The effect of almonds on inflammation and oxidative stress in Chinese patients with type 2 diabetes mellitus: a randomized crossover feeding trial.

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Abstract:
Abstract Purpose: Almond consumption is associated with ameliorations in obesity, hyperlipidemia, hypertension and hyperglycemia. The hypothesis of this 12-week randomized, crossover controlled feeding trial was that almond consumption would ameliorate inflammation and oxidative stress in Chinese patients with type 2 diabetes mellitus (T2DM)(9M, 11F; 58y ears; BMI:26kg/m2) with mild hyperlipidemia. Methods After a 2-week run-in period,the patients were assigned to either a control NCEP step II diet (control diet) or almond diet for 4 weeks with a 2-week wash out period between alternative diets. Almonds approximately at 56g/day were added to the control diet to replace 20% of total daily calorie intake. Results As compared to the control diet, the almond diet decreased IL-6 by a median 10.3% (95% confidence intervals 5.2, 12.6%), CRP by a median 10.3% (-24.1,40.5), and TNF-a by a median 15.7% (-0.3,29.9). The almond diet also decreased plasma protein carbonyl by a median 28.2%(4.7,38.2) as compared to the C diet but did not alter plasma malondialdehyde. The A diet enhanced the resistance of LDL against $Cu2^{+}$-induced oxidation by a median 16.3% (7.4,44.3)as compared to the C diet . Serum intercellular adhesion molecule-1 and vascular adhesion molecule-1 were not changed by both diets. Conclusions Our results suggested that incorporation of almonds into a healthy diet could ameliorate inflamation and oxidative stress in patients with T2DM.