

## THESIS ABSTRACT

### **Effect of Leptin and its Association with Steroid Hormones and Lipid Profile in Diabetic Subjects.**

**Sura Zahim Hussain Alsamarai, Tikrit Teaching Hospital, Salahuldean Health Authority, Tikrit, Salahuldean Governorate, Iraq.**

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**Background:** Diabetic mellitus is a chronic non curable disease with high prevalence globally. The disease associated with inflammatory responses and metabolic changes and subsequently these responses lead to a multiple organ complications. However, these complications development may be prevented through good diabetic control. Biochemical changes monitoring is the main effective approach in such control program.

**Aim:** To determine the role of leptin, steroid hormones, and lipid profile in the pathogenesis of diabetes mellitus and clarify their uses in disease control program.

**Materials and methods:** Serum samples collected from 220 individuals, 100 of these individuals were normal and 120 cases were diabetic patients admitted to Tikrit Teaching Hospital in Tikrit city from January 2010 to June 2011. The study population age ranged from (12-70) years. Patients and controls had hormonal assay of Leptin, LH, FSH, PRL, Estrogen, Progesterone, Testosterone, Cortisol, Glucose and Lipid profile, these samples were divided into four groups of diabetic patients and controls. Group 1 (Diabetic ketoacidosis in pubertal age), Group 2 (Poorly controlled D.M in adult age), Group 3 (Postmenopausal D.M women & men) and Group 4 (Gestational diabetes mellitus) the fifth group (control group) subdivided into four groups each one included with each group of diabetic patients.

**Results:** Leptin increased progressively with aging in diabetic patients as compared with controls and in female in comparison with male. It increased extensively in three trimesters of gestational diabetic women more than control. LH and FSH decreased in diabetic patients to a lesser degree than control in all groups, while Prolactin also decreased in diabetic patients in all age groups except in male of group one and female of groups one and two.

Testosterone decreased in diabetic patients in comparison to the control in male of all groups, and on the contrary, it obviously increased in female. Progesterone and Estrogen increased in diabetic patients in male and female of all groups except in group four and female Estrogen of group three. Cortisol decreased in diabetic patients as compared to the control in male and female of all groups except in second and third trimesters of group four.

Lipid profile (Cholesterol, Triglyceride, Very low density lipoprotein and Low density lipoprotein) increased in diabetic patients in male and female of all groups except HDL-cholesterol that decreased. BMI increased in diabetic patients rather than control all groups.

The correlation coefficient ( $r$ ) between Leptin and other parameters calculated with regression plot showed a positive correlation between Leptin with (BMI, Cholesterol, Triglyceride, LDL, LH, FSH, Testosterone and Progesterone), while a negative correlation with (Glucose and Estrogen) in male diabetic patients of group one; also a positive correlation with (BMI, Triglyceride, LH, FSH, Prolactin, Testosterone, Estrogen and Cortisol) in female diabetic patients of group one. There was a positive correlation between Leptin with (BMI, Cholesterol, LDL and Testosterone), but a negative correlation with (LH, FSH and Progesterone) in male diabetic patients of group two; otherwise a positive correlation with (BMI, Estrogen and Cortisol) and a negative correlation with (Triglyceride, LH, FSH and Testosterone) in female diabetic patients of group two. There was a positive correlation between Leptin with (BMI, Cholesterol, LDL, Prolactin and Estrogen), while a negative correlation with (HDL, LH and FSH) in male diabetic patients of group three; also a positive correlation with (BMI, HDL, LH and FSH) and a negative correlation with (Cholesterol, LDL and Cortisol) in female diabetic patients of group three. There was a positive correlation between Leptin with (BMI, Glucose, Cholesterol, Triglyceride, LDL, Prolactin, Testosterone, Progesterone, Estrogen and Cortisol), but a negative correlation with (HDL, LH and FSH) in female diabetic patients of group four.