Abstract

Background Epicardial fat is currently considered a real endocrine organ that can be easily determined by echocardiography, emerging as a novel parameter for the estimation of cardiometabolic risk. Objective To determine the association between epicardial fat, insulin resistance and carotid intima-media thickness. Methods The Instituto Nacional de Endocrinología and the Instituto Nacional de Cardiología y Cirugía Cardiovascular conducted a cross-sectional study on 239 patients with suspected disorders of carbohydrate metabolism. Clinical variables (age, gender, smoking habits, systolic and diastolic blood pressure), anthropometric measurements (waist circumference and body mass index), biochemical determinations (blood glucose, total cholesterol, HDL-C, LDL-C, triglycerides, fasting insulin levels and HOMA-IR) and echocardiographic variables (carotid intima-media thickness) were included. Results A significant and independent association was found between blood glucose, epicardial fat and waist circumference, in that order, and HOMA-IR >2.6. Epicardial fat also showed a positive and significant correlation with fasting insulin levels (r=0.536; p=0.0001) and HOMA-IR (r=0.512; p=0.001). The correlation between epicardial fat and carotid intimamedia thickness was greater in insulin resistant patients (r=0.523; p=0.0001), compared to patients with HOMA-IR <2.6 (r=0.173; p=0.029). Epicardial fat thickness 4.9 mm had a sensitivity of 85% and a specificity of 75% to predict insulin resistance, with an area under the ROC curve of 0.815 (95% CI 0.759-0.871). Conclusions Epicardial fat had a significant an independent association with insulin resistance and a significant correlation with carotid intima-media thickness in the group of patients with HOMA-IR >2.6.

Keywords

Epicardial Fat; Insulin Resistance; Atherosclerosis.