EFFECT OF MEDITERRANEAN DIET ON PERIODONTAL DISEASES AMONG DIABETIC PATIENTS

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ABSTRACT: This study aimed to explore the effect of Mediterranean diet on gum bleeding, pocketing and periodontitis among diabetic patients in Lahore. Sample was comprised of 150 patients which were randomly allocated in two groups, one was control group and other was experimental group comprised of 75patients of diabetes mellitus each. Significant difference was found between the pre and post treatment in terms of periodontitis (pre-treatment; X^2=.152, P= .697, Post treatment; X^2=29.179, P<.001). Significant difference was found between the pre and post treatment in terms of gingivitis (pre-treatment; X^2=.060, P = .806, Post treatment; X^2=64.027, P >.001). In conclusion, periodontists and gingivitis could be controlled using Mediterranean diet among patients of diabetes mellitus.

Keywords: Diabetic mellitus, Periodontitis, Mediterranean Diet, Gingivitis.

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INTRODUCTION

Periodontal diseases are considered to be common among patients with systemic diseases. Over past few decades, association between periodontal diseases and diabetes has been the matter of the maximum rigorous exploration (Monsarrat, Blaizot, Kémoun, Ravaud, Nabet, Sixou, & Vergnes, 2016). The prevalence of diabetes as well as periodontal diseases such as gum bleeding, pocketing, periodontitis is quite high in humans of current era (Kassebaum, Smith, Bernabé, Fleming, Reynolds, Vos, Murray, Marcenes, et. al., 2017; Murray *et al*., 2012) which is affecting the quality of life of many patients to a greater extent (Haag, Peres, Balasubramanian, & Brennan, 2017; Zhang, & Gregg, 2017).

Models using nowadays are in support of two directional linkage (Taylor, Preshaw, & Lalla, 2013). In local inflammation reduction, periodontal therapy might be helpful resulting in the entry of putative systemic bacterial side products and molecules those are helpful in inflammation reduction.

Regardless of the statement that reduction in levels of HbA1C still shows, among patients of diabetes, periodontal treatment advantages on controlling blood sugar (Madianos, & Koromantzos, 2018). According to Vergnes (2015), the level of influence stated in consecutive meta-analyses over the past decade have been declining world widely.

It was found that low fat diet (Mediterranean diet) has beneficial effect on diabetic patients in terms preventive measure from the occurrence as well as adverse effects of many physiological problems. This statement was found contrasting the findings of the investigations reported by Iwasaki *et al*. in 2020, on Moroccan population. It revealed no significant effect of Mediterranean diet on prevalence of periodontitis.

In Pakistan, no study has been cited which has explored this phenomenon. So, this study aimed to explore the effect of Mediterranean diet on gum bleeding, pocketing and periodontitis among diabetic patients in Lahore.

MATERIALS AND METHODS

Research design: To explore the effect of Mediterranean diet on gum bleeding, pocketing and periodontitis among diabetic patients in Lahore, this randomized control trail study was planned.

Sampling technique: Simple random sampling technique from the patients of diabetes mellitus.

Sample size: Sample was comprised of 150 patients which were randomly allocated in two groups, one was control group and other was experimental group comprised of 75patients of diabetes mellitus each.

Procedure: Data collection permission was taken from the medical superintendent of the hospital and patients of diabetes mellitus coming to the OPD of hospital were recruited for the study after explaining expected outcomes of the study and taking their written consent of consent form. Both experimental and control group was exposed to the scaling and polishing after recruitment and periodontal condition was observed after 3 months. Moreover, experimental group was introduced with the Mediterranean diet adherence whereas the control group continued with their routine food intake.

Data analysis: Chi-square test was used to explore the effect of Mediterranean diet on gum bleeding, pocketing and periodontitis among diabetic patients in Lahore using SPSS version 23.0

RESULTS

As demographic variables, age, was gender was recorded. The overall mean age was 41.10±2.99. Mean age of experimental group was 40.40±2.88 and mean age of control group was 41.80±2.94. Males were 60% and females were 40% of the entire data.

The results of chi-square revealed that there was no difference in pre and post treatment values in terms of gum bleeding among control group (without Mediterranean diet) and experimental group (with Mediterranean diet) (Pre-treatment; X^2=1.369, P = .242, Post treatment; X^2=2.453, P =.117). Majority of the patients got relief from gum bleeding only by scaling and polishing with proper oral hygiene maintenance.

