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Relationship between ghrelin and leptin with insulin resistance in obese patients and non-obese individuals

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Obesity is defined as an abnormal accumulation of body fat to the degree that may cause serious health consequences and defined as accumulation of fatty tissue results from a disturbance in balance between energy intake and expenditure which is too big to be regulated by the hypothalamic regulatory mechanism represented by Basal Metabolic Rate (BMR). The causes for obesity are usually related to many factors such as genetic factors, consumption of high calorie food and/or poor or lack of practicing of physical exercise, diseases of endocrine system, medications or psychological disorders, obesity leads to many serious health problems such as type 2 diabetes mellitus, cardiac disease, cancers and joint problems, respiratory and neurological problems. 100 people were included in this study (50 obese patients and 50 non-obese patients). The mean age for the study group was (34.00 ± 9.43) years old while that of the control group was (34.00 ± 9.43) year's old, respectively. They were classified according to their Body Mass Index after measuring their height and weight, the mean BMI of case patients was $(39.23 \pm 6.71 \text{ kg/m}^2)$ and $(23.08 \pm 1.19 \text{ kg/m}^2)$ for the control individuals, exclusion criteria included, history of diabetes mellitus. Finding of high blood glucose on biochemical examination, history of taking drugs that cause obesity or increase in body weight such as steroids, patients with diseases of high growth hormone level such as acromegaly, pregnant women, while the investigations that were done including, fasting blood sugar, fasting serum ghrelin, fasting serum leptin and fasting serum insulin, insulin resistance was measured using HOMA-IR module and the results showed that there is association between insulin resistance and obesity as it well-known and a significant relation between fasting serum leptin with obesity/insulin resistance ($p \text{ value} > 0.05$) but a non-significant relation between fasting serum ghrelin and obesity/insulin resistance ($p \text{ value} > 0.05$). Obesity is associated with insulin resistance with high level of fasting serum leptin but with not high level of fasting serum ghrelin.

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