

Comparative Evaluation of Periodontal Status Amongst the Diabetic and Non-Diabetic Patients

Manoj Kumar Thakur^{1*}

¹Senior Resident, Department of Dentistry, Nalanda Medical College and Hospital, Patna, Bihar, India.

ABSTRACT

Background: Periodontal diseases are induced by bacteria leading to chronic inflammatory conditions that affect the tissues supporting the teeth. The frequency of diabetes is elevating due to more and more urbanization, industrialization and alteration in lifestyle. It is domineering that quicker the diagnosis of the disease, the easier it is to efficiently manage and more the chances of avoiding the occurrence of serious complications. The present study was conducted with the aim to determine the periodontal status amongst the diabetics and non-diabetic patients.

Materials and methods: The present study was conducted amongst diabetics and nondiabetic patients reporting to the hospital. Patients with Type II diabetes with minimum 15 functional teeth, aged between 30-70 years were included in the study. Face to face interview was carried out. Closed ended questionnaire was also prepared and the patients were made to fill the questionnaire also. This was followed by oral examination of the patients. All the data thus obtained was arranged in a tabulated form and analyzed using SPSS software. Fischer T test was used for statistical analysis. Probability value of less than 0.05 was considered as significant.

Results: There were a total of 120 patients enrolled in the study, out of which 60 were diabetics and 60 were controls. There were 70 males and 50 females in the study. It also shows the education level of the patients. There were 5% diabetics and 8.3% non diabetics with good oral hygiene. There were 3.3% diabetics with CPI score 0 and 8.3% non diabetics had CPI score 0. There was no significant difference between the two groups. Bleeding was observed in 5% diabetics and 3.3% non diabetics.

Conclusion: From the present study we can conclude that oral and periodontal health amongst diabetics and non diabetics differ at some aspects but there is not much significant difference in oral hygiene status amongst both, though the periodontal status showed significant difference amongst both.

Keywords: Diabetes, Periodontal, Gingival.

INTRODUCTION

Periodontal diseases are induced by bacteria leading to chronic inflammatory conditions that affect the tissues supporting the teeth. The lesion initiates as gingivitis, which is an inflammatory condition of the gingival tissues, and may proceed to periodontitis, that destructs the connective tissue attachment and alveolar bone finally leading to tooth loss ^[1]. Periodontitis is referred to as one of the complication of diabetes mellitus. ^[2] In the

year 1997 as per the report of the Expert Committee on the Diagnosis and Classification of Diabetes Mellitus, periodontitis was stated as one of the key pathological diseases often found amongst patients with diabetes mellitus ^[3]. Indeed, numerous studies have provided a conclusive proof that the incidence, severity, and progress of periodontal disease are significantly more amongst patients with diabetes ^[4]. If left unmanaged, periodontitis can cause tooth loss, thereby affecting a subject's ability to ensure a

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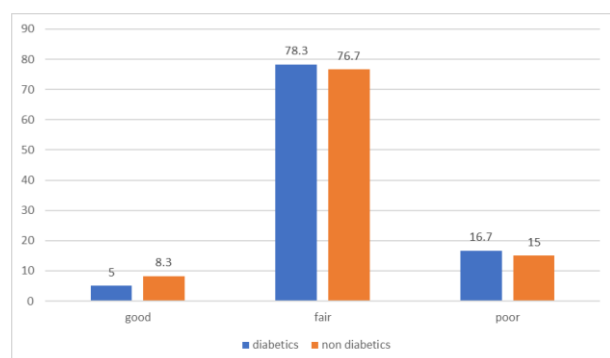
*Correspondence Dr. Manoj Kumar Thakur.

Department of Dentistry, Nalanda Medical College and Hospital, Patna, Bihar, India.

Email: mnjkgmc@gmail.com

Table 1: demographic details of the patients.

Variable	Frequency
Mean Age	47.64+/- 6.32 years
Gender	
Male	70
Female	50
Education level	
Illiterate	40
Primary	40
Secondary	25
Graduate	10
Post graduate	5



Graph 1: Oral hygiene status amongst the patients.

Table 2: periodontal status amongst the patients.

CPI score	Diabetics	Non diabetics	P value
Healthy (0)	2(3.3%)	5(8.3%)	>0.05
Bleeding (1)	3(5%)	2(3.3%)	>0.05
Calculus	34(56.7%)	38(63.3%)	<0.05
Periodontal pocket of 4-5 mm (3)	20(33.3%)	15(25%)	<0.05
Periodontal pocket of 6 mm (4)	1(1.6%)	0	>0.05

proper diet and altering the quality of life. In India, there were around 62 million diabetic patients as on 2014, Which is currently the highest incidence of diabetes around the world; these numbers are subjected to elevate to 80 million by the 2030 [5]. The frequency of diabetes is elevating due to more and more urbanization, industrialization and alteration in lifestyle. It is domineering that quicker the diagnosis of the disease, the easier it is to

efficiently manage and more the chances of avoiding the occurrence of serious complications^[6]. The present study was conducted with the aim to determine the periodontal status amongst the diabetics and non-diabetic patients.

