PERIODONTAL STATUS IN DIABETES- A CLINICAL STUDY

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Abstract

Background: Diabetes mellitus is a metabolic disorder characterized by hyperglycemia due to defective secretion or activity of insulin. The present study was conducted to assess periodontal status in diabetics.
Materials & Methods: Group I had 30 diabetics and group II had 30 non- diabetics. All patients were assessed for gingival index and bleeding on probing index and clinical attachment loss (CAL) at baseline, after 3 months and 6 months.
Results: Conclusion: Gingiva index, BOP index and CAL values were higher in diabetics as compared to non-diabetics.
Key words: Diabetes, Gingival, Periodontal

Introduction

DM is a group of metabolic diseases characterized by hyperglycemia due to defects of insulin secretion and/or insulin action. Chronic hyperglycemia is associated with the deterioration, dysfunction, and failure of various organs, including eyes, kidney, nerves, heart, and blood vessels. Type 2 diabetes and periodontal disease are chronic diseases with complex etiopathogenesis. This has led to difficulties in interpreting the relationship of these diseases.[1] The association of these two chronic diseases has been studied in various populations. Most of these studies reported that the prevalence of periodontal disease is high and more severe in diabetics than in non-diabetics. This occurrence is worse if the diabetics have poor glycaemic control.[2]

Periodontal diseases are collectively the most common diseases known to mankind. Their classification is complex and takes into account the clinical presentation, age at diagnosis, rate of disease progression, and systemic and local factors that may increase risk.[3] Periodontal diseases include gingivitis (in which the inflammation is confined to the gingiva, and is reversible with good oral hygiene) and periodontitis (in which the inflammation extends and results in tissue destruction and alveolar bone resorption).

Tissue destruction in periodontitis results in breakdown of the collagen fibres of the periodontal ligament, resulting in the formation of a periodontal pocket between the gingiva and the tooth.[4] The present study was conducted to assess periodontal status in diabetics.

Materials & Methods

The present study was conducted among 30 diabetics and 30 controls of both genders. All were informed regarding the study and written consent was obtained. Ethical clearance was obtained prior to the study.

Data such as name, age, gender etc. was recorded. Group I had 30 diabetics and group II had 30 non- diabetics. All patients were assessed for gingival index and bleeding on probing index and clinical attachment loss (CAL) at baseline, after 3 months and 6 months. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.
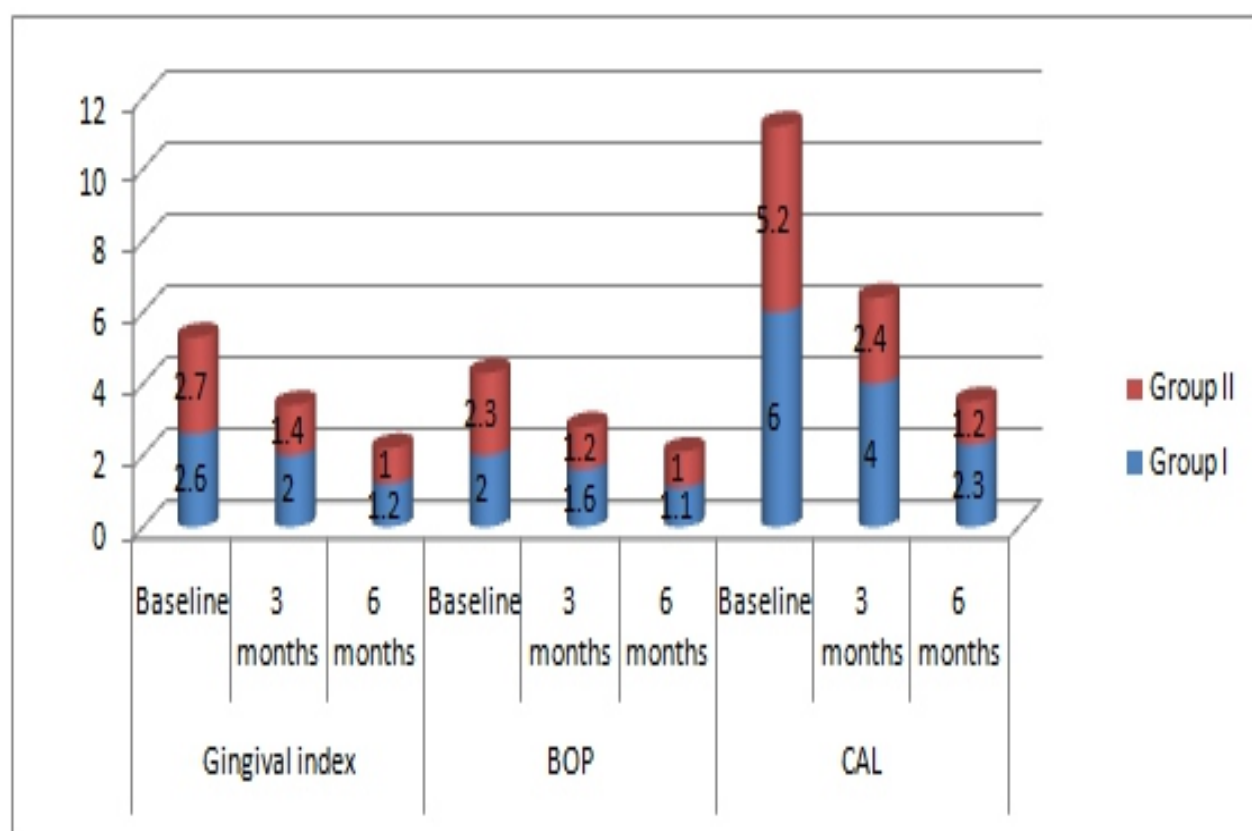
Results

