FREQUENCY OF ORAL LESIONS AMONG DIABETIC PATIENTS, MUCOSAL ALTERATIONS AND RISK FACTORS

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ABSTRACT

Objectives: *To estimate the frequency of Oral lesions among diabetic patients in the Department of Oral Medicine.*

Methods and materials: *Study design was cross sectional and was brought in the Department of Oral Medicine Dental Section Bolan Medical College Sandman Provincial Hospital Quetta, from June 2021 to May 2022. A total of 50, 35 male and 15 female with known history of diabetic were reported in the Department of Oral Medicine Dental Section Sandeman Provincial Hospital Quetta (SPH) for their routine Dental problems were included in this survey.*

Results: *72% reported patients were male and 28% were female. The mean age of the patients were 40.25 years. Majority of the diabetic patients age were between 52 to 62 (n=23, (46%) years, and second majority cases were having age ranged between 41-51(n=17, 34%) years and third majority cases were having age ranged from 30-40(n=7, 14%) years. Dental caries was the most common findings in this study 36%, followed by Xerostomia 28%, gingivitis 24%, abnormal taste 22%, Burning mouth 14%, Angular chelitis and Depapillated Tongue 12% each, Candidiasis 16%, oral ulcerations 10% and periodontitis 8% respectively. In this study Xerostomia and dental carries were statistically significant between oral lesions and diabetic patients.*

Conclusion: *IDiabetic patients had higher incidence of oral lesions and mucosal alterations than non-diabetic patients. Higher incidence of oral lesions brings out the requisite of the regular oral examination to make sure the initial diagnosis and handling Oral mucosal lesions in diabetic patients.*

Key words: *Diabetes mellitus, Prevalence, Dental patients, Oral mucosa, Alterations*

INTRODUCTION

Diabetes mellitus (DM) is a group of metabolic diseases due to complete or partial secretion of insulin from pancreas by these result patients suffer high blood glucose level. Pancreases are an important organ located in the abdomen and its play a vital role in converting food glucose, digestion of food and regulate the blood glucose level[1]. Uncontrolled diabetic patients undergone majority of complications like neuropathy, nephropathy and delayed wound healing and even life threating situation may b occur with diabetic patients. In world wide more than 246 million people currently affected by DM and future this figure more than 380 million people in coming 2025[2]. This figure may be raised 3 fold higher in south Asia especially in the most populous country in the world China and India. Likewise DM rapidly involving the other developing countries in south Asia like Singapore, Thailand and Malaysia and increasing the numbered of cases day by day[3]. The World Health Organization (WHO) warned that the increasing number of DM patients over the past few decade and assume that may be this figure touch to higher percentage than the current ratio and has

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recently declared it to be a pandemic[4]. DM basically divided into two groups type 1 and type 2. Type 1 also known as autoimmune mean the body defense hit the vital organ or tissue rather than the infection and mostly common in young age group of people and patients purely needed insulin to regulate the blood glucose level. Type 2 DM occurs 8 to 9 times common than type 1, and will be treated both by insulin therapy or combination of insulin and oral anti hyperglycemic drugs[5].

DM can cause multisestemic disease that can cause failure of multiple organs like kidneys, eyes, heart, nerves and other complications like delayed wound healing, acquired blindness and non traumatic limb loss[6]. Likewise there are a so many complication in oral cavity have been reported in the different study, comprises decrease salivary secretion, oral mucosal lesions, gingivitis, periodontitis, tongue diseases, bacterial, fungal, viral infections[7]. Oral soft tissue abnormalities that are reported in different study with DM include parotid gland enlargement, traumatic ulcers, fibroma and fissured tongue[8,9].

Periodontal diseases are frequently noted in patients with uncontrolled DM and that can lead to destruction of supporting structure of teeth and ultimately loosing of teeth and progressing slowly lead to tooth loss[10]. Rather from too loss other common complications also reported in oral cavity with uncorleed DM like fissured tongue, angular chelitis, denture sore mouth and other white lesions like Oral lichen planus, licheniod lesions and frictional keratosis Has been observed[11,12].

Different inflammatory diseases and soft tissue pathologies in oral cavities are linked with DM, and lacking of awareness regarding these complications worldwide. Periodontal diseases like periodontitis and gingivitis have been sixth most prevalent complication of DM following the other diabetic complications[13]. In different oral lesions, manifestations and complications among the patients with uncontrolled DM have been reported recently as a major complication in coming days. Management and prevention of oral complications especially periodontal diseases like periodontitis and gingivitis and other soft tissue diseases and alterations among diabetic patients are important due to their possible complications and adverse effects on blood glycemic control. Prevention and management of oral complications, especially periodontal disease, and other soft tissue lesions in patients with diabetes is important due to their possible adverse effect on glycemic control. Encouragement of healthy oral cavity on patients with uncontrolled diabetic Promotion of a healthy oral cavity in patients with diabetes is paramount[14].

