

ABSTRACT:

Background:

The likelihood of developing Diabetes Mellitus increases with the upper limit of body mass index. Genetic, lifestyle and environmental factors combined together promotes obesity. Diabetes mellitus is associated with alterations in carbohydrate, protein and fat metabolism due to defective insulin secretion or action or both. Leptin the product of ob gene is secreted by adipocytes and also by placenta, bone marrow, muscle, etc. It has a major role in maintaining body weight and in energy metabolism. The hypothalamus is the predominant site of action of Leptin. Receptors for Leptin is present in various sites like brain and peripheral tissues like pancreas, liver, lungs, adipose tissues, T-lymphocytes and epithelial cells. This gives the evidence for the role of Leptin in carbohydrate metabolism, reproduction and many other functions. Leptin exhibits its insulin lowering action through the receptors present in beta cells of pancreas.

Objectives:

1. To form four groups namely obese type 2 diabetic (n=40), thin type-2 diabetes mellitus (n=40), obese non-diabetic (n=40) and thin non-diabetic (n=40) according to inclusion and exclusion criteria.
2. To collect relevant data and sample for Leptin estimation.
3. To estimate Leptin using ELISA method.
4. To compare the data between 4 groups.

5. To analyze the correlation between the quantitative parameters.

Study design:

Case Control study.

Study population:

After obtaining institutional human ethics committee approval,40 subjects in each of the four groups namely thin diabetic, obese diabetic, thin non-diabetic and obese non-diabetic populations (n=160) were selected. Leptin and other parameters were measured.

Results:

It was found that there was no significant difference in Leptin levels in both obese diabetic and obese control groups. Leptin level was confined to the lower side in thin groups. There was a significant positive correlation between Leptin and body mass index. Female subjects have got increased Leptin value than male subjects.

Conclusion:

1. Leptin is not elevated in thin diabetic when compared with thin non-diabetic. The development of type 2 diabetes mellitus in thin individuals may not be related to Leptin level.
2. Obesity and Female sex are associated with increased Leptin level and not with type 2 diabetes mellitus.
3. BMI and Leptin have a linear positive correlation.

Key words: Leptin, diabetes mellitus, body mass index.