, knowledge on the periodontal disease, bilateral relation between the periodontal diseases and diabetes mellittus, referral of the diabetic patients to dental care, and accomplishment of the verification of alterations in the mouth prior to the referral.

The obtained data was analyzed by means of descriptive and inferential statistics using of comparison tests (Chi-square). The level of significance adopted for rejection of the null hypothesis was of 5%. For statistical treatment of the data statistical IBM-SPSS software version 21.0 was used.

Results

Of the 103 doctors and nurses registered in the city SHF, in September of 2015, 85 professionals participated in the research (response rate of 82.5%). As observed, the profile of the investigated professional was formed mainly by nurses, in the age range between 22 and 34 years, with average age of 34.73 (SD = 6.9) and average schooling of 19.39 years (SD=2.3) (table I).

Table I – Distribution of the sample of doctors and nurses, according to socio-demographic variable. Anápolis/GO, 2016 (n = 85)

Variable	Categories	N	%
Gender	Male	18	21.2
	Female	67	78.8
Age	24-35	44	51.8
	35-54	41	48.2
Schooling (years of study)	12-20	46	54.1
	20-25	39	45.9
Profession	Doctor	32	37.6
	Nurse	53	62.4

Most of the professionals (87.1%) affirmed to have knowledge on what it is the periodontal disease, its signals and symptoms (83.5%), however a still considerable number (55.3%) told not to know on the prevalence of this disease (table II).

Table II – Knowledge on the periodontal disease of doctors and nurses. Anápolis/GO, 2016 (n = 85)

Variable	Categories	N	%
Knowledge on periodontal disease	Yes	74	87.1
	No	11	12.9
Knowledge on periodontal disease prevalence	Yes	34	40.0
	No	4	4.7
	I do not know	47	55.3
Knowledge on periodontal diseases signs and symptoms	True	71	83.5
	False	2	2.4
	I do not know	12	14.1

Most part of the professionals did not know the relation between the periodontal disease and the glycemic control (63.5%). 43.5% usually examine the patient before referring to the dentist, however, most of the respondents affirmed only to refer in case of necessity or urgency (60.0%) (table III).

Table III – Knowledge of doctors and nurses on bidirectional relation between diabetes and periodontal disease. Anápolis/GO, 2016 (n = 85)

Variable	Categories	N	%
Relation between periodontal disease and glycemic control	True	14	16,5
	False	54	63,5
	I do not know	17	20,0
Oral examination prior to refer to dentist	Yes	37	43,5
	No	20	23,5
	Sometimes	28	32,9
Referral to dentist	Always	22	25,9
	No	12	14,1
	In case of necessity or urgency	51	60,0

No statistical significant relation occurred between the knowledge of the professionals on the periodontal disease, the type of profession, and the referring of the patient to the dentist ($p>0.05$). Statistical significant relation occurred between the type of profession, and the knowledge of the professionals on the prevalence of the periodontal disease ($p<0.05$). The nurses had more knowledge on this prevalence. On the other hand, for the association between this knowledge and the referral of the patient to the dentist, no relation was observed ($p < 0.05$), as described in table IV.

Table IV – Association between the knowledge of the professionals on the prevalence of the periodontal disease, the profession type, and the referral of the patient to the dentist. Anápolis/GO, 2016 (n = 85)

Variable	Categories	Knowledge of the professionals on the periodontal disease prevalence				p* value
		True	False	I do not know	Total	
Profession	Doctor	16	4	12	32	0.004
	Nurse	18	0	35	53	
	Total	34	4	47	85	
Referral to the dentist	Always	11	4	19	34	0.702
	No	1	0	3	4	
	In case of necessity or urgency	10	8	29	47	
	Total	**22**	**12**	**51**	**85**	

* Chi-square Test. Statistical significant differences p<0,05

Discussion

The results evidenced the knowledge of the professionals on the periodontal disease, its signals, as well as its prevalence, similarly to the study of Kaur *et al.* [14], who evaluated the knowledge of doctors in Punjab, India. Differently from which was found by Tasdemir and Alkan [28], in which 41% of the doctors reported which was the main signal of the periodontal disease.