Oral cavity complication among diabetic patients are major problem can effect the quality life of the patients, so prevention and dealing the oral soft and hard tissue complications are the very much important in diabetic patients. The incidence rate of lesions and diseases in oral cavity is higher than non-diabetic patients. The objective of this cross sectional study is to find out the presence of Oral lesions and alterations among diabetic patients in the Department of Oral Medicine Dental Section Bolan Medical College, Sandeman Provincial Hospital (SPH) Quetta, Pakistan.The objective of this study was to assess the incidence of Oral lesions among diabetic patients in the Department of Oral Medicine Dental Section, Bolan Medical College, Sandeman Provincial Hospital Quetta, Pakistan

MATERIALS AND METHODS

This cross sectional study was reviewed and approved by the Head of Dental Section, Bolan Medical College, Sandeman Provincial Hospital Quetta, and data was collected from June 2021 to May 2022, randomly involved 50 known diabetic patients, 35 Male and 15 Female patients with known history of diabetic reported to Department of Oral Medicine, Dental Section Bolan Medical College, Sandeman Provincial Hospital Quetta, for their routine Dental problems were recruited in this study. The age of the patients were between 18-60 years old and agreed to participate in this study they had no serious systemic disease like, hemophilia, serious cardiac problems, leukemia, and hepatitis or under going treatment like chemotherapy or radiotherapy. Discussed the adjectives and methods regarding this piece of work with participants. All participants were signed the agreement being a part of this review and self-prepared designed questionnaire were distributed and demographic record were gather from the participants. The stomatologist carried out the detailed inspection of the oral cavity included hard and soft tissue according to the guideline of the WHO based to diagnosis of oral mucosal disease and alterations15. Descriptive statics such as percentage, mean and numbers were

noted. The Pearson χ^2 test was used to find out an association between the variables and diabetics. The p-value of less than 0.05 was considered statistically significant. The data was collected, saved and IBM SPSS statistics version 20, were used to analyze the data of this study.

RESULT

The sociodemographic characteristics of the participated diabetic patients were recorded. 50 known diabetic patients 36 (72%) males and 14 (28%) females were take part in this survey. The mean age of the patients were 40.25 years. Majority of the patients age were between 52 to 62 years (46%) table 1.

Dental caries was the most common findings in this study 18(36%), while Xerostomia are the 14(28%) out of 50 diabetic patients. In current study gingivitis was noted 12 (24%) and abnormal taste 11(22%). Burning mouth 7(14%) and Angular chelitis and Depapillated Tongue each 6(12%). In current study Candidiasis was observed 8(16%) while oral ulcerations 5(10%) and Periodontitis 4(8%). In this study Xerostomia and Dental Carries was statistically significant between oral lesions and diabetic patients table 2, and frequency of Oral diseases in fig 1.

Table-1: Age distribution

Age group	Frequency	Percentage (%)
19-29	3	6.0
30-40	7	14.0
41-51	17	34.0
52-62	23	46.0
Total	50	100

Table-2: Association between diabetic patients and Oral soft tissue lesions by the Pearson χ^2 Test

Characteristics	Diabetics n=50+percentage	p-value
Gingivitis	12 (24%)	0.221
Abnormal taste	11(22%)	0.324
Angular chelitis	6(12%)	0.122
Burning mouth	7(14%)	0.189
Xerostomia	14(28%)	0.0121
Dental caries	18(36%)	0.0110
Candidiasis	8(16%)	0.162
Periodontitis	4(8%)	0.113
Depapillated tongue	6(12%)	0.125
Ulcerations	5(10%)	0.119
Lichen planus	3(6%)	0.102
White patches	6(12%)	0.129

DISCUSSION

Oral cavity is the gateway of systemic health. Different sign and symptoms and oral lesions which include oral candidiasis, gingivitis, periodontal disease, xerostomia, lichen planus, taste dysfunction, dental caries and delay wound healing have reported in uncontrolled diabetic patients in different studies. In this study gingivitis was noted 12(24%), numerous risk factors have been noted that the increased blood glues level more susceptible to periodontal disease like gingivitis. Reported works showed that the diabetic is dangerous to contribute for the developing severs form of periodontitis and gingivitis with uncontrolled blood glucose level it mean the ratio of periodontitis and gingivitis among diabetes are more than twice when compare into general population[16]. In current study abnormal taste were noted 11(22%) while a study conducted by Yusuf Mussa et al., reported 2(5.7%) in diabetic patients had altered taste that was discrepant with current study[17]. Angular Chelitis and Depapillated Tongue 6(12%) each reported in current study while a study reported by Sadeq Ali et al., Angular chelitis and fungal infection among diabetic patients were 10 (2.6%), this is the inconsistent with the detection of the this report and among diabetic patients dryness is the common features and finding noted in routine history and this may be due to change of salivary composition and secretion of saliva and less resistance of opportunistic infection in oral cavity[18].

