

Leptin and its Association with Obesity among Mexican Adolescents

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ABSTRACT

Purpose: To investigate the association between leptin concentrations and nutritional status among a Mexican adolescent population. **Methods:** Cross-sectional study with 448 adolescents attending five schools in Durango, Mexico. Serum leptin concentrations were measured by ELISA. Other measurements included height, weight, and waist and hip circumference. Body fat of participants was assessed with bio-electrical impedance using a body composition analyzer InBody-720. Sociodemographic information was also collected. **Results:** Based on IOTF BMI cut-off points, 34.1% of adolescents were overweight and obese and prevalence rates were higher among females (37.1%) than males (29.5%). In agreement with waist circumference, 22.5% of participants were overweight and had abdominal obesity; and based on waist-to-hip ratio 35.5% had truncal obesity. Leptin concentration levels among females (19.33 ng/dL) were two times higher than among males (40.07 ng/dL) with a statistical significant difference ($p=0.000$). Leptin levels among obese females (69.92 ng/dL) were three times higher than among underweight females (17.70 ng/dL). Conversely, leptin levels among males (43.52 ng/dL) were four times higher than among their underweight counterparts (10.08 ng/dL). Mean leptin levels among women with body fat greater than 28% (46.44 ng/dL) were statistically different and 1.7 times higher than those with lower body fat (25.96 ng/dL) ($p=0.000$). Mean leptin levels among males with body fat greater than 20% (30.17 ng/dL) were statistically different ($p=0.000$) and 2.4 times higher than among males with lower body fat (12.35 ng/dL). Among both females and males, leptin concentration levels were positively and significantly associated with visceral body fat ($R^2=0.344$ females; $R^2=0.373$ males; $p=0.000$). **Conclusions:** Significant correlations between leptin and BMI, body fat percentage, and visceral adipose

tissue area indicate that this hormone can be used as a biomarker for obesity among adolescents.

KEY WORDS: Leptin, Mexican Adolescents, Obesity