**Abstract poster Endo San Diego 2015**

**An Ad-Libitum Low-Carbohydrate Non-Ketogenic High-Protein Diet Improves Diabetes Control over the Short-Term**

Despite the fact that low-carbohydrate diets are still controversial, they continue to demonstrate effectiveness with little risk and good compliance in the treatment of diabetes and metabolic syndrome [1]. Low-carbohydrate diets that restrict carbohydrates to 20-60 g/d have been found to cause superior weight loss, and significant improvements in glycemic control and lipid profile as compared with low-fat diets [2]. In addition, the continuous reports of diabetes medication side effects, indicates a need to re-evaluate the role of dietary carbohydrate reduction[1].

 We had previously reported on the long-term effects of an ad-lib low-carbohydrate non-ketogenic high-protein diet [3]. The aim of the present retrospective study is to investigate the effects of such a diet on glycemic control, weight loss, lipid profile and kidney function over the short-term in patients with uncontrolled diabetes.

 We reviewed the medical charts of all patients with diabetes that attended our clinic in the years 2011-2013. We selected only those with uncontrolled diabetes (HbA1c ≥7 %) who came back for a follow-up visit within 1-4 month with lab results. 76 patients were found to meet these criteria: 45 males and 31 females (59.2% and 40.8% respectively). Mean age was 53.8±11.0 years, and mean BMI was 34.7±7.8 kg/m2, mean duration of diabetes was 5.8±6.6years. Patients were instructed on an ad-libitum low-carbohydrate non-ketogenic high-protein diet and were encouraged to exercise and maintain a healthy lifestyle. No restrictions on use, amount, or type of fat were made, although the use of canola and olive oils was recommended. The diets provided 130-150g of carbohydrate per day to prevent ketosis. All patients were on metformin, some in combination with sulfonylureas or a DPPIV inhibitor, and few were on a combination of all three. Data was analyzed using paired-sample t-tests, and mean±SD is reported.

 Patients came for follow-up within an average of 2 months, and our findings revealed a significant decrease from baseline in BMI (34.8±7.8 vs. 33.2±7.4 kg/m2; p<0.001); fasting blood sugar (179.0±63.3 vs. 129.7±39.6 mg/dl; p<0.001); HbA1c (8.53±1.56 vs. 6.83±1.12 %; p<0.001); total cholesterol (199.4±39.1 vs. 184.9±35.7 mg/dl; p=0.002); triglycerides (220.1±177.7 vs. 174.2±95.9 mg/dl; p=0.009); and SGOT (28.7±17.9 vs. 21.2±7.7 IU/L; p<0.001). No significant changes were observed in LDL, HDL, SGPT or creatinine. In 6.4% of patients, reduction in medication dose was also observed.

 We conclude that decreasing carbohydrate intake over a short period of time significantly lowers the HbA1C level without the need of increasing the doses of oral hypoglycemic medication or introducing new ones; a strategy that could be successfully introduced, even if intermittently, in order to bring diabetes to control, and should be discussed as part of diabetes management with patients.

(1) Feinman et al. Dietary carbohydrate restriction as the first approach in diabetes management: Critical review and evidence base. 2014. Nutrition – in press.

(2) Ajala et al. Systematic review and meta-analysis of different dietary approaches to the management of type 2 diabetes. 2013 Am J Clin Nutr 97: 505-16.

(3) Nawar R.  Torbay N.  2011: Long-Term Benefits of an Ad-Libitum Non-Ketogenic Low-Carbohydrate Diet on Diabetes Control: Observations in the Clinical Setting. Endocr Rev 32: P1-524