

RECORDING THE PREVALENCE OF ORAL MANIFESTATIONS OF DIABETES MELLITUS (DM) IN DENTAL PATIENTS

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Abstract:

Background: Diabetes Mellitus (DM) is a chronic disease process prevalent worldwide with an increasing number of new cases reported with the persistence of the problem of obesity. Diabetes Mellitus (DM) produces wide array of symptoms throughout the body. It is said that oral cavity reflects systemic health. The effects of Diabetes Mellitus (DM) are most frequently seen in the oral cavity with Gingivitis and Periodontitis being the most common manifestations of Diabetes Mellitus (DM).

Objective: To determine the prevalence of oral manifestations of the patients afflicted with this common disease process.

Materials and methods: The study include complete oral examination of 50 patients divided into controlled and uncontrolled patients.

Results: The main symptoms observed are hyposalivation , periodontitis and taste alteration . Herpes labialis seen in controlled patients .burning mouth syndrome is more in controlled than uncontrolled. No pathognomic lesions could be observed , but oral manifestations were more in uncontrolled diabetes mellitus patients .

Keywords: Prevalence, Oral Manifestations, Diabetes Mellitus (Dm)

Introduction:-

Diabetes mellitus represents a group of metabolic diseases that are characterized by hyperglycaemia due to a total or relative lack of insulin secretion and insulin resistance or both¹. Diabetes Mellitus (DM) is a chronic disease process prevalent worldwide with an increasing number of new cases reported with the persistence of the problem of obesity. India has now become the diabetic capital.²

Diabetes mellitus is a syndrome of abnormal carbohydrate metabolism that results in

acute and chronic complications due to the absolute or relative lack of insulin. Diabetes mellitus is a systemic disease affecting every system of body . In addition to elevated glucose levels, many other pathophysiological changes in diabetics increase the risk of periodontal disease.²

Apart from obvious signs and symptoms of hyperglycaemia such as sudden unexplained weight loss, visual disturbances, polyuria (increased urination), polydipsia (increased thirst), polyphagia (increased appetite) and lethargy, there are various oral features that can be detected

during a routine dental examination, which may alert the dentist to an undiagnosed systemic condition.³

It has been shown that uncontrolled diabetics have greater incidence of severe recurrent bacterial or fungal infections and periodontal diseases.² Diabetes Mellitus (DM) produces a wide array of symptoms throughout the body. It is said that oral cavity reflects systemic health. The effects of Diabetes Mellitus (DM) are most frequently seen in the oral cavity with Gingivitis and Periodontitis being the most common manifestations of Diabetes Mellitus (DM).¹

Periodontal disease was described by Loe as the sixth complication of diabetes and he concluded that adults were three times more likely to have periodontitis if they suffered from diabetes. Periodontitis has also been reported in children with poorly controlled diabetes and research shows that individuals with diabetes have higher plaque levels than non-diabetics.³

About a third of Diabetic patients complain of xerostomia, which may be due to an overall diminished flow of saliva and an increased salivary glucose level. Xerostomia may act as a predisposing factor in the development of the oral infections. Dry and damaged mucosa is more susceptible to opportunistic infections by *Candida albicans*.⁴

AIM AND OBJECTIVES

The present study was conducted to determine the prevalence of oral manifestations of the patients

afflicted with this common disease process and to observe their main symptoms, sign or lesion present and correlate them with the control of diabetes mellitus .

MATERIALS & METHODS:-

- Study included complete oral examination of 50 patients (31 males and 19 females) of age range 35 to 70 years reported to oral medicine and radiology department who were prediagnosed with type II Diabetes. The 50 patients with no other severe health problem were selected and divided into two groups. The first group was composed of 25 controlled second was 25 uncontrolled patients.

Only those patients whose fasting blood sugar was >126 mg/dl or random blood sugar >200 mg/dl were selected and divided into two groups.

- The first group consisted of 25 controlled diabetic patients whose fasting blood sugar was < 126mg/dl and random blood sugar < 200mg/dl at the time of study .
- The second group had 25 uncontrolled diabetic patients, whose fasting blood sugar was > 126mg/dl and random blood sugar > 200mg/dl at the time of study .

