

Relationship Between Leptin and Obesity in Mexican Children

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ABSTRACT

Background: The expression and secretion of the leptin are thoroughly related with the regulation of food intake, energy balance and body fat. Obesity is defined as excess of body fat. **Purpose:** The purpose of this research was to determine the relationship among the nutritional state and the percentage of body fat with the levels of leptin in 10 to 13 year old children living in the city of Durango, Mexico. **Method:** The study was carried out with 823 elementary school children. The selection was done at random. The biochemical studies were done in a subpopulation of 425 children. Each child underwent the following studies: sociodemographic, anthropometric and corporal composition. After fasting overnight, a venous blood sample was obtained. Leptin, glucose, lipid profile, insulin, Insulin growth factor, growth hormone, cortisol, TNF-alpha and C-reactive protein were determined in serum. The nutritional state was calculated according the age and sex specific BMI values developed by the CDC. Fat mass content was determined using a bioelectrical impedance analyzer (Tanita TBF-215). Statistical analyses were performed using SPSS14. **Results:** The studied population included 428 (52%) boys and 395 (48%) girls. Mean age was 11.50 years. The prevalence of overweight including obesity (≥ 85 th percentile of the BMI) was 36.7%. The mean of the percentage of corporal fat in the women was 27.04 and in the males 22.05 ($p < 0.05$). The mean of the concentration of leptin in the women was 27.84 ng/mL and in the males 17.62 ($p < 0.05$). In the female group the leptin level increased with the age. The mean of leptin concentration in the group with ≥ 95 th percentile of the BMI was higher (47.07 ng/mL) than those with 5-84.99th percentile of the BMI (14.01 ng/mL) ($p < 0.05$). The mean of leptin concentration in the group with $< 20\%$ body fat was lower (8.92 ng/mL) than the group with $\geq 40\%$ body fat (59.94 ng/mL) ($p < 0.05$). **Conclusions:** The leptin level was associated with gender, body mass index (BMI) and body fat.

KEY WORDS: Children, Leptin, Obesity, Body Fat