

Prevalence of the Periodontal Disease and Tooth Loss in Patients Suffering from Diabetes.

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Abstract

Diabetes is linked to tooth loss primarily because people with diabetes are more susceptible to periodontal disease. Periodontal diseases are infections, inflammations, and loss of tissue in the gums and other tooth-supporting structures such as bone. Hence based on the literature findings of the prevalence of tooth loss in diabetic patients the current observational study was planned. The present study aims to find out the demographic details of and number of missing teeth in diabetic patients. The current retrospective study was conducted in five private dental clinics in Dhaka city on a total of 100 patients were enrolled in the present study. The 50 patients were divided into the patients who suffered from diabetes and 50 patients were considered in the normal group as control cases. It can be concluded from the findings of the present study that there is a significant difference in teeth loss amongst diabetics and non-diabetics. Hence care should be taken by diabetic patients for dental problems by regular visits to the Dentist.

Keywords: Diabetes, Periodontal disease, Tooth loss

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I. Introduction

Periodontal disease, also referred to as gum disease, could be a set of inflammatory conditions affecting the tissues surrounding the teeth. In its early stage, called gingivitis, the gums become swollen, red, and will bleed. In its more serious form, called periodontitis, the gums can draw back from the tooth, bones are often lost, and therefore the teeth may loosen or fall out. Bad breath can also occur [1]. periodontitis is usually because of bacteria within the mouth infecting the tissue that surrounds the teeth [3]. Risk factors include smoking, diabetes, HIV/AIDS, case history, and certain medications [1]. Diagnosis is by inspecting the gum tissue around the teeth both visually and with exploration and X-rays trying to find bone loss surrounding the teeth [2]. Treatment involves good oral hygiene and regular professional teeth cleaning. Recommended oral hygiene includes daily brushing and flossing. In certain cases, antibiotics or odontology is also recommended. Globally 538 million people were estimated to be affected in 2015. Just within the U.S., nearly 1/2 of those over the age of 30 are affected to some extent, and about 70% of those over 65 have the condition. Males are affected more often than females [3]. Periodontitis has been linked to increased inflammation within the body like indicated by raised levels of CRP and interleukin-6. it's related to an increased risk of stroke, myocardial infarct, atherosclerosis, and hypertension. It also linked in those over 60 years old to impairments in delayed memory and calculation abilities. Individuals with impaired fasting glucose and diabetes have higher degrees of periodontal inflammation, and sometimes have difficulties with balancing their blood sugar level as a result of the constant systemic inflammatory state, caused by the periodontal inflammation. Although no causal association was proven, a 2009 study showed a correlation between chronic periodontitis and impotency [4]. The primary reason behind gingivitis is poor or ineffective oral hygiene, which ends up in the buildup of a mycotic and bacterial matrix at the gum line, called bacterial plaque. Other contributors are poor nutrition and underlying medical issues like diabetes. Diabetics must be meticulous with their homecare to manage the disease. New finger-prick tests are approved by the Food and Drug Administration within the US and are getting used in dental offices to spot and screen patients for possible contributory causes of gum infections. Diabetes appears to exacerbate the onset, progression, and severity of periodontitis. Although the bulk of research has focused on type 2 diabetes, type 1 diabetes appears to possess a similar effect on the danger of periodontitis. The extent of the increased risk of periodontitis depends on the extent of glycaemic control. Therefore, in well-managed diabetes, there seems to be a minuscule effect of diabetes on the danger of periodontitis. However, the chance increases exponentially as glycemic control worsens. Overall, the increased risk of periodontitis in diabetics is estimated to be between 2-3 times higher. So far, the mechanisms underlying the link aren't fully

understood, but it's known to involve aspects of inflammation, immune functioning, neutrophil activity, and cytokine biology [6].

If one is diabetic, they can recognize that prime blood glucose levels put you in danger of problems along with your kidneys, eyes, and heart. additionally, diabetes causes your healing process to be slower and compromises your resistance to infections; this increases your susceptibility to developing periodontitis. These two factors make treating disease in diabetic patients much harder and account for why gum disease in diabetics could also be more severe. Diabetes is linked to tooth loss primarily because people with diabetes are more vulnerable to periodontitis. Periodontal diseases are infections, inflammations, and loss of tissue within the gums and other tooth-supporting structures like bone. Individuals with diabetes, especially people who have poor glucose control, have a blunted psychoanalytic process against infections. Minor infections within the mouth, therefore, can linger on or worsen, causing chronic inflammation and erosions. Together with poor glucose control, smoking and alcohol use also cause and aggravate the periodontitis. And this is not just an issue in adults with diabetes. Diabetic children, too, often have extensive periodontitis by the time they reach adolescence [7]. Hence supported by the literature findings of the prevalence of tooth loss in diabetic patients the present observational study was planned. The current study aims to seek out the demographic details of and therefore the number of missing teeth in diabetic patients.

II. Methodology

The current retrospective study was conducted in five private dental clinics in Dhaka city. In total 100 patients were enrolled in the present study. Patients were divided into two major groups, (50 patients in each) where in Group A patients were suffering from diabetes and Group B patients were considered in the normal group as control cases. All the patients gave their informed consent. The aim and the objective of the present study were conveyed to them. Approval of the institutional ethical committee was taken before conducting this study.

Following was the inclusion and exclusion criteria for the present study

- **Inclusion Criteria**
 - Patients above 20 years of age and suffered from diabetes
- **Exclusion Criteria**
 - Patients suffered from hypertension, kidney diseases, and other chronic diseases

III. Results & Discussion

This is a hospital-based observational study in five different private dental clinics in Dhaka city, Dhaka, Bangladesh. The data from the two groups of patients were collected and presented as below.