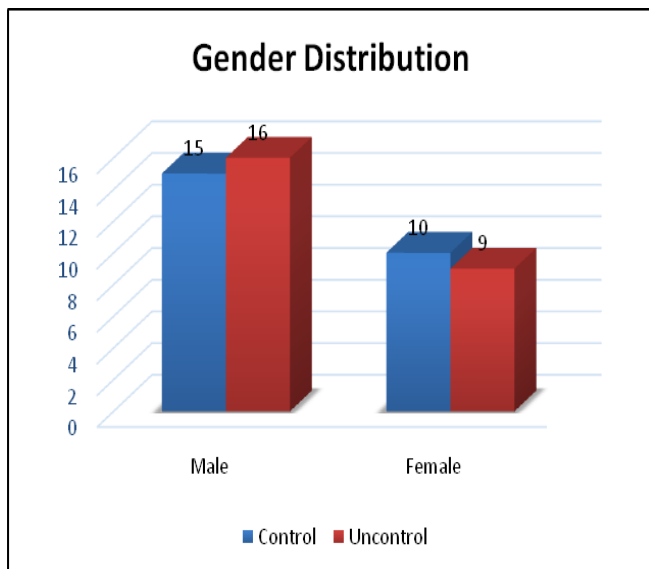
RESULTS:- The study subjects comprised of 60% males and 40% of females respectively in

uncontrolled group . Table 1 and graph 1 give below and age - 31 male and 19 female patients age - 35 to 70 years Table 1 and graph 1 give below in controlled group with 64% males and 36% females

Table no. 1 – Gender Distribution

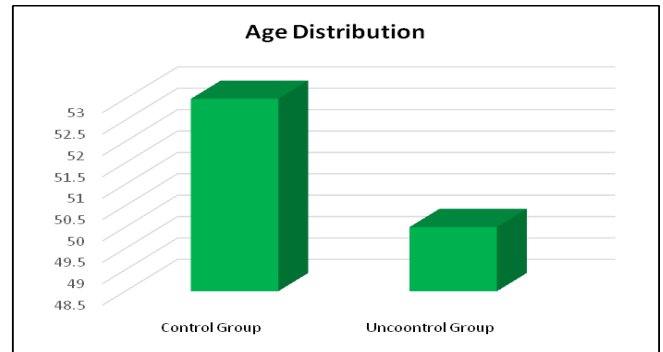
Gender Distribution		
Group	Male	Female
Control	15	10
Uncontrolled	16	9

Graph no. 1 – Gender Distribution



A Graph no. 2 – Age Distribution

Age Distribution	
Mean	
Control Group	Uncontrolled Group
53	50



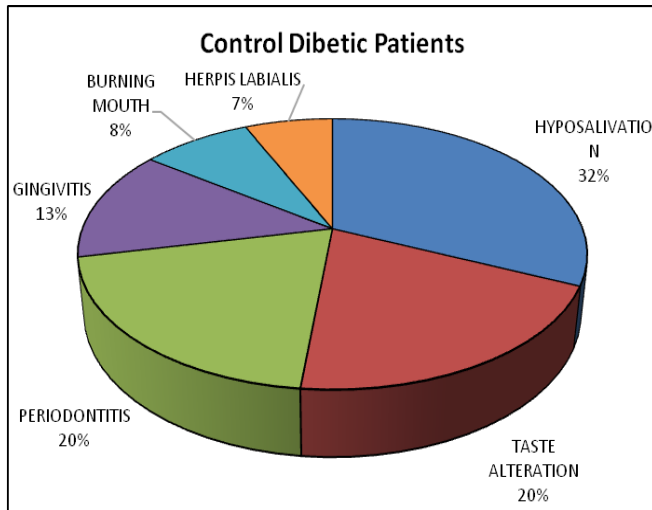
The first group was composed of 25 controlled

Sign & Symptoms	Controlled	Percentage
Hyposalivation	19	32%
Taste Alteration	12	20%
Periodontitis	12	20%
Gingivitis	8	13%
Burning Mouth	5	8%
Herpes Labialis	4	7%

Table no. 3 - Sign & Symptoms of Control Group

- Table no. 3 shows Sign & Symptoms of Controlled Group in which Hyposalivation was seen in 19 patients , Taste Alteration in

