INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

AN ASSESSMENT OF AWARENESS, ATTITUDE, AND PRACTICE REGARDING
RELATIONSHIP BETWEEN DIABETES MELLITUS & PERIODONTITIS AMONG
GENERAL DENTAL & MEDICAL PRACTITIONERS IN 3 MAJOR CITIES OF MADHYA
PRADESH, INDIA- A SURVEY.

Periodontology

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ABSTRACT

Background: Diabetes mellitus and periodontal diseases evidently have a bidirectional relationship. To apply this into daily practise, an awareness among dentists and physicians of the same is imperative. Thus, a KAP (knowledge, attitude and practice) survey was conducted among dental and medical practitioners about the association between diabetes mellitus and periodontitis.

Methodology: A survey was conducted among 563 dental & medical practitioners (263 physicians and 300 dentists) in 3 cities of Madhya Pradesh. Information on knowledge about complications related to periodontal conditions, attitude regarding diabetes and periodontal disease and the relation between the two was collected. Association between categorical was computed using Chi square test, with the α -level set at 0.05.

Results: Dentists were more aware about impact of diabetes complications on periodontal health as compared to physicians ($p < 0.05$). Majority of dentists referred their patients to physicians for medical evaluation and were more interested in learning about bidirectional relationship between diabetes mellitus & periodontal health, while fewer physicians referred their patients to dentists. The preferred mode of learning for dental practitioners was through conferences or CDEs, while medical practitioners preferred professional journals.

Conclusion: The knowledge, awareness and practice regarding bidirectional association between diabetes and periodontitis of dentists fared better than the physicians.

KEYWORDS

Dental Practitioner, Diabetes Mellitus, Medical Practitioner, Periodontitis

INTRODUCTION

Diabetes mellitus is 'chronic metabolic diseases characterized by hyperglycaemia resulting from defects in insulin secretion, insulin action, or both' as defined by the Expert committee of American Diabetes Association in 2003.[1]

The prevalence rate of diabetes mellitus globally is 55%. More commonly seen in India, the World Health Organisation (WHO) reports show that 32 million people were suffering from this condition in the year 2000.[2] This number may gradually increase to 69.9 million by 2025, as estimated by The International Diabetes Federation.[3] "India can thus be the diabetes capital of the world".[4]

Oral diseases, both gingival and periodontal, affect about 90% of the Indian population.[4] With the existence of a two- way relationship between diabetes mellitus and periodontitis, periodontitis has been labelled a common complications of diabetes.[5,6] Common patho-physiologic pathways involved in both diseases include low grade inflammation, altered host response, altered tissue homeostasis, and insulin resistance.[7]

Numerous studies support the view that the need for insulin in Insulin Dependent Diabetes Mellitus can be reduced through the systematic control of periodontal infection, either using mechanical therapy, or the administration of systemic antibiotics, hence improving the glycaemic control.[8,9,10] Therefore, preventive measures and regular dental visits are of importance, hence avoiding complications as well as morbidity which is often associated with diabetes.[11]

A positive attitude and sound knowledge both physicians as well as dentists, are important to ensure overall good health of the patient. With a rapid rise in the number of diabetes cases, it is expected that health care providers will encounter greater number of patients with diabetes, and, in turn, periodontal complications. Till date, as per our knowledge, there is no literature to suggest knowledge of physicians

and dentists in Madhya Pradesh as to the link between periodontitis and diabetes, even though a large number cases of diabetes are detected in Madhya Pradesh, especially in urban centres.[12] This study, therefore aims to assess and make aware both dental and medical practitioners in three major urban centres i.e. Bhopal, Indore and Jabalpur of Madhya Pradesh, highlighting the referral between the two specialties, hence contributing to the overall good health of an individual.

METHODOLOGY

A survey was conducted to assess the knowledge, attitude and practice regarding relationship between Diabetes Mellitus and Periodontitis among dentists and physicians in three major cities of Madhya Pradesh, namely Bhopal, Indore, and Jabalpur.

The institutional ethical committee, social justice and welfare department approval was obtained before commencement of study. At random, a combined total sample size of 600 Dental & Medical Practitioners (300 dental & 300 medical) were chosen, out of which 200 subjects (100 Dentists & 100 Physicians) were selected from each city amounting to approximately 10-15% of registered practitioners. Data were collected from different types of settings including Private Medical and Dental Clinics, District Hospitals Dental & Medical colleges as well as Primary Health Centers in 2013-2014 over a period of 3 months. Dental and medical practitioners were selected at random and requested to complete a self- structured questionnaire. Prior to inclusion, an informed verbal consent was obtained from all the participants. Dental and medical practitioners registered with Medical Council of India & Dental Council of India and associated with academics as well as working in dental and medical colleges were included. Practitioners from other medical fraternity such as Homeopathy, Naturopathy, Ayurvedic etc were not included in the study. A questionnaire was formulated for recording the socio-demographic characteristics, knowledge of the bidirectional relation of diabetes and periodontal health, application of above knowledge in

routine practice, interest and mode of learning about the link between the two diseases.