Statistical significant association between the profession type and the knowledge on the prevalence of the periodontal illness was observed. The nurses were a little more experts than the doctors (table IV), which differs from the findings of Bastos *et al.* [5]. Therefore, it was identified that the professionals of this study had agreement concerning the periodontal disease, but they believed that the periodontal disease is little prevalent in Brazil, disagreeing with the Brazilian epidemiological data of 2010 [17], which stated the prevalence of individuals without periodontal illness in the country is still low – 17.8% adult individuals (age range between 35 and 44 years) and 1.8% elderly individuals (age range between 65 and 74 years). Moreover, in the

findings of Kaur *et al.* [14], the doctors (84.5%) affirmed that the periodontal disease is prevalent in the Indian population, evidencing that the high prevalence is not common only in Brazil.

Concerning to the bidirectional relation between diabetes mellittus and periodontal disease, an expressive number of professionals demonstrated to be unaware of it, similar to the results found by Sawai *et al.* [25], who evaluated the knowledge of doctors on the association between the periodontal and systemic diseases and observed that only 33% of the participants knew the association between periodontal disease and diabetes mellittus. These results indicate that, even with the discussion on this relation and the offering of programs of permanent education, some professionals still have no knowledge and probably without qualification for the care of the susceptible patient to this relation. The studies of Jaiswal *et al.* [13] e Asa'ad *et al.* [3] shown low knowledge of interns of Medicine on the above-mentioned relation, which leads to think about the importance of the implementation of strategies of education in the graduation that enable the future professional to be involved in the integral care of the patient.

Differently from the results of this study, a research evaluated the knowledge of doctors in Turkey and observed that 66.8% declared knowledge on the association between the diseases [28]. A study carried through in Vitoria (ES) also evidenced that the doctors and nurses know this relation [20]. This expressive percentage of professionals who know the bidirectional relation possibly occurs because of the increasing interest of some professionals of health in enabling by means of the permanent education and participating in programs of promotion of oral health offered by the Brazilian System of Health [5, 6].

Concerning to the systemic management of the health problems of the population, it must be attempted due to the importance of the interaction among the areas of knowledge of the health professionals [21]. In this direction, the involved professionals in the present research had not demonstrated total interest in acting together with the dentist to take care of the patient integrally, since the accomplishment of the examination in the mouth prior to the referral to the dentist is not frequent, corroborating with the studies of Asa'ad *et al.* [3], carried through in Saudi Arabia, and Kaur *et al.* [14], in India, where only 2.6% of the professionals examine the patient. It is notable that the multidisciplinary of the SHF has its challenges. The professionals prioritize the acquired teachings and the individual rather than the collective work, masking its limits and not going in search of contributions from other areas, which makes the multidisciplinary a challenge that to be surpassed [16].

The doctors and nurses must be enabled to recognize the periodontal disease that is frequent in dentated individuals with diabetes, and must refer them to the dentist, therefore this is the main agent in the prevention and treatment of periodontal disease [12, 24]. Concerning to the referral of the individual with diabetes to the dentist, the doctors and nurses alone make it in case of necessity or urgency, which is impressive because this following-up would have to be made by all the health team. This result confirms the findings of Kaur *et al.* [14], who evaluated the knowledge of doctors on the periodontal disease and found that the doctors referred the systemically sick patients to the dentist occasionally. Also, this agrees with Asa'ad *et al.* [3], who interviewed professionals and found that 57.5% only refer the patients in some cases. These data evidence that the interaction between the health professionals still has deficiency and that the oral health is implicitly seen as something apart from the systemic health, and the patient is the main responsible for searching it.

The fact of some doctors to be of vacation or in qualification during the accomplishment of the research was responsible for the small sample size. Given the presented results and the importance of this context, further multicentric studies are necessary to analyze the performance of the doctors and nurses of the SHF in the comprehensive attention to the patients with diabetes.

Conclusion

Doctors and nurses, in general, present good knowledge on the periodontal disease, however, they know little on the relation between these diseases. Moreover, neither had the habit to verify the mouth problems, nor they habitually refer the individuals with diabetes to the dentist, which it represents a limitation in its performances and prevents the comprehensive and longitudinal care of the individual with diabetes.

Thus, it is necessary a greater interaction among the SHF team with greater insertion of professionals in the qualification courses offered by the system, to act incessantly in the health promotion and prevention of diseases, providing an efficient, differentiated, humanized health attention so that the complications deriving from this bidirectional relation are reduced and a better quality of life is reached by the individuals.

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