12 patients , Periodontitis in 12 patients , Gingivitis in 8 patients , Burning Mouth in 5 patients and Herpes Labialis in 4 patients



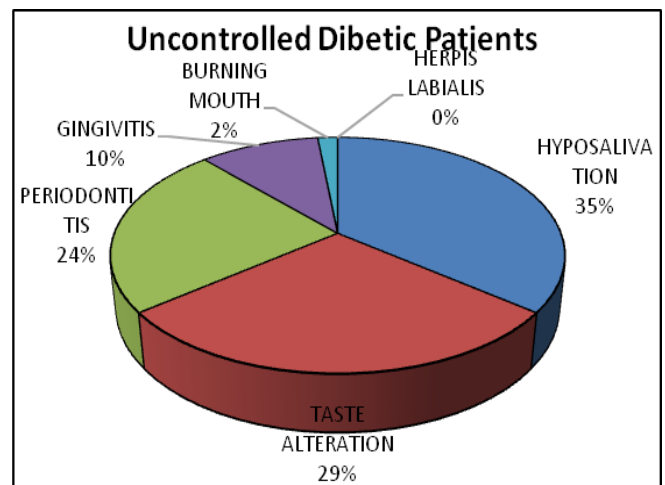
Graph no. 3 - Sign & Symptoms of Control Group

- Graph no. 3 shows percentage of Sign & Symptoms of Control Group in which Hyposalivation was seen in 32% patients , Taste Alteration in 20% patients , Periodontitis in 20% patients , Gingivitis in 13% patients , Burning Mouth in 8% patients and Herpes Labialis in 7% patients
- second was 25 uncontrolled patients .

Table no. 4 – Sign & Symptoms of Uncontrolled Group

Sign & Symptoms	Uncontrolled	Percentage
Hyposalivation	21	35%
Taste Alteration	17	29%
Periodontitis	14	24%
Gingivitis	6	10%
Burning Mouth	1	2%
Herpes Labialis	0	0%

- Table no. 4 shows Sign & Symptoms of Uncontrolled Group in which Hyposalivation was seen in 21 patients , Taste Alteration in 17 patients , Periodontitis in 14 patients , Gingivitis in 6 patients , Burning Mouth in 1 patients and herpes labialis is not seen in any patients .

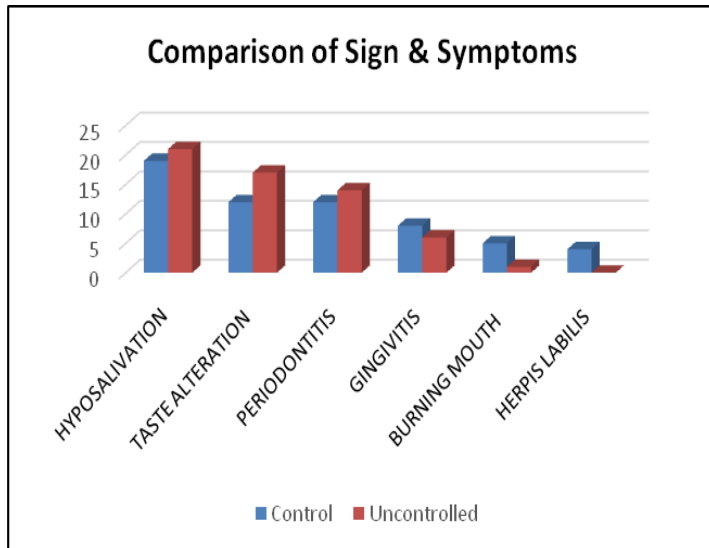


- Graph no. 4 shows percentage of Sign & Symptoms of Uncontrolled Group in which Hyposalivation was seen in 35% patients , Taste Alteration in 17 % patients ,

Periodontitis in 14 % patients , Gingivitis in 6 % patients, Burning Mouth in 1% patients

Table no. 5 – Comparison of Sign & Symptoms

Group	Hyposalivation	Taste Alteration	Periodontitis	Gingivitis	Burning Mouth	Herpis Labialis
Control	19	12	12	8	5	4
Uncontrolled	21	17	14	6	1	0



