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Prevalence of Xerostomia in Diabetes Mellitus at lower Sindh.

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Abstract:

Introduction: Xerostomia is a common problem in apparently normal as well as in ill individuals. Diabetes mellitus is a common endocrine disorder in which Xerostomia is complained frequently. Xerostomia contributes to altered eating habits and increase risk of dental caries and oral infection if there is inadequate blood glucose control. Factors affecting Xerostomia includes socioeconomic and medical condition, includes uncontrolled diabetes mellitus, presence of peripheral neuropathy, use of medications, gender and age.

Objective: To document the prevalence of Xerostomia among diabetic patients.

Methodology: This prospective, cross sectional study was conducted on known cases of Diabetes mellitus attending medical OPD at Muhammad Medical College, Mirpurkhas Sindh from March 2017 to August 2017. During this period 100 patients were included according to inclusion criteria. Demographic details were recorded. Fox questionnaire was filled in, the data collected was analyzed by SPSS version 22, and presented as number and percentage.

Result: Among 100 patients; 37% were xerostomic and 63% were non xerostomic, age range of xerostomic was 50 ± 7 years and non xerostomic was 35 ± 11 years. 21 females had Xerostomia and 29 had no Xerostomia. 16 males were xerostomic, and 34 males were non xerostomic. Among xerostomic patients 15 were insulin dependent and 21 were non-insulin dependent. Where as in non xerostomic 22 were insulin dependent and 42 were non-insulin dependent. The mean duration of diabetes mellitus was 10 ± 5 years in Xerostomic and it was 8 ± 3 years in non xerostomic diabetes mellitus.

Conclusion: Xerostomia is common in elderly diabetics and in females and is dependent on glycemic control and duration of diabetes.

Key words: Xerostomia, Diabetes mellitus, Elderly and Duration of Diabetes Mellitus.

Introduction:

Xerostomia is a feeling of dry mouth. This is a common problem in apparently normal as well as in ill individuals. In addition to other illness diabetes is a common endocrine disorder in which Xerostomia is commonly complained. Diabetes mellitus is a worldwide public health problem. The global prevalence of Diabetes mellitus was 8.3 % in 2014.¹ Saliva has multi-functional characteristic. Prevalence of oral dryness reported in literature

varies from 10-80%.²⁻³ Predisposing factor for Xerostomia in diabetes are aging, drugs; other systemic diseases and anxiety/depression are contributing factors.⁴ Several systemic diseases i.e. Sjogren's syndrome, diabetes mellitus, rheumatoid arthritis and systemic lupus erythematosus are also known to cause oral dryness. Radiotherapy to head and neck predisposes to Xerostomia.⁵

As per data of WHO for the year 2014, 422 million people were affected by diabetes mellitus. Half of the diabetes mellitus cases in the world are in two regions; South East Asia (96 million, including India, Thailand, and Indonesia) and Western Pacific (131 million, including China, Australia, Japan, and New Zealand).⁶ Diabetes is a metabolic disease and the stomatological changes include Xerostomia and reduction in salivary secretion, saliva is very important in oral health as it helps in the chemical cleaning and protective function. Xerostomia contribute to poor quality of life and thus affect eating habit and nutritional status. Nutritional status can affect speech and tolerance of dental prostheses.⁷

Xerostomia contributes to altered eating habits and increased risk of caries and oral infection if there is inadequate blood glucose control.⁸ Among all, 70 % of those reporting Xerostomia had at least 1 carious lesion, furthermore increased risk of dental caries is likely to lead to more tooth extraction and these xerostomic patients are likely to have fewer teeth. Oral health related quality of life is impaired in diabetes with Xerostomia, patients experience oral pain and discomfort, functional limitation and psychosocial impact.⁹ Factors affecting Xerostomia includes socioeconomic conditions¹⁰⁻¹¹ medical conditions¹⁰⁻¹² poor disease control¹¹⁻¹³ presence of peripheral neuropathy¹³, use of medications¹³⁻¹⁴ gender and age.¹¹⁻¹³ Decreased salivary flow or dry mouth has impact on oral health especially among older whether dentate and edentulous, as life expectancy has recently improved therefore the oral health issues are common encountered.¹⁵⁻¹⁶

Objective:

To find the prevalence of Xerostomia in diabetic patients

Methodology:

This prospective cross-sectional study was conducted on diabetic patients attending medical outpatient department of Muhammad Medical College Hospital Mirpurkhas from March 2017 to August 2017, after approval from Ethical Review Committee. Written consent was taken prior to enrolling for the study. Patients were initially screened by asking them about history of dryness of mouth whether it is always, frequently or never. Those who answered in affirmative for first two questions were selected, and questionnaire was explained. Fox questionnaire¹¹ translated into Urdu and Sindhi was filled in. The inclusion criteria were patients of either gender, age greater than 18 years but less than 70 years, HBA1C greater than 6.5 and fasting blood sugar greater than 120 mg/dl. Patients taking xerogenic drugs, pregnant females and those having a history of radiotherapy and co-morbidity of neurologic illness were excluded.

