

Prevalence Of Insulin Use Among Completely Edentulous Patients- A Hospital Based Retrospective Study

Research Article

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Abstract

The term diabetes means a combination of genetically and clinically heterogeneous disorders in which the glucose intolerance is seen. There are two major variants of diabetes which are type 1 and type 2 diabetes. Type 2 diabetes is seen predominantly all around the world. The study was done under a university setting. The sample collection was done from June 2019- April 2020. The inclusion criteria included completely edentulous patients with insulin and other medication for diabetes. The data were further analyzed and the corresponding results were concluded. Males showed high prevalence of diabetes medication (51.6%) and females (48.4%). Metformin was seen in increased numbers 8% than insulin 3%. And most of the patients 77.4% were under medication but were not aware of the medication. With in the limits of the study we conclude that more prevalence of diabetic medication was seen in male. Metformin was seen most predominant in both males and females But there also lies a major number of people who aren't aware of the name of their medication.

Keywords: Diabetes; Insulin; Metformin; Edentulism.

Introduction

The term Diabetes means a combination of genetically and clinically heterogeneous disorders in which the glucose intolerance is seen [14]. There are two major variants of diabetes which are type 1 and type 2 diabetes [6][28, 29]. Type 2 diabetes is seen predominantly all around the world [24]. In type 1 diabetes the islet of Langerhans cells undergo destruction and in the type 2 diabetes the insulin action is impaired with at least some preservation of insulin [35, 24]. Metformin is the drug which is prescribed initially for patients diagnosed with diabetes and the course is followed by insulin in case of uncontrolled diabetes [34].

Diabetes is known to cause dysfunction of the salivary glands causing hyposalivation [23] and polyurea states [20] and increased

polymorphonuclear [37] leukocytes which leads to an immunocompromised state [19] which can cause opportunistic infections like oral candidiasis [31], denture stomatitis, rhomboid glossitis, atrophic glossitis and angular cheilitis. And majority of the complete denture wearers reported altered taste sensation [9], Neurosensory disorders and burning mouth syndrome [13]. The ultimate goal of any prosthodontic procedure of a diabetic dental patient require thorough understanding of the disease [7][27, 17, 2, 8] and acquaintance with its clinical manifestations [32, 38, 1, 16, 5, 18]. This article focuses on some of the medication patterns observed in the completely edentulous patients.

Materials and Method

The study is done under a university setting. The similar charac-

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teristics of the study is that it is done with the available data and under similar ethnicity of the population. The disadvantage of the study can be that the geographic location is similar. The study was approved by the institutional ethics board. Two reviewers are involved in the study. The samples were taken from patients who had checked in the clinic from June 2019 to April 2020. Total number of sample size includes 93 patients who have undergone the treatment. The case sheets were verified with the help of photographs. To minimise the sampling bias, we included all the data available and there was no sorting of data done. Internal validity of the study was non-probability inclusion. The external validity of the study includes homogenisation and replication of experimentation. Data collection was done from the dental archives of the patient management software system patented by Saveetha Dental College. The data was obtained from the category of removable prosthesis, complete denture and the data was tabulated. Data was verified by one external reviewer. The data was imported to SPSS and the variables were verified. Chi-square test was done on the data obtained using SPSS software by IBM. Gender and ethnicity were considered as independent variables. Systemic diseases of patients who have inserted complete denture and medication were considered as dependent variables. Type of analysis which was done was correlation and association.

Results

Males showed high prevalence of diabetes medication (51.6%) and females (48.4%). Metformin was seen in increased numbers 8% than insulin 3%. And most of the patients 77.4% were under medication but were not aware of the medication. The chi square analysis revealed an insignificant P value of 0.593 (Tables 1, 2 and Figures 1, 2).

Discussion

There are a very few studies done to find out the prevalence of diabetes medication among completely edentulous patients. Studies regarding case reports and systemic disorders and their comorbidity to complete dentures were available [25, 3, 36, 4, 30, 12].

Lee et al reported in his study that most of the denture wearers in his study were under diabetes medication and males showed a high predominance over the females [7, 15, 21]. This is in consensus with our study.

Studies on the relationship between diabetes and complete edentulism are sparse. One study investigating the relationship of edentulism to diabetes reported that edentulous patients had 1.82

Table 1. Gender and Medication.

		GENDER		Total
		FEMALE	MALE	
MEDICATION	YES, BUT DRUG NOT MENTIONED	35	37	72
	NOT UNDER MEDICATION	4	4	8
	METFORMIN	5	3	8
	INSULIN	1	2	3
	NOT SPECIFIED	0	2	2
Total		45	48	93

Table 2. Chi-Square Tests.