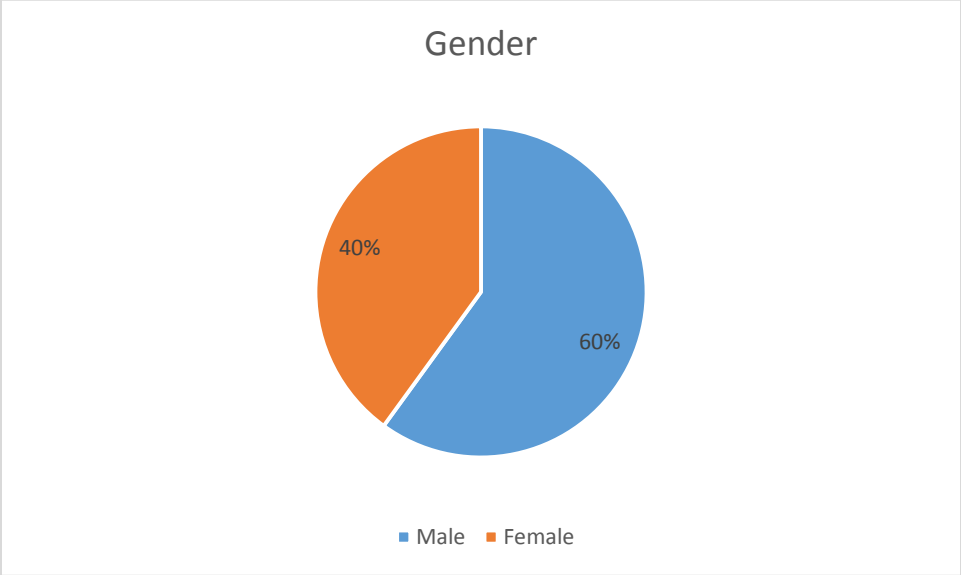

Figure 1. Gender distribution of data.

Table 1. Pre and post treatment comparison in terms of gum bleeding.

		Gum bleeding at pre-treatment stage		Gum bleeding at post-treatment stage	
		Absence	**presence**	**No Improvement**	**Improvement**
Groups	Control group	34.7%	65.3%	10.70%	89.30%
	Experimental group	44.0%	56.0%	4.0%	96.00%
		X^2=1.369, P = .242		X^2=2.453, P =.117	

Significant difference was found between the pre and post treatment in terms of periodontitis (pre-treatment; X^2=.152, P= .697, Post treatment; X^2=29.179, P<.001). It was revealed that both groups show improvement in terms of recovery, i-e., Pre-treatment percentage of occurrence of periodontitis in control group was 76.0% whereas post treatment percentage was 41.30%. Pre-treatment percentage of occurrence of periodontitis in experimental group was 78.7% whereas post treatment percentage was 84.00%. These results showed that periodontitis could be controlled using Mediterranean diet among patients of diabetes mellitus.

Table 2. Pre and post treatment comparison in terms of periodontitis.

		Periodontitis at Pre-treatment stage		Periodontitis at Post-treatment stage	
		Absence	**Presence**	**No Improvement**	**Improvement**
Patients of Diabetes mellitus	Control group	24.0%	76.0%	58.7%	41.30%
	Experimental group	21.3%	78.7%	16.0%	84.00%
		X^2=.152, P= .697		X^2=29.179, P<.001	

Significant difference was found between the pre and post treatment in terms of gingivitis (pre-treatment; X^2=.060, P = .806, Post treatment; X^2=64.027, P >.001). It was revealed that both groups show improvement in terms of recovery, i-e., Pre-treatment percentage of occurrence of gingivitis in control group was 86.70% whereas post treatment percentage was 20%. Pre-treatment percentage of occurrence of gingivitis in experimental group was 88.0% whereas post treatment percentage was 82.70%. These results showed that gingivitis could be controlled using Mediterranean diet among patients of diabetes mellitus.

Table 2. Pre and post treatment comparison in terms of periodontitis.

		Gingivitis at pre-treatment stage		Gingivitis at post-treatment stage	
		Absence	**Presence**	**No Improvement**	**Improvement**
Groups	Control group	13.3%	86.7%	80.00%	20.00%
	Experimental group	12.0%	88.0%	17.3%	82.70%
		X^2=.060, P = .806		X^2=64.027, P >.001	

DISCUSSION

The aim of the study was to explore the effect of Mediterranean diet on gum bleeding, pocketing and periodontitis among diabetic patients in Lahore. There was no difference in pre and post treatment values in terms of gum bleeding among control group (without Mediterranean diet) and experimental group (with Mediterranean diet). Majority of the patients got relief from gum bleeding only by scaling and polishing with proper oral hygiene maintenance.

Significant difference was found between the pre and post treatment in terms of periodontitis. Both groups show improvement in terms of recovery, i-e., Pre-treatment percentage of occurrence of periodontitis in control group was 76.0% whereas post treatment percentage was 41.30%. Pre-treatment percentage of occurrence of periodontitis in experimental group was 78.7% whereas post treatment percentage was 84.00%. These results showed that periodontitis could be controlled using Mediterranean diet among patients of diabetes mellitus.

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A study conducted in 2016, reported that Mediterranean diet adherence effects positively on the occurrence of diabetes mellitus. They took three groups of subjects without diabetes who take Mediterranean diet at adherence level as low, medium and high and conducted a 10 years longitudinal study. It was found that the group whose adherence of Mediterranean diet was higher showed the lowest pattern to developing diabetes, 13% chance (Koloverou *et al*., 2016).

Conclusion: Mediterranean diet has improved the periodontal status of diabetic patients of Lahore.

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