ORIGINAL ARTICLE

Frequency of Tooth Decay in Diabetic and Non-diabetic individuals because of Dental Plaque, a comparative study

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ABSTRACT

The aims and objectives of current study were toidentify the effects of dental plaque on teethes of diabetic and non-diabetic individuals. For this we selected 200 hundred individuals, 100 males and 100 females. In Group A and Group B 50 male and 50 female were non diabetics and diabetics with the mean age of 40 ± 13 years and their mean blood glucose levels were112.30±12.38,110.30±13.36 and 242.60±33.76, 250.70±42.77 respectively. A significant$P<0.01$ difference between frequency of tooth decay among diabetic and non-diabetic individuals were observed. Present study indicated higher risk of tooth decay in diabetic individuals.

Keywords: Diabetes Mellitus,Dental plaque, insulin.

INTRODUCTION

Diabetes mellitus is a metabolic disorder in which blood glucose levels increased than the normal one. Mainly diabetes mellitus is of three types i.e. Type 1, Type 2 and Gestational diabetes. All types of diabetes increases the risk of long-term complications. These complications developes after 10-20 years in the body (Aires et al., 2008).Type 2 diabetes mellitus is the most common type among people. Which is an insulin resistant problem in which insulin does not works properly (Jumaily et al., 2009).

Dental plaque is a biofilm thatis deposited ontooth surface.Dental plaque is apale yellow material developed due to different bacterial colonies on the smooth surface of a teeth which with the passage of time it converted into yellowish film on all over the teeth (Mudallal et al., 2006). Dental plaque is formed when bacteria and proteins are adsorbed on tooth surface due to their ability of rapid lactic acid formation from dietary carbohydrates, mainly sucrose and glucose (Mudallal et al., 2006). Different studies proved that inside the plaque film acid is produced which dissolve minerals which make our tooth enamel hard. Because of hardening of enamel the surface of the enamel becomes porous and small holes originates (Bowen, 2002).

These small holes after the passage of time gets bigger into large holes and these are called cavities. This is a sign of early decay (Bradford, 1976). Ourmouth naturally has different types of bacteria which in the presence of starches and sugars in food and beverages interact produced a sticky film known as plaque. The acids in plaque attack the surfaces of your teeth (enamel and dentin). This can lead to cavities.The higher your blood sugar level, the greater the supply of sugars and starches and the more acid wearing away at your teeth (Balakrishnan et al., 2000).

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MATERIALS AND METHODS

Current comparative study was conducted in the Lahore Medical & Dental College Lahore during the month of March 2015. In this study 200 hundred individuals were examined out of which 100 were male and 100 were females. In Group A there were total 100 individuals, 50 male and 50 female they were non-diabetic within the age of 25-40 years. Similarly in Group B total 100 diabetic individuals were selected i.e. 50 male and 50 female within the age of 25-40 years respectively. Glucose levels performed through randomly taken blood samples. Different kits were used for each biomarker in this study. . Data was analyzed by using SPSS software. Mean and standard deviation for the Quantitative variables were calculated. P value of < 0.05 was considered as significant.

RESULTS

In the current study 200 hundred individuals were examined out of which 100 were male and 100 were females. 100 individuals were in Group A, 50 male and 50 female were non- diabetic with the mean age of 40±13 years. In the individuals of Group A the frequency of tooth decay was slow but the concentration of tooth plaque was very high. Blood glucose levels of these individuals were

112.30±12.38 of males and 110.30±13.36 were of females respectively.

In Group B 100 individuals were diabetic, 50 male and 50 female. They were hyperglycemic within the mean age of 40±13 years. Their frequency of tooth decay was very fast whereas male and female mean blood glucose levels were 242.60±33.76, 250.70±42.77 seen. There is a significant P<0.01 difference between frequency of tooth decay among diabetic and non-diabetic individuals have calculated.

Group A: Non diabetic individuals (n=100)

	Male	Female
Age (Yrs) Mean±SD	40 ± 13	40 ± 13
Plaque levels Quantity	High	High
Plaque levels Quantity	Slow	Slow
Glucose levels mg/dl Mean±SD	112.30±12.38	110.30±13.36
Significance	P<0.01	P<0.01

Group B: Diabetic individuals (n=100)

	Male	Female
Age (Yrs) Mean±SD	40 ± 13	40 ± 13
Plaque levels Quantity	High	High
Plaque levels Quantity	High	High
Glucose levels mg/dl Mean±SD	242.60±33.76	242.60±33.76
Significance	P<0.01	P<0.01

DISCUSSION

Dental caries (tooth decay) have plagued human since the dawn of civilization and still constitutes one of the most common human infectious disease in different parts of the world.Present study was planned to find out the frequency of tooth decay between diabetic and non- diabetic individuals. Jawedet al., 2010 described in his study that diabetic participants were at high risk of tooth decay with dental plaque. Vernillo 2003 stated in their study that rate of tooth decay is much higher in diabetic participants than the non- diabetic. Another study elaborated that the individuals how have induced diabetes because of some stress also showed higher risk of dental decay than the non- diabetic individuals.

World Health Organization report of 2011 stated that tooth decay because of dental plaque in diabetic patients found higher than the non- diabetics.The findings of present study showed that tooth decay frequency of diabetic individuals were very higher than the non- diabetic individuals (Agarwall,.2009). A significant P<0.01 difference has seen in rate of frequency of tooth decay in diabetics and non-diabetic individuals respectively. Both male and female in hyperglycemic conditions with the mean age of 40±13 years showed tooth decay syndrome.

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