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.795 ^a	4	0.593
Likelihood Ratio	3.577	4	0.466
Linear-by-Linear Association	0.394	1	0.530
N of Valid Cases	93		

Figure 1. Graph shows the percentage of male and female distribution (X axis= Males and females of the study, Y axis= percentage). There was no significant difference statistically between the number of males and females in our sample and P value was >0.05.

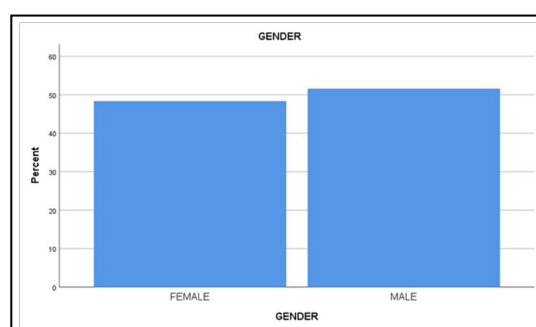
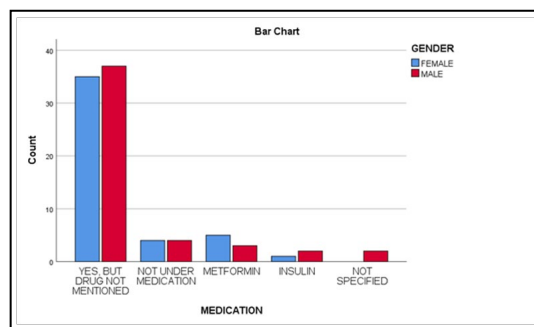


Figure 2. Graph shows the frequency of medication among the male and female patients of the study (X axis= Medication between males and females of the study, Y axis= frequency).



times greater risk of having diabetes than the dentate patient. A cross-sectional study reported that functionally edentulous (6 or fewer teeth) older men had 4.06 times greater risk of developing type 2 diabetes, regardless of age or race, than those with partial or complete dentitions. A large portion of denture wearing diabetic population remains undiagnosed of their underlying systemic condition posing them to increased risk of developing oral diseases and denture-related complications.

A study done by Hussain et al suggests that females show a higher predominance over the males [7, 15, 21] and this is in contradiction with our study.

Soric MM et al reported that there is high prevalence of metformin medication and type 2 diabetes mellitus patients [30]. This is in acceptance with our study.

Hoffman et al reported high prevalence of insulin medication [25, 30] and this is in contradiction with our study.

The vulnerability to periodontal conditions is the most widely recognized oral complexity of diabetes. Although essentially identified with the nearness of dental plaque, periodontitis seems, by all accounts, to be identified with a few neurotic occasions related with diabetes. There is proof that administration of periodontal conditions in patients with inadequately controlled diabetes may really help improve glycemic control [26]. Tooth misfortune is an unavoidable aftereffect of periodontal malady. An investigation by Kapp reported that the quantity of missing teeth was essentially higher in patients with DM than the controls, in spite of the fact that the recommended reason was the absence of oral wellbeing mindfulness and deficient metabolic control [10].

Besides, on the grounds that inadequately controlled diabetes can cause a noteworthy illness and mortality, dental specialists can direct their patients about improving glucose guideline [22], keeping up oral and wholesome wellbeing, performing day by day glucose checking tests and seeing clinical experts for routine consideration and coming to the complications caused by diabetes in complete denture patients they are Abutment Failure [39]. Tissue abrasions are more likely in denture wearers. Erythematous candidiasis is associated with the use of upper total denture or prosthesis (denture stomatitis) [33]. Oral carrier rate and density of *C. albicans* in denture wearers of diabetic group were higher. Increased residual ridge resorption. Mucostatic impressions should be made.

One may conclude by saying that the patients need more awareness of the medication they are taking because a larger population

of our study were not aware of the type and name of the medication they were uptaking.

Few limitations of the study might be that the study is single centered with less sample size, similar ethnicity and geographic location.

To improve the significance of the study. The study should be done with a larger sample size so that the results are reliable.

Conclusion

The purpose of the study was to gain more information on the medication pattern of diabetic dental patients who are completely edentulous. Within the limits of our study the present study reveals more predominance of diabetic medication seen among males and a majority of the population not knowing the medication. Metformin was seen as the prevalent drug among both males and females.

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