MATERIALS AND METHODS

The present hospital based comparative study was conducted amongst diabetics and nondiabetic patients reporting to the hospital. The patients were informed about the study and a written consent was obtained from them in their vernacular language. Rest of the subject's records was obtained from the hospital after permission. A total of 120 patients were included in the study. Patients with Type II diabetes with minimum 15 functional teeth, aged between 30-70 years were included in the study. Patients with any additional comorbidities that could affect the oral hygiene were not enrolled in the study. Controls were taken as patients with blood sugar less than 200 mg/dl and similar demographics were included. They should not be taking any vitamins or oral analgesics. Patients with history of neurological disorder, heart disorder, hematological conditions, taken antibiotic in last 3 months and poor oral hygiene practices were also excluded from the study. Diabetic patients presenting to the department were randomly selected and their age matched attendant without history of diabetes were taken as controls. Their blood sugar was tested using glucometer. Face to face interview was carried out. Closed ended questionnaire was also prepared and the patients were made to fill the questionnaire also. This was followed by oral examination of the patients. The patients were seated comfortably and examination was done under natural daylight using plane mouth mirror and explorer. Oral hygiene index and community periodontal index was assessed. All the data thus obtained was arranged in a tabulated form and analyzed using SPSS software. Fischer T test was used for statistical analysis. Probability value of less than 0.05 was considered as significant.

RESULTS

Table 1 shows the demographic characteristics of the study. There were a total of 120 patients enrolled in the study, out of which 60 were diabetics and 60 were controls. There were 70 males and 50 females in the study. It also shows the

education level of the patients. Majority of the patients were illiterate of primary class educated. There were 40 patients in both these categories. There were 25 patients with secondary level of education and only 10 were graduates. Only few i.e. 5 of them had a post graduate degree.

Graph 2 shows the oral hygiene status amongst the diabetics and non diabetics. There were 5% diabetics and 8.3% non diabetics with good oral hygiene. Around 78.3% diabetics and 76.7% non diabetics had fair oral hygiene and there were 16.7% diabetics and 15% non diabetics with poor oral hygiene status.

Table 2 shows the periodontal status amongst the patients. There were 3.3% diabetics with CPI score 0 and 8.3% non diabetics had CPI score 0. There was no significant difference between the two groups. Bleeding was observed in 5% diabetics and 3.3% non diabetics. There was no significant difference between the two groups. There were 56.7% diabetics and 63.3% non diabetics with calculus i.e. their CPI score was 2. There was a significant difference between the two groups. Periodontal pocket depth was 4-5 mm amongst 33.3% diabetics and 25% non diabetics. There was a significant difference between the two groups.

DISCUSSION

Diabetes is regarded as a systemic encouraging factor forming suitable circumstances for local agents causing gingivitis and periodontitis [7]. Diabetes mellitus type II is a clinically and hereditarily heterogeneous cluster of metabolic diseases that is manifested by crucially increased levels of glucose in the blood circulation. There are numerous reports in the research regarding the affect of diabetes on oral hygiene^[1-4]. However, the range of examinations is very narrow, and the indices choice was diverse in nature^[1,2,4]. More than 95% of patients in the globe with diabetes mellitus are 45 years of age and older have type II diabetes^[8]. Therefore, the action of type II diabetes on oral hygiene can be watched amongst these age groups. As per our study, there were 5% diabetics and 8.3% non diabetics with good oral hygiene. Around 78.3% diabetics and 76.7% non diabetics had fair oral hygiene and there were 16.7% diabetics and 15% non diabetics with poor oral hygiene status. There were 3.3% diabetics with CPI score 0 and

8.3% non diabetics had CPI score 0. There was no significant difference between the two groups. Bleeding was observed in 5% diabetics and 3.3% non diabetics. There was no significant difference between the two groups. There were 56.7% diabetics and 63.3% non diabetics with calculus i.e. their CPI score was 2. There was a significant difference between the two groups. Periodontal pocket depth was 4-5mm amongst 33.3% diabetics and 25% non diabetics. There was a significant difference between the two groups. The study results were in contrast to the study performed by Hintao et al.,^[9] where the nondiabetics had better oral health. As per the study by Kawamura et . al^[10] in Japan no statistical difference in oral health status were observed amongst the study population. This study found a significant relation between diabetic level and periodontal disease. The sternness of periodontal condition was higher amongst the diabetics when compared to nondiabetics. The literature on diabetes mellitus is full of conflicting results of studies intended to investigate the relation between it and dental conditions amongst different communities. This apparent conflict, however, be more readily adequate if it was also acknowledged that the condition of diabetes mellitus itself may be due to association between genetic and environmental factors that vary from community to community^[11].

CONCLUSION

From the present study we can conclude that oral and periodontal health amongst diabetics and non diabetics differ at some aspects but there is not much significant difference in oral hygiene status amongst both, though the periodontal status showed significant difference amongst both. Diabetes can affect the oral hygiene status amongst the patients but if oral hygiene is maintained by the patients its progress can be delayed.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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