Saliva play an important role to keep the oral cavity healthy and prevent it from daily wear and tear, speedy healing of soft tissue injuries, resistance

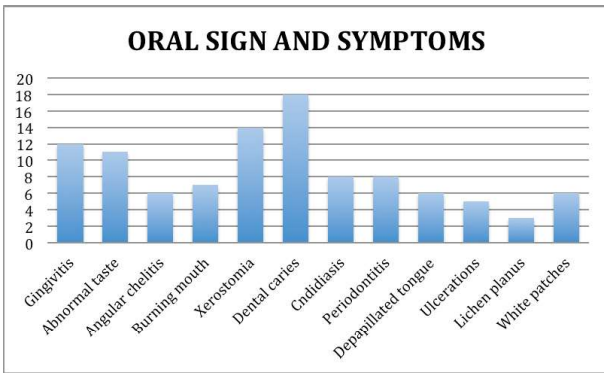

Fig 1: Frequency of Oral diseases in 50 diabetic patients.

from infections and for re- mineralization of hard structure. Three major salivary glands are responsible for the daily secretions of saliva like parotid, sub-mandibular and sub-lingual and many minor salivary glands also present in different part of oral cavity play a role to maintain the oral cavity healthy. In this study xerostomia were present 14(28%) in diabetic patients, while another research did by Lima DL et al., among diabetic patient xerostomia were noted (92.5%) which is more than twice than the findings of the current study. Diminished salivary flow may affect the oral cavity functions and compromise the social life of the patients. There are so many other etiological factors rather from DM that are linked with xerostomia like autoimmune diseases, metabolic diseases and systemic drugs. 32 studies, meta analysis showed their results the percentage of xerostomia among diabetic patients were 46.09% and salivary flow rates were diminished in DM patients as compare to non DM patients. Oral saliva play a important role for maintaining over all body health and helps digestions, absorptions and different salt balancing, help mechanical cleaning and protective barriers not only in oral cavity but also in side of the body systems [19,20].

Dental caries is the most common challenging now a day for dentist and oral hygienist. Prevalence regarding dental carries among diabetic patients is reported higher ratio than non DM. Greater level of poor oral hygiene and dental plaque was recorded in uncontrolled diabetic patients and this may be a more serious issue and suggested more carious risk among diabetic patients in future. Dental caries in current study that was seen in 18(36%) while a another research reported by Yusuf Mossa et al., that lower prevalence of dental caries among in diabetic patients 4 (11.4%), which is the disagreement of the current study[17]. Data showed higher level of dental carries were noted among DM patients as compare to non DM patients, deposition of plaque microbial flora can cause demineralization by bacterial process and can lead dental carries. DM patients have less salivary flow can cause the diminished cleaning and buffering capacity decreasing calcium levels that increase the carious process and tooth decay among diabetic patients[21]. When salivary functions become reduce saliva also decrease the resistance to dental carries producing bacteria and saliva of DM patients contain higher level of glucose than non-diabetics and that are more favorable for bacteria which are responsible for dental caries in DM patients[22,23]. Fungal infection is also common in reported study in diabetic patients. In current study candidiasis were noted in diabetic patients 8(16%), while Yusuf at al., was reported candidiasis among diabetic patients was 11.4%, which is the disagreement with the current study[17]. There is increased chance of diabetic patients that's developing periodontitis. This study showed periodontitis 4(8%), but another research done by Yusuf et al., 48.5% diabetic patients had periodontics much higher frequency than current study, this may be due to increased the susceptibility of periodontioum with diabetic patients[17]. In this study different types of oral ulcerations were noted like recurrent Apthous Stomatitis, Herpetic ulcers and traumatic, we found an overall prevalence of 5(10%) in this study. A case control study the percentage of oral ulcerations was 22% in oral cavity among diabetic patients. This findinding is much higher findings than the current study of oral ulcerative lesions among diabetic patients[24]. Oral lichen planus is the chronic mucocutanious lesion and has been reported among diabetic patents with disputed results range from 1.6% to 85%[25,26]. This current study showed Oral lichen planus were found 3(6%), while a study conducted by Bastos AS et al., Oral Lichen Planus reported 6.1% hardly equal prevalence with the current study, while a study reported by Van Dis et al., regarding Oral Lichen Planus in diabetic patients were 4%, this finding was inconsistent with current study[27,28]. Oral white patches are common in diabetic patients according to the reported works. In current study 6(12%) diabetic patients were seen white patches in oral cavity while Guggenheimer et al., reported white patches among diabetic patients were 2.7% that was the disagreement with the current study. Reported works showed that oral anti-diabetic drugs like Tolazemide, Tolbutamide, Glimepiride and Chlorpropamide can increase the prevalence of Oral and skin lichenoid lesions and may be due to such kind of long term usage of anti-diabetic drugs in DM patients[29,30]. Present study highlights the oral diseases among diabetic patients for early diagnosis, management and minimizes the oral as well the systemic health complications in diabetic patients in future.

CONCLUSION

In this study diabetic patients had a higher level

of oral lesions and mucosa alterations than non-diabetic patients. These findings highlight the importance of regular clinical examinations to ensure early diagnosis and lead to responsibility of oral mucosal lesions and alterations in diabetic patients and other systemic diseased patients and also provide proper care and good facilities about oral health.

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