Discussion:-

Diabetes is a Greek word that means siphon; it was named and described by Aretaeus of Cappadocia. He described it as a great flow of wonderfully sweet urine. The cardinal symptoms of the disease such as polyuria, polyphagia, polydipsia and loss of weight were described by Celsus. The ancient noticed that ants were attracted by the sweetness of urine. Thomas Willis found the urine of diabetics as wondrous sweet, as if imbued with honey, and a century later William Dobson realized that the serum of diabetic patients was also sweet. Cullen added the word mellitus to the name diabetes

which means honey. More recently, diabetes mellitus is defined as a chronic, progressive metabolic disease characterized by hyperglycemia resulting from defects in insulin secretion, action or both. Diabetes mellitus affects more than 140 million people worldwide and presently considered as one of the most frequent chronic disease¹²

Type 1 diabetes mellitus results primarily from destruction of the beta-cells in the islets of Langerhans of the pancreas. This condition often leads to absolute insulin deficiency. The cause may be idiopathic or due to a disturbance in the autoimmune process. The onset of the disease is often abrupt, and patients with this type of diabetes are more prone to ketoacidosis and wide fluctuations in plasma glucose levels. Type 2 diabetes mellitus is due to a range from insulin resistance with relative insulin deficiency to a predominantly secretory defect accompanied by insulin resistance. The onset is generally more gradual than for type 1, and this condition is often associated with obesity. In addition, the risk of type 2 diabetes increases with age and lack of physical activity, this form of diabetes is more prevalent among people with hypertension or dyslipidemia. Type 2 diabetes has a strong genetic component; individuals with type 2 diabetes constitute 90% of the diabetic population. However, the gestational diabetes mellitus (GDM) is glucose intolerance that begins during pregnancy. The children of mothers with GDM are at greater risk of experiencing obesity and diabetes as young adults; there is a

greater risk to the mother of developing type 2 diabetes in the futures.¹

The oral complications of diabetes mellitus, particularly from poorly controlled disease, are numerous and devastating. These complications include xerostomia (dry mouth), an increased susceptibility to bacterial, viral, and fungal infections (oral candidiasis), increased risk for dental caries, poor wound healing, gingivitis, periodontal disease, peri-apical abscesses, taste impairment and burning mouth syndrome.¹²

Patients with diabetes are susceptible to oral sensory, periodontal and salivary disorders which increase their risk of developing new and recurrent dental caries. Patients with diabetes are more likely to have dry mouth or xerostomia and experience salivary gland dysfunction. Salivary flow may be affected by a variety of conditions, including the use of prescription medications and increasing age, and it appears to be affected by the degree of neuropathy and subjective feelings of mouth dryness that may accompany thirst. Taste is a critical component of oral health and is affected adversely in patients with diabetes. According to the study conducted by Stolbova et al. more than one third of adults with diabetes had hypogeusia or diminished taste

perception resulting in hyperphagia and obesity.¹³ Diabetes is associated with increased gingival inflammation in response to bacterial plaque. Diabetes increases not only the prevalence and severity of periodontitis but also the progression of bone loss and attachment loss over time.¹³ Hyposalivation was the

commonest symptom in both controlled and uncontrolled group (table and graph no. 5 see above) possibly related to polyuria and substitution of functioning tissue by adipose tissue in major salivary gland , reducing qualitatively and quantitatively saliva production and leading to burning mouth syndromes . Similar results were observed by Lalit Shrimali et al ² Burning mouth sensation observed more frequently in controlled diabetes possibly because of neuropathy. Similar results were observed by Quirino et al¹¹. Taylor and Borgnakke identified that periodontal disease may lead to poor metabolic control in diabetic patients¹⁰.After periodontal therapy improvement in glycemic control has been seen in some patients of diabetes as seen by Mealey⁵ . It is clearly indicates that all diabetic patients should have regular dental checkup and periodontal treatment if necessary.

● **Conclusion:-**

- I - Hyposalivation was the main complaint of diabetic patients , especially in uncontrolled ones .
- II- symptoms such as alteration of taste, burning mouth and periodontitis could be associated to the disease .
- III – No characteristic and pathognomic lesion could be associated with diabetes mellitus but oral manifestations are more common in uncontrolled diabetes

- Since we have studied 50 patients of diabetes, more studies with large number of patients is required to draw definitive conclusions.

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