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P71. Insulin resistance in severely obese women after weight loss

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Context: In recent years, obesity has increased dramatically worldwide, in both developing and developed countries. Most studies indicate that obese women have serious reproductive and metabolic abnormalities due to insulin resistance. Low-calorie diet (LCD), lifestyle modifications, increased physical activity is the first line treatment for obesity.
Objective: The aim of this study was to analyze the influence of non-surgical weight reduction on insulin resistance in severely obese women.
Methods: This was a prospective clinical study.
Patients: The study included 20-60 year old severely obese women with Body Mass Index (BMI) ?35kg/m2.
Intervention: Forty-six extremely obese women, aged 39.53±12.44kg, completed the therapeutic program, which consisted of very low calorie diet (VLCD) in hospital conditions and LCD with dosed physical activity in outpatient conditions. Anthropometrics parameters were measured. Subjects were underwent an oral glucose tolerance test and insulin resistance/sensitivity was evaluated by indirect methods, including fasting blood sugar (FBS), fasting insulin (FI), homeostatic model assessment of insulin resistance (HOMA-IR), quantitative insulin sensitivity check index (QUICKI), and the oral glucose insulin sensitivity (OGIS). After weight reduction by at least 10%, all mentioned assessments were repeated.
Main Outcome Measures: None of the patients included in the study during the VLCD had significant adverse events. Anthropometric and metabolic data before and after the dieting are as follows: TT 122.6±23.5 vs. 112.9±20.7kg, BMI 45.6±8.3 vs. 41.7±7.3kg/m2, waist circumference 125.9±8.3 vs. 117.7±14.3cm, hip circumference 135.9±21.1 vs. 132.9±15.4cm, FBS 5.4±2.0 vs. 5.1±1.8 mmol/L, FS 26.0±13.7 vs. 19.0±11.3µU/mL, HOMA-IR 6.1±4.13 vs. 4.19±2.9, QUICKI 0.3±0.02 vs. 0.4±0.03, OGIS 459.7±72.7 v.s.512.6±68.8.
Results: The mean weight loss was 18kg or 13.5% of the initial weight ($p<0.001$), for the average duration of 5 months, which was followed by a significant decrease of all anthropometrics parameters ($p<0.001$), FBS ($p<0.05$), FI ($p<0.05$) and insulin resistance evaluated by HOMA-IR ($p<0.01$), QUICKI ($p<0.05$) and OGIS ($p<0.001$).
Conclusions: Our results demonstrate that weight loss is the crucial determinant of the drastic improvement in insulin resistance in severely obese women.

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