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THE ROLE OF THE DENTIST IN PATIENTS' AWARENESS ABOUT THE INTERRELATION BETWEEN DIABETES MELLITUS AND THE PERIODONTAL DISEASE

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Abstract: *It has been stated that diabetes mellitus (DM) and the periodontal disease are interrelated. Little is known about patients' awareness regarding this matter, though. In our study we aimed to quantify patients' knowledge using a survey containing ten items: six about DM in general and four about DM-periodontal disease relation. Our results show that the majority of the patients responded correctly to the first six items. Very few had information about DM-periodontal disease link and the source of information was from the dentist and the diabetologist. We concluded that practitioners should and could increase the awareness of patients about DM and the periodontal disease for a better management of these two diseases and an improved quality of life.*

INTRODUCTION

4.6 million deaths attributed to diabetes mellitus (DM) occur annually, worldwide.(1) The World Health Organization (WHO) estimates hyperglycemia to be the third highest risk factor for premature mortality.(2) In some countries the Centre for Disease Control and Preventions declared DM as an epidemic.(3)

The symptoms preceding DM are lengthy absent and lead to a late DM diagnostic.(4) Overlooking DM development is due to a combination of factors, including slow onset of symptoms, underperforming health care system, and low awareness among people.(5,6)

Periodontal disease and DM share common risk factors.(7) Moreover, it has been established that the interrelation is bidirectional and not only diabetes is considered a risk factor for poor periodontal status but there is also evidence that periodontal infection is affecting glycemic control in diabetes.(7)

Knowing the research results mentioned above, the dental practitioner can identify as undiagnosed DM and prediabetes a significant proportion of periodontal patients (5) and contribute significantly to the worldwide health in DM by screening and referring for early diagnosis of the disease.(8)

On the other hand, even it is well proved that DM is associated with poor oral health, only a few people diagnosed with DM are aware of that and taking care of their oral and periodontal status.(9,10,11) Therefore, educating the population about the associations between DM, periodontal disease, oral health and general health needs to be increased in patients.(12)

AIM

In our study we aimed at evaluating the level and the source of patients' knowledge about the association between DM and the periodontal disease, with the purpose of providing a better understanding of DM-periodontal disease interrelation for the patients, and for a shared responsibility in early identification of both diseases.

MATERIALS AND METHODS

Our study was conducted in Dr. Iova Gilda practice office and included 87 subjects who addressed the office during one year, from July 2018 till July 2019. The research was approved by the Ethics Committee of The Faculty of Medicine and Pharmacy, University of Oradea, nr.5/15.06.2018. Each subject was explained the aim of the study and signed an informed consent. All data are confidential, collected and kept at Dr. Iova Gilda practice office.

The subjects were both women and men having minimum 18 years and had full mental capacity to agree being a part of the study. Some of them, previously diagnosed DM, presented their medical record. To all of them glycaemia was measured using the glucometer in the practice office.

A survey including ten items was given to each participant to the study. First six items were referring to general date about DM. The next four questions were more specific and they regarded the DM-periodontal disease link. The participants could choose from a "true", "false" or "I don't know" answer (table no. 1). Additionally, they were asked to mention the source of their knowledge about the interrelation between DM and the periodontal disease as being: the family doctor, the diabetologist, the dentist, the media or other sources.(13)

Statistical analysis was done using IBM SPSS Statistics for healthcare, version 20.0 and Excel. Data were processed with descriptive and comparative statistics. Histograms were used to express the results.

RESULTS

The age of the participants varied between 23 and 81 years with a medium of 58,18. All participants belonged to the Caucasian race. 73,6% were women and 92% was represented by urban population. 16.1% were high educated while 77% had medium studies. 6,9% had primary school studies. 42,52% of

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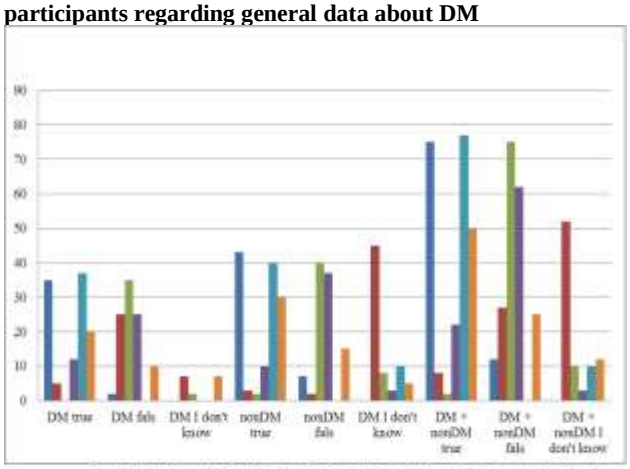
the participants were previously diagnosed with DM by the diabetologist. All participants answered the first six questions in the survey regarding their knowledge about DM (figure no. 1).

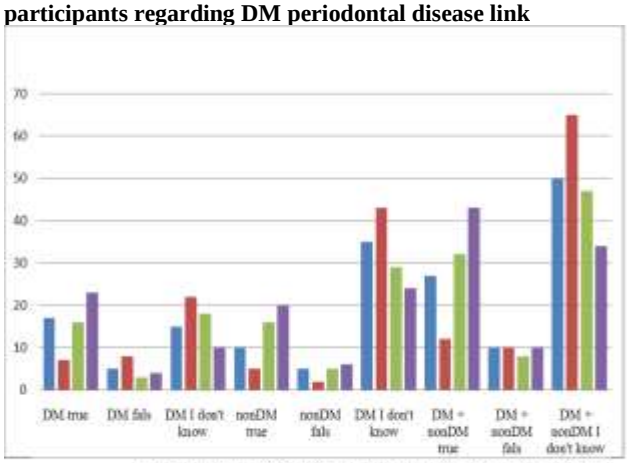
Figure no. 1. Knowledge of the DM and non DM participants regarding general data about DM



The distribution of the DM and nonDM participants to the first 6 questions in the survey: 1- diabetic diet healthy for the majority of people; 2- DM causes the alteration of glucose metabolism; 3- there are more than one types of DM; 4- most DM patients are aware of that; 5- the level of sugar in the blood over 250 is elevated; 6- sweets in excess lead to DM.

