

Effects of Cranberry Juice Enriched with n-3 PUFA Consumption in Adjunct with Non-Surgical Periodontal Therapy on Glycemic Control, Antioxidant Status and Periodontal indices in Type 2 Diabetes Patients with Periodontitis

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Abstract : Introduction: Type 2 diabetes mellitus and periodontal disease hold a physiologically relationship. Periodontal disease, a common widespread chronic disease, is considered as an important complication in diabetes mellitus. The prevalence and severity of periodontal disease are increased among diabetic patients. A balanced nutrition may improve either diabetes or periodontal disease by controlling one of them. The aim of this study was to evaluate the effects of cranberry juice enriched with n-3 PUFA and their individual consumption on glycemic control and antioxidant status in diabetic patients with periodontal disease. Methods: In this randomized clinical trial 41 diabetic patients (35 - 65 y) with chronic adult periodontal disease were recruited from Endocrinology Clinic of Golestan Hospital in Ahvaz city, Iran. Subjects were randomly assigned to four groups as follow: one control group (n=12) and three intervention groups as receiving 1 g n-3 PUFA capsule (n=10), 400 ml cranberry juice (n=9), 400 ml cranberry juice enriched with 1g n-3 PUFA (n=10) for 8 weeks. Non-surgical periodontal therapy was provided for all patients during study. Fasting blood glucose, glycated hemoglobin, plasma and saliva TAOC and MDA, pocket depth and bleeding on probing were measured at baseline and post intervention. Results: There was a significant reduction in glycated hemoglobin observed in intervention groups of receiving n-3 PUFA and cranberry enriched with n-3 PUFA (11 %, P = 0.01 and 7 %, P = 0.01, respectively). The intervention group receiving n-3 PUFA had significantly lower glycated hemoglobin compared with control group. There was no significant difference found in FBS between and within groups. Furthermore, there was a significant increase in plasma TAOC only in cranberry enriched with n-3 PUFA group. Moreover, plasma MDA significantly decreased in intervention groups of receiving cranberry and cranberry enriched with n-3 PUFA. A significant increase was observed in TAOC of saliva in cranberry enriched with n-3 PUFA group compared to control group. The intervention group receiving cranberry enriched with n-3 PUFA had significantly lower MDA of saliva compared with control group. Pocket depth were significantly decreased in all groups, however, bleeding on probing didn't significantly changed in patients post intervention. Conclusion: It is suggested that consumption of cranberry juice enriched with n-3 PUFA as a nutritional approach in adjunct with non-surgical periodontal therapy may help to improve glycosylated hemoglobin and TAOC in saliva and plasma in diabetic patients with periodontal disease.

Keywords : antioxidant, cranberry, oxidant status, periodontal disease, type 2 diabetes mellitus

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