**Abstract poster Endo 2011**

**Long-term Benefits of an Ad-Libitum Non-Ketogenic Low-Carbohydrate Diet on Diabetes Control: Observations in the Clinical Setting**

**Introduction:** The advantages of weight loss in obese diabetics have been established in a number of studies. We are not aware of any studies that have investigated the long-term effects of an ad-lib non-ketogenic low-carbohydrate diet on diabetics. The aim of this retrospective study is to assess effects of such a diet on glucose metabolism markers and lipid profile after one year.

**Methods:** Twenty-six recently diagnosed diabetic patients (18 males, 8 females; mean age 52.8±9.4 yrs, mean BMI 35.4±6.3 kg/m2,, mean duration of diabetes: years) reporting to our clinic, were instructed on an ad-libitum non-ketogenic low-carbohydrate diet and those that maintained it for at least a year, participated in the study. Patients were encouraged to exercise and maintain a healthy lifestyle. No restrictions on use and type of fat were made. The diets provided 130-150g of carbohydrate per day to avoid ketosis. Weight and blood samples were obtained at baseline and 1 year.

**Results:** The mean changes observed between baseline and one year respectively were: a significant decrease in mean BMI (35.4±6.3 vs. 31.7±5.3 kg/m2; p<0.001), fasting blood sugar (162.9±83.0 vs. 117.6±22.2 mg/dl; p=0.013), HbA1c (8.5 % ±2.5 vs. 6.2 % ±0.5 ; p=0.001), triglycerides (217.1±185.2 vs. 135.6±53.4 mg/dl; p=0.015), and HOMA1 (6.2±3.2 vs. 4.0±1.7; p=0.009). A significant increase was observed in HDL levels (48.4±17.0 vs. 54.7±13.6; p=0.003). Fasting insulin and cholesterol levels decreased at one year and were almost significant (p=0.06 and 0.09 respectively). No significant change was observed in LDL. In addition, after 1yr, medication intake decreased significantly (p<0.001).

**Conclusion:** Patients were able to achieve a sustainable weight loss and an improvement in glucose and lipid metabolism markers. A low-carbohydrate non-ketogenic ad-libitum diet is an effective tool for weight loss and metabolic control in diabetic individuals.

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|  | Baseline  | One year | P-value |
| BMI (kg/m2) | 35.4±6.3 | 31.7±5.3 | <0.001 |
| Fasting blood sugar (mg/dl) | 162.9±83.0 | 117.6±22.2 | 0.013 |
| HbA1c | 8.5±2.5 | 6.2±0.5 | 0.001 |
| HOMA1 | 6.2±3.2 | 4.0±1.7 | 0.009 |
| Triglycerides (mg/dl) | 217.1±185.2 | 135.6±53.4 | 0.015 |
| HDL(mg/dl) | 48.4±17.0 | 54.7±13.6 | 0.003 |