Participants were required to answer with choice of "Yes" or "No". Participants provided with the questionnaire were asked to return the questionnaire at the end of working hours or the next day.

An electronic database was used to store responses and analysis was done using a statistical software. Chi square test of association was used for categorical data, with the α level set at 0.05.

RESULTS

A total of 563 dental & medical practitioners (300 dentists & 263 physicians) completed the questionnaire.

95.3% dentists and 72.2% physicians were aware of the fact that periodontal abscess, gingival bleeding & tooth mobility are frequently associated with diabetic patients. 82.3% dentists & 48.6% physicians were aware of the fact that tooth loss is often associated with diabetic patients. The difference found between two categories was statistically significant ($P < 0.05$) (Graph 1).

Graph 2 represents inter-group comparison regarding Knowledge & Awareness about Bidirectional relation of Diabetes and Periodontal disease. The majority of the study participants were aware about the bidirectional relation of Diabetes Mellitus and Periodontal Disease and both make each other worse. 97% of dental practitioners & 65% of medical practitioners said they will check for oral manifestations in diabetic patients in their routine practice with statistically significant difference ($P < 0.05$).

89.6% Dental Practitioners referred their periodontitis patient for general blood glucose check-ups & 79% Medical Practitioners referred their poorly controlled diabetes patients to dentists ($P < 0.05$). The awareness of how important frequent dental maintenance and scaling for patients whose diabetes is poorly controlled, was higher significantly in dentists than in physicians ($P < 0.05$) (Graph 3).

67% dental practitioners and 29.6% medical practitioners attended continuing dental/medical education program regarding relation between periodontitis & diabetes mellitus. 97.1% dental practitioners and 83.6% medical practitioners thought that the component of oral health should be merged with the diabetes component and incorporated as part of continuing education programme and 94% dental practitioners & 86.3% medical practitioners were interested in learning more about diabetes mellitus & its impact on oral health (Graph 4).

Medical Practitioners were interested in learning more about diabetes mellitus & its impact on oral health through professional journals in comparison to those of Dental Practitioners interest in learning through conferences/CDEs (Graph 5).

DISCUSSION

The association between diabetes mellitus and periodontal disease, with one condition leading to exacerbation of the other, is not unknown.[13] There is a need to increase the knowledge of this link among health professionals.[14] This in turn may result in an improved attitude and behaviour towards the management of their respective patients.[15]

It has been proved that periodontal complications may have a higher risk of developing in diabetics, which include conditions such as gingival inflammation and bleeding, tooth mobility, periodontal abscess, and loss of teeth.[16] Overall 84.5% of practitioners in our study were aware about the fact that periodontal abscess, gingival bleeding and tooth mobility are frequently seen in diabetic patients. However, as compared to physicians, awareness of dentists was higher. This is similar to a cross sectional survey report, where in, when compared to physicians, dentists were more aware about the periodontal complications in diabetic patients.[17]

Periodontal diseases and followed by the loss of teeth hamper the quality of life, while affecting general health of individuals. A larger number of dentists agreed that tooth loss due to periodontitis is associated with diabetes. As per a cross sectional survey, overall 50% respondents and 49.1% of physicians were in agreement that tooth loss is frequently seen in diabetic individuals. It is clear from the above-mentioned studies that there is a paucity in knowledge regarding the effects diabetes may have on periodontal health among physicians globally, however physicians in our study fared slightly better than the others.[17]

Unless the medical fraternity is knowledgeable of this bidirectional relationship, it is not possible for them to counsel their patients accordingly.[18]

Diabetic patients are at a high risk to develop periodontitis.[19] In turn, poor glycaemic control may result from severe periodontitis.[20] hence treating them may help control sugar levels.[21,22] In our study, most of the study subjects were aware about the bidirectional relation between the two conditions, and agreed that their combined presence makes each other worse. However, on intergroup comparison, dentists were more aware than the physicians. Only 65% of physicians said they check for oral manifestations in diabetic patients compared to 97% of dentists.