Xerostomia was diagnosed by history of dryness and confirmed by questionnaire. Demographic details regarding age, sex, smoking habits, consumption of pan or gutka, systemic diseases and drug was recorded. The data collected was analyzed by SPSS version 22. Independent variables were expressed as number and in percentage. 100 patients having HbA1C >6 were included

in study after taking written consent was taken. A questionnaire was filled in regarding demographic data like age, sex, duration of diabetes mellitus, use of medications and other relevant information.

Results:

Among 100 patients, 37% were xerostomic and 63% were non xerostomic. The mean age of xerostomics was 50±7 years and that of non xerostomics 35±11 years. Among females (n=50) 21 were found Xerostomic, while among male (n=50) 16 males were xerostomic. Among xerostomics patients (n=37) 15 were insulin dependent and 21 were non-insulin dependent. Whereas in non xerostomic (n=63), 21 were insulin dependent and 42 were non-insulin dependent. The duration of diabetes was 10±5 years in Xerostomic diabetics and 8±3 years in non xerostomic diabetics.

Table No: 1

	n (%)	Mean Age in Years ±SD	Duration of Diabetes Mean Years ±SD	Gender		Type of Diabetes	
				Female n (%)	Male n (%)	Insulin Dependent (n)	Non-Insulin Dependent (n)
Xerostomic	37 (37%)	50 ±7	10 ±5	21 (42%)	16 (32%)	15	22
Non Xerostomic	63 (63%)	35 ±11	8 ±3	29 (58%)	34 (62%)	21	42

Discussion:

The results of various studies have shown a decreased salivary flow in diabetes mellitus in comparison to non-diabetes,¹⁷⁻²⁰ this could be due to dysfunction of gland parenchyma, alteration in microcirculation to the salivary glands, dehydration and disturbances in glycemic control.⁴ Multiple epidemiological studies have drawn the conclusion that Xerostomia is common in diabetes mellitus. This hypo function of salivary glands is often associated with poor quality of life and increases the susceptibility to caries and oral infection in diabetes patients especially when there has been dehydration and there is inadequate blood glucose control. Leo M. Sreebny et al²¹ found that 43% of diabetes mellitus complaining of Xerostomia were females, oral dryness was not related to age or type of dryness whereas inverse relationship was found between salivary flow and level of HBA1C. The prevalence Xerostomia among diabetics was 37% in our study. These individuals were of older age as compared to non xerostomic. The prevalence was higher in females as compared to males. Greater is the duration of diabetes, more is the prevalence of Xerostomia as we identified that mean duration of diabetes in current study was 10 years as compared to non xerostomic where it was 8 years. Published studies showed Xerostomia more prevalent in male,^{12,13} while Chávez EM had reported equal prevalence in either gender.^{10,11} This is in sharp contrast to the results of current study where Xerostomia found more prevalent in female (n=21 for female and n=16 for male), however finding is in agreement with results reported by

Shenoy et al¹². In diabetes there is increased level of glucose in saliva this favors proliferation and colonization of microorganisms in oral cavity and serves as a base for development of candida albicans, inactivates neutrophils and leads to candidiasis, dental caries, gingivitis and periodontal disease and difficult healing of wounds.⁷ When correlation of age with Xerostomia was evaluated we found Xerostomia directly proportional with advanced age. This probably reflect increased proportion of older adults and increase in the prevalence of diabetes itself. Xerostomia and hyposalivation is common among patients with diabetic mellitus.²² Oral dryness could be due to various factors important factor is pharmacotherapy and the local number of drugs taken is highly important.²³ High prevalence in aged could be due to increased intake of medication with increasing age.²⁴ Salivary secretion is important for oral health assisting in mechanical cleaning and protective functions.⁷

Limitation of the Study: At present we do not have facility to measure the amount of saliva and its glucose content.

Conclusion:

Xerostomia is common in elderly female diabetics and apparently dependent on glycemic control and duration of diabetes mellitus.

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