

**ELEVENTH ANNUAL
HEALTH SCIENCES CENTRE
POSTER CONFERENCE
2006**

Medicine

Category: Clinical

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Leptin levels in normal-weight, overweight and obese Type 2 Diabetic patients

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Introduction:

Results of clinical studies on serum levels of leptin in Type 2 diabetes were inconsistent. The aim of this study was to measure serum leptin in normal-weight, overweight and obese type 2 diabetic patients and to study the relationship of leptin with several factors.

Methods:

We measured leptin in serum of 6 normal-weight (4 male and 2 female), 14 overweight (11 male and 3 female) and 30 obese (11 male and 19 female) Type 2 diabetic patients. The following variables were collected for each patient: height, weight, BMI, smoking status, insulin, C-peptide, HbA1c, creatinine, lipids, presence of diabetic retinopathy and nephropathy and treatment with insulin.

Results:

Leptin was found to be statistically significantly lower in normal-weight and overweight than obese Type 2 diabetic patients (17.52±18.88 vs. 13.05±12.52 ng/ml vs. 34.98±16.01, respectively; p=0.0001). Women had statistically significant higher leptin levels than men (42.68±11.046 vs. 12.04±8.72 ng/ml, p=0.0001). When serum leptin levels were compared between the three groups of weight in both gender, it was only significantly different in men but not women. In addition, non-smokers had statistically significant higher leptin levels than current and former smokers (33.06±18.05 vs. 10.52±7.74 vs. 14.48±10.42, respectively, p=0.001). There was no significant difference in plasma leptin levels between patients with retinopathy and nephropathy than those without these complications. Serum leptin levels were positively correlated to BMI (r=0.71, p=0.0001), serum insulin (r=0.33, p=0.018) and high-density lipoprotein cholesterol (r=0.38, p=0.006), whereas creatinine had negative correlation (r=-0.42, p=0.004). No relationship was found with age, C-peptide, metabolic control, triglycerides, LDL-cholesterol and insulin therapy.

Conclusions:

In Type 2 diabetes, women and obese men showed higher leptin levels. There was no relationship between leptin and microvascular complications, or insulin therapy.

Key Words: Diabetes; Leptin.

Funding Agency: None