Most of the subjects are never told by their endocrinologist to get regular dental check-ups. Studies show physicians are unable to inform their patients regarding the implications of diabetes on oral health, as they lack sufficient knowledge on this topic themselves.[23]

Incoming medical interns have shown inadequate knowledge regarding bidirectional relationship.[24,25,26] A study conducted in Chennai showed good knowledge of dentistry among interns and medical practitioners. This may be due to dental health being included as a part of their medical graduation syllabus. This also applies to different medical colleges in different Indian States as the same syllabus is followed as suggested by Medical Council of India (MCI). Probably because of the inclusion of dental syllabus as a part in medical curriculum, a significantly better response from physicians in our study was obtained as compared to other studies.[27] Formal training is a significant factor that affects the attitudes of health care providers towards managing diabetics and the provision of advice to such patients about periodontal risk associated with diabetes.[28]

The effects of poor oral health on general health was studied by A Gur et al (2008), to evaluate their knowledge on the impact of oral health on general health. He referral rate of patients with systemic disorders associated with dental diseases to dentists was only 12%.[29] Robertson et al (2003) stressed that it is important to educate and inform physicians the importance of referring patients with diabetes to a dentist.[20] Hein (2006) opined that the human body should be treated as a whole, without considering the oral health and general health components separately, for which an interdisciplinary approach is necessary.[30] Sreenivas Nagarkanti (2013) suggested that if medical practitioners refer their patients, the access to oral health care will improve.[31]

Many physicians concentrate only on systemic-health conditions, and feel that they are not responsible for managing oral health care. In a survey, physicians have reported lack of information on oral health problems related to diabetes and their involvement in oral health implication for diabetic patients.[17] Therefore, enhancing communication between the two branches of medicine and dentistry providers is essential to facilitate an exchange of knowledge between the two professions to provide an effective management of serious chronic diseases such as DM.

From our study, it was noted that between dentists and physicians, dentists are more interested in learning about the link between diabetes mellitus & periodontal health. However, number of dentists and physicians attending continuing dental/medical education programmes was on lower side. It is essential to evaluate the dental/medical professional knowledge which in turn will assist in providing appropriate level of Continuing Dental Education Programme.

In a study done by Mary H Lopes (2012) regarding certified diabetes educator knowledge on the relationship between diabetes and periodontitis, an overwhelming number of people said that oral bacteria thrives in a high sugar environment, and is worsened in the presence of periodontal disease, suggesting better knowledge among certified diabetes educators about the bidirectional relationship. This they attributed to the inclusion of oral health in their curriculum and also as part of their continuing education programmes.[32] Yuen et al (2010) reported that when the curriculum includes an oral health component, it helps reinforce CDEs recommendations for frequent scaling, and their counselling about the impact their uncontrolled diabetes can have on the periodontium.[33] Sreenivas Nagarakanti (2013) suggested that medical colleges and continuing medical education programs should emphasize the role of physicians as contributors towards oral health.[31] There is clearly a scope, to develop a better support system that promotes coordination among the different specialities such as dental and medical, involved in the care of diabetic individuals.[34]

35.6% of dental practitioners and 50.1% of medical practitioners were interested in learning more about diabetes mellitus & its impact on oral health through professional journals in comparison of 64.6% of dental practitioners & 49.8% of medical practitioners, interested in learning through conferences. Majority of medical practitioners were interested in learning through professional journal probably because of their busy schedule and round the clock requirement of their services towards their patients as attending conferences entails more time period.

Mary Lopes (2012) conducted KAP study in the university of North Carolina among certified diabetes educators (CDEs) who said that 80% knowledge about oral health is obtained from speciality journals.[35] This finding is similar to the study by Koerber et al (2006) who found that workplace guidelines and protocols and speciality journals are ideal to educate nurses and nutritionists and update them about periodontal diseases.[36]

Children and adults frequent physicians more than dentists, hence they have the advantage to reach out to a larger population and provide dental counselling. [31] The dentist Knowledge, Attitude and Practice (KAP) in our study about Periodontal Disease and Diabetes Mellitus was better in all aspects as compared to physicians and its responsibility of dentists to sensitize medical practitioners towards periodontal awareness. However, medical practitioners included in our study fared better in all aspects when compared to other similar studies reported in the literature.

CONCLUSION

Our study relied on self-reported data, which may be a limitation, yet we have taken several steps to ensure their correctness as described in material methods. Sampling frames included both registered dental and medical practitioners. Maximum response was ensured by regular follow-up, hence 100% response rate for dentists and 87.6% response rate of physicians was ensured.

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