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COMPARISON OF SERUM INSULIN LEVELS AND INSULIN RESISTANCE WITH SELECTED ANTHROPOMETRIC PARAMETERS IN A SELECTED POPULATION OF NORMAL AND OBESE INDIVIDUALS.

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Introduction: Insulin resistance (IR) is the decrease ability of endogenous or exogenous insulin to increase glucose utilization and uptake by cells. Obesity is considered as a causative factor of IR.

Objective: To compare the serum insulin levels and IR with selected anthropometric parameters in a selected population of obese and normal individuals.

Methods: Thirty obese subjects ($BMI \geq 27.5 \text{ kgm}^{-2}$) and thirty normal subjects ($BMI = 18.5 - 22.9 \text{ kgm}^{-2}$) were selected (age- 20-40 years). Blood sample was obtained from median cubital, cephalic or basilic veins under standard conditions after a 10-12 hours overnight fast. Fasting blood sugar (FBS) and fasting serum insulin (FSI) levels were determined using glucose oxidase/peroxidase method and a solid phase enzyme linked immunosorbent assay respectively. Calculation of IR was done using the HOMA-IR equation. As anthropometric measurements, height, weight, and waist circumference (WC) were measured and body mass index (BMI) calculated. Ethical clearance for the study was obtained from Ethics Review Committee, Faculty of Medical Sciences, University of Sri Jayewardenepura.

Results: Mean FSI level of the total population was $7.89 \pm 3.51 \mu\text{IU/mL}$. In normal BMI group, mean FSI value was $6.93 \pm 2.48 \mu\text{IU/mL}$ and in obese group, it was $8.84 \pm 4.12 \mu\text{IU/mL}$. There was a significant difference in mean FSI between the normal and obese groups ($p < 0.05$). FSI levels above $13.63 \mu\text{IU/mL}$ were considered as hyperinsulinemic. In obese group four subjects were hyperinsulinemic and in normal BMI group one subject was hyperinsulinemic. IR values were significantly different between obese and normal BMI groups ($p < 0.05$). WC was significantly higher in obese group compared to normal BMI. A positive correlation was observed between FSI and BMI as well as FSI and WC ($P < 0.05$).

Conclusion: The obese group participated has a higher number of individuals with hyperinsulinaemia indicating the need to advise regarding exercises and diet control to reduce BMI and development of non communicable diseases.