Table 1: Comparison of Clinical Findings

Variables	Group A	Group B
	Diabetic Patients	Control Patients
Males	25	29
Females	15	11
Total	50	50
Age Group:		
25 -35 years	7	5
35 – 45 years	15	21
45 – 55 years	18	16
Above 55 years	10	8

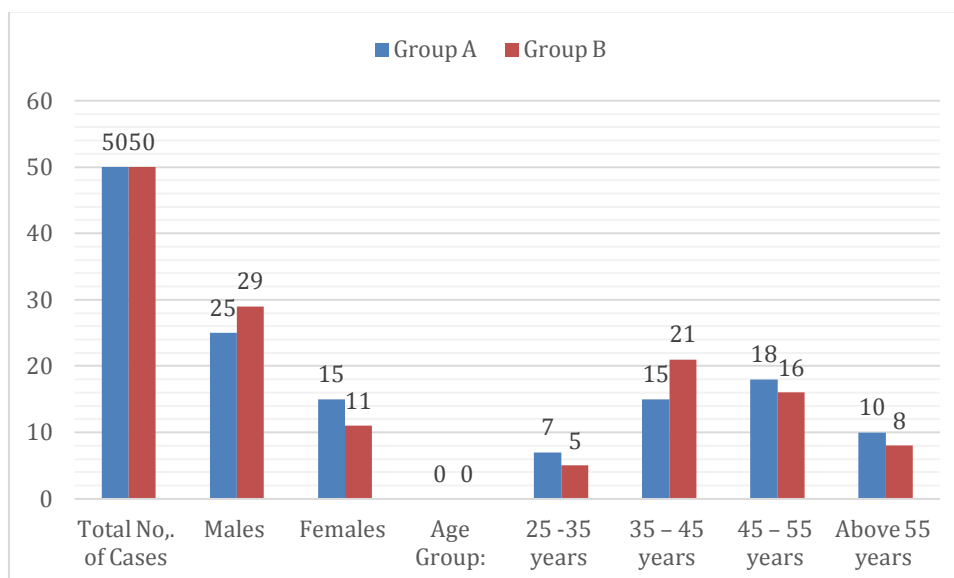


Table 2: Periodontal status

Variables	Group A	Group B
	Diabetic Patients	Control Patients
Presence of painful Gums	36	16
Presence of Gingival swelling	32	12
Extraction of teeth because of periodontal reasons	11	5
Total	50	50

Table 3: No. of missing Tooth's

Variables	Group A	Group B
	Diabetic Patients	Control Patients
No. of Missing Tooth		
25-35 years	2-3	1-2
35-45 years	3-5	2-3
45-55 years	4-8	3-4
Above 55 years	8-11	4-6
Total Patients	50	50

IV. Discussion

Within the 1970s, the ratio of diabetics among urban Indians was reported to be 2.1%, but this has now risen to a shocking 12.1% in step with the globe Health Organization (WHO) projections, these 30 million to 33 million diabetics in India will go up to 74 million by 2025. The WHO has issued a warning that India will quite possibly be the “Diabetes mellitus Capital of The World”. diabetes is recognized as a very important risk factor for more severe and progressive periodontitis, infection, or lesions leading to the destruction of tissues and supporting bone that forms the attachment around the tooth. periodontitis has been reported because of the sixth complication of DM, together with neuropathy, nephropathy, retinopathy, and micro and macrovascular diseases [8]. Diabetes is one of the major important risk factors for disease. In an exceedingly study conducted by Ogunbodede et al. [9] the female: male ratio was positive, indicating a higher number of females are involved as compared to males. in an exceedingly similar study conducted by Chinenye et al. [10], the male to female ratio of diabetic subjects in their study was 2:1. But in various other studies, the male to female ratio was 1:1. [11]. As per the WHO criteria, if fasting glucose is between 100 mg/ dl-125 mg/dl, it's thought to be pre-diabetic stage. If it's above 126 mg/dl is DM. A postprandial blood sugar level below 140 mg/dl is taken into account as normal. Levels above 200 mg/dl are indicative of type 2 diabetes. in an exceedingly study conducted by Ochoa et al, at Columbia, there have been 47.4% of diabetic subjects who had an increased number of missing teeth and suffered from the gingival disease. In accordance with World Health organization (WHO), teeth extraction below the age of 34 is usually as a result of caries, and extractions above the age of 34 are mostly because of periodontal reasons [12]. Few studies discuss the link between periodontitis and sort 2 diabetes, which specializes in the mechanisms through which periodontal infections contribute to diabetes mellitus-related

inflammatory state, the influence of periodontal infections on insulin resistance, and therefore the ways within which treatment of those infections can influence glycemic control [13].

The reason for the greater occurrence of periodontal destruction in diabetics is not clear. However, studies of the periodontal flora find similar microorganisms in diabetic and non-diabetic people, suggesting that alteration in host responses to periodontal pathogens account for these differences in periodontal destruction. For example, increased susceptibility to infection by periodontal bacteria associated with altered phagocyte functions and reduced healing capacity associated with altered collagen metabolism may explain, in part, the increased levels of periodontal disease in diabetic patients. The response to treatment suggests that the periodontal lesions are eminently treatable and that eradication of the infection and the inflammatory foci may reduce insulin requirements. The knowledge among people with diabetes mellitus of oral co-morbidity is generally poor and suggests the need for appropriate health education and health promotion to improve the oral health of diabetic patients [14].

V. Conclusion And Recommendation's

It can be concluded from the findings of the present study that there is a significant difference in teeth loss amongst diabetics and non-diabetics. Hence, proper care should be taken by diabetic patients in regards to the dental problems by routine visits to the Dentist.

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