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Original Article

Frequency of Oral Candidiasis in Type 2 Diabetics

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Abstract

Background: To find out the frequency of oral candidiasis in type 2 diabetes mellitus (DM) patients and correlate it with age, gender, duration of diabetic illness, and type of therapy.

Methods: In this cross sectional study, 266 type 2 DM patients were inducted. Oral cavity of all patients was examined for oral candidiasis and buccal mucosa scrapings were analyzed by Grams stain to look for fungal hyphae.

Results: Sixty eight (25.6%) patients had oral candidiasis. Mean age of patients with and without oral candidiasis was 59.04±5.67 and 54.67±5.62 years(p value <0.05). 57.35% patients with, and 56.56% patients without oral candidiasis were male (p value >0.05). In 23.7% patients, who were on oral hypoglycemic, 28.2% had oral candidiasis, whereas 28.2% on insulin had oral candidiasis (p value >0.05). Patients with 15-20 years of duration of DM had highest incidence (56%) of oral candidiasis.

Conclusion: Presence of oral candidiasis significantly correlates with higher patient age group, and longer duration of diabetic illness.

Key Words: Diabetes mellitus; Candidiasis

Introduction

DM is a syndrome of persistent hyperglycemia due to absolute or relative deficiency of insulin. It is a global epidemic that affects more than 150 million people worldwide.[1] Pakistan ranks 6th among countries with highest burden of diabetes, more than 10% of its adult population has diabetes.

Type 2 DM is principally a disease of middle age and elderly. It has both micro vascular and macro vascular complications. In micro vascular complications, cutaneous manifestations are very common and in this group, infections especially fungal are most frequent. Oral candidiasis is a common fungal infection in type 2 diabetics that presents as discrete and confluent white plaques on the buccal mucosa, tongue, and sometimes the palate, gingivae, and floor of the mouth; these plaques may be wipeable.[1]

Studies have reported that oral candidiasis is more prevalent among diabetics.[1,2,3] Different studies have been conducted both nationally and internationally, to note the predisposing factors of oral candidiasis in diabetics like oral hygiene, smoking, xerostomia and glycemic control with variable relations.[1,2,4] In a Pakistani study, frequency of oral candidiasis in type 2 diabetics was 22.2%.[1]

Patients and Methods

This cross sectional study was carried out at Medical department, Holy Family Hospital, Rawalpindi, from January 2010 to June 2010. 266 patients with type 2 DM were recruited. Patients were of both gender with age between 45 to 65 years and were diagnosed diabetic at least 5 years back. They were taking treatment in form of insulin, oral hypoglycemics or both. Patients with co morbidities (chronic liver disease and hematological malignancies etc) and patients taking medications (steroids, immunosuppressive drugs and antibiotics) associated with immunosupression or fungal growth were excluded.

Oral fungal infection was diagnosed clinically by oral examination in adequate light by noting white plaques. With edge of a sterilized slide, scrapings were taken from oral mucosa, and spread on another slide. After drying, slides were taken to hospital laboratory and examined for fungal hyphae after Gram staining for diagnosis confirmation.

Age, gender, duration of diabetes, type of treatment, and presence or absence of oral fungal infection were noted for each patient on a specifically designed proforma. Based on presence or absence of oral candidiasis, patients were divided into two groups, Group I and II respectively. p-value <0.05 was considered significant

Results

Of the 266 patients, 151 (56.8%) were male and 115 (43.2%) female. Mean patient age was 55.78±5.94 years. Sixty eight (25.6%) patients had candidiasis and were included in Group I (Table 1).

Duration of diabetic illness in 191 (71.8%) patients was 5-10 years. 69 (25.9%) patients had diabetes for 10-15 years, and 6 (2.3%) had diabetes for 15-20 years. Pateints with 15-20 years duration of DM had highest incidence (50%) of oral candidiasis(Table 2).

Table I. Mean age, gender, and type of treatment in patients with and without oral candidiasis

	Group- I (With oral candidiasis) (n=68)	**Group- II** (Without oral candidiasis) (n=198)	**p- value**
Mean age (years)	59.04±5.67	54.67±5.62	<0.05
Male (n)	39	112	>0.05
Female (n)	29	86	
Insulin (n)	31	79	>0.05
Oral hypoglycemic (n)	37	119	

Table 2: Age and Frequency of Oral Candidiasis

Duration of DM	**Frequency of Oral Candidiasis No(%)**
5-10 years	40/191 (20.9)
10-15	25/69 (36.2)
>15-20	3/6 (50%)

Discussion

Oral candidiasis is most frequently noted fungal infection in humans.[5] If not managed appropriately, it may be associated with pain and discomfort during chewing and swallowing. Malnutrition may thus result and clinical scenario worsen. In various studies up to 80% of diabetics had oral candidiasis.[6,7] Variation in oral candidiasis frequency in various studies depend on the way diagnosis was made.[8]

Increasing age is risk factor for developing oral candidiasis.[5,8,9] Impairment of immunity is considered important pathogenic factor. In some studies association between increasing age and oral candidiasis in healthy subjects has not been found.[8,10]

Relationship between duration of diabetes and presence of oral candidiasis has not been confirmed.[8] In a study by Lamey et al, duration of diabetic illness had no relationship with degree of oral candidiasis.[11] In present study, duration of diabetic illness in patients with oral candidiasis was significantly more compared to those who did not have oral candidiasis.

In present study gender and type of treatment (insulin or oral hypoglycemic agent) based significant difference, between patients with or without oral candidiasis, were not noted. Gender related differences have not been similarly noted in studies.[8] Frequency of oral candidiasis in various studies have been higher in type 1 diabetics compared to type 2 DM.[8,12,13] No significant relationship between type of DM and its treatment were however noted in this context.[8]

Glycemic control and poor oro-dental hygiene have been considered contributory to development of oral candidiasis in diabetics.[14] Conflicting results have been noted in this regard.[8,11] Alteration in adhesion properties of epithelium in DM patients increases susceptibility to development of oral candidiasis rather than poor glycemic control, as correlation of blood glucose with salivary glucose concentration has not been found significant.[8,4]

Conclusion

1.Diagnosis of oral candidiasis significantly correlates with higher age and longer duration of diabetic illness.
2. No gender or type of treatment related association with oral candidiasis was found in these patients.

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