Table I Distribution of patients

Groups	Group I	Group II
M:F	12:8	9:11

Table I shows that group I had 12 males and 8 females and group II had 9 males and 11 females.

Table II Comparison of clinical parameters in both groups

Parameters	Duration	Group I	Group II	P value
Gingival index	Baseline	2.6	2.7	0.03
	3 months	2.0	1.4	
	6 months	1.2	1.0	
BOP	Baseline	2	2.3	0.02
	3 months	1.6	1.2	
	6 months	1.1	1	
CAL	Baseline	6	5.2	0.01
	3 months	4	2.4	
	6 months	2.3	1.2	

Table II, graph I shows that there was significant difference in values of gingiva index, bleeding on probing and clinical attachment level in both groups (P< 0.05).

Graph I Comparison of clinical parameters in both groups

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Discussion

Periodontitis has been referred to as the sixth complication of diabetes. A number of studies found a higher prevalence of periodontal disease among diabetic patients than among healthy controls. Periodontal diseases are chronic inflammatory processes caused by dental biofilm bacteria. In periodontitis, the destruction of tooth support tissues can lead to tooth loss.5 Periodontitis is considered an infectious disease, but it also requires a susceptible host to produce the chronic inflammatory reaction responsible for periodontal damage. Consequently, the etiology of periodontal diseases is multifactorial. The triggering causal agent is bacterial aggression, and it has been demonstrated that the presence of certain bacteria or bacterial groups (e.g., Aggregatibacteractinomycetemcomitans, Porphyromonasgingivalis, and Tannerella forsythia) can be a risk factor for periodontal destruction.6 These bacterial species have different virulence factors that allow them to colonize the subgingival area and produce factors that damage the host. The present study was conducted to assess periodontal status in diabetics.

In present study, group I had 12 males and 8 females and group II had 9 males and 11 females. Shlossman et al7, 67 type 2 diabetics (mean age: 49.3 ± 8.97) and 67 non-diabetics (mean age: 47.6 ± 8.85) were examined. The plaque index (P1I), gingival index (GI), probing depth (PD) and clinical attachment loss (CAL) were recorded on Ramfjord index teeth or their substitutes. Previous dental care, smoking status, alcohol consumption and socio-economic status were also assessed. Diabetics had significantly higher mean GI ($p = 0.001$), PD ($p = 0.031$) and CAL ($p = 0.022$) than non-diabetics. The mean P1I ($p = 0.531$) was not significantly different between the two groups. This study showed that

diabetics had more severe and a higher prevalence of periodontal disease.

We found that there was significant difference in values of gingiva index, bleeding on probing and clinical attachment level in both groups ($P < 0.05$). Numerous articles on the periodontal status of Pima Indians, a population with high prevalence of DM2, have