86,2% of participants answered correctly to the question about the DM diet. 59,77% did not know that DM alters the metabolism of glucose. 35 from 37 DM patients and 40 non DM participants out of 50 knew that there was more than one type of DM. A majority of 71,26% of all participants thinks that there are people with DM that are not aware they have the disease. At the question about the level of glucose in the blood, 88,50% identified 250 mg/dl value as been elevated. Regarding the impact of excess intake of sweets 28,73% of the participants recognized its implication in DM development. There are no statistically significant differences between the answers given by the DM and non DM participants.

Figure no. 2. Knowledge of the DM and non DM participants regarding DM periodontal disease link

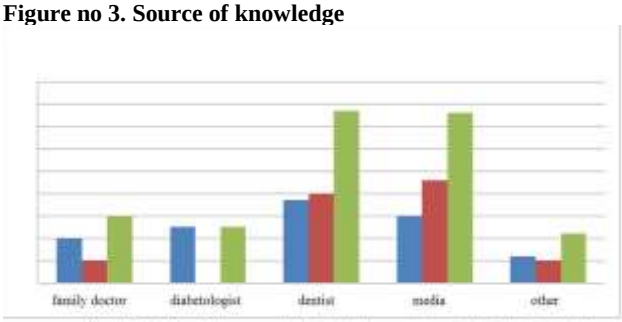


The distribution of the DM and nonDM participants to the next 4 questions in the survey: 1- diabetic diet healthy for the majority of people; 2- DM causes the alteration of glucose metabolism; 3- there are more than one types of DM; 4- most DM patients are aware of that; 5- the level of sugar in the blood over 250 is elevated; 6- sweets in excess lead to DM.

After evaluating the answers to the next 4 questions we determined that 31,03% of all subjects are aware that it is more probable for DM patients to have gingival problems if the sugar levels in their blood are maintained at higher levels. Regarding the periodontal disease-sugar blood level relation 13,79% knew that having a periodontal disease makes it more difficult to control glycaemia. 37,78% recognized smoking as a factor that contributes to the development of periodontal disease in DM patients. 49,43% answered positively to the question whether it is true or not that DM patients have the same risk at developing a periodontal disease as the non DM persons. The percentage of participants choosing the "I do not know" answer varied between 39,08% to 74,71% (figure no. 2). No statistical significant differences between the answers given by the DM and non DM participants were found.

All subjects completed the item regarding their source of information about the DM-periodontal disease relation by selecting one or more possible answers (figure no. 3).

Figure no 3. Source of knowledge



The distribution of the sources indicated by the participants about the interrelation DM-periodontal disease.

The majority of the participants learned about DM and periodontal disease from their dentists or from media. 34% of them were informed by the family doctor, 28% from the diabetologist, and the rest of 25% from media. In the DM patients group 67% found out from the diabetologists and 100% from their dentists.

DISCUSSIONS

Over the years, researches were interested in studying the interrelation between DM and the periodontal disease. Still, little is known about the patient's level of awareness regarding this matter.(14)

In our study we quantified the knowledge of the patients attending Dr. Iova Gilda practice office regarding DM and the DM-periodontal disease interrelation and their sources of information. The data we collected could become an instrument of new strategies in better managing patients both oral and general state of health.

A higher percent of the participants we evaluated answered correctly to the first six questions. Almost all of them knew that DM is an occult disease that can manifest in more than one type, and that it is characterized by a high level of glucose in the blood. The subjects in our group recognized the diabetic diet being healthy for the majority of people. Balanced diet including quality nutrients, as the diabetic diets, are beneficial regardless of the diagnosis of DM. Nevertheless, only a few knew that a high intake of sugar can trigger DM.(15,16,17)

Even if the participants declared various sources of information, only a few responded with true or false to the next four questions. Our results are in concordance with other studies in which patients had more knowledge about general diabetes issues than they did about the association between periodontal disease and diabetes.(13,18,19) We can say that new ways and vectors of communication are needed in order to supplement the information people are provided with.

The awareness of the few participants in our study, knowing about DM-periodontal disease relation was due firstly to the dentists and secondly to the diabetologists, most probably because the dentists have more specific knowledge about the oral health status.(18) This places the dentists in a position in which they can educate people in this direction and, also, can

identify patients at risk and introduce them into a screening program for both DM and periodontal disease.

The research is limited because of the small number of subjects in it. Including more practice offices as well as raising awareness of the diabetologist about the importance of periodontal disease in the evolution of DM could enhance people health education.

CONCLUSIONS

The knowledge regarding the association between DM and the periodontal disease is limited and an improvement in people education is needed.

The dentist and the diabetologist are in a unique position in which they can educate and periodically remind patients, especially those at risk, about the DM-periodontal disease link.

Patients' awareness regarding this matter could help them evaluating their personal DM risk, preventing the periodontal disease by controlling glycaemia, and maintaining a normal glycaemia by treating the periodontal disease.

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