

RELATIONSHIP BETWEEN EPICARDIAL ADIPOSE TISSUE, CORONARY ARTERY DISEASE AND ADIPONECTIN IN A MEXICAN POPULATION.

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Objective: The objective of the present study was to evaluate whether a relationship exists between epicardial adipose tissue (EAT) assessed by echocardiography with coronary artery disease and adiponectin levels in a Mexican population.

Methods: We studied 153 patients who underwent coronary angiography and transthoracic echocardiography (TTE). EAT on the free wall of the right ventricle was measured at the end of systole from paraesternal long and short axes views of three consecutive cardiac cycles. Coronary angiograms were analyzed for the presence, extent and severity of coronary artery disease (CAD). We also measured blood glucose, lipid profile, protein C reactive, fibrinogen and serum adiponectin levels.

Results: EAT thickness was greater in patients with CAD than in those without CAD from the paraesternal long (5.39 ± 1.75 mm vs. 4.00 ± 1.67 mm $p < 0.0001$) and short-axes views (5.23 ± 1.67 vs. 4.12 ± 1.77 , $p = 0.001$). EAT thickness measured from the paraesternal long and short axes showed a statistically significant positive correlation with age ($r = 0.354$, $p < 0.001$, $r = 0.286$, $p < 0.001$ respectively) and waist circumference ($r = 0.189$, $p = 0.019$, $r = 0.217$, $p = 0.007$ respectively). A significant negative correlation between EAT thickness from the parasternal long axis with cholesterol-HDL was observed ($r = -0.163$, $p = 0.045$). No significant correlation was found between epicardial fat thickness and serum levels of adiponectin or with the severity of coronary artery disease. EAT thickness was found to be an independent predictor of obstructive CAD in addition to the well-known CAD risk factors such as male gender, C-reactive protein and low HDL cholesterol.

Conclusions: In this selected Mexican population, EAT thickness measured by echocardiography was greater in patients with CAD. However, no correlation was observed with the severity of the disease or with serum adiponectin levels. EAT thickness measured by echocardiography might provide additional information for risk assessment and prediction of coronary disease.

Echocardiographic findings in patients with and without coronary artery disease.			
	Normal coronary arteries	Coronary artery disease	P value
No. of subjects	34	119	
Ejection fraction (%)	52.00 ± 11	51.95 ± 11.05	0.919
EAT PLX (mm)	4.00 ± 1.67	5.39 ± 1.75	<0.0001
EAT PSX (mm)	4.12 ± 1.77	5.23 ± 1.67	0.001

EAT: epicardial adipose tissue; **PLX:** parasternal long-axis view, **PSX:** parasternal short-axis view.

Clinical and Laboratory Characteristics in Patients with and without Coronary Artery Disease			
	Normal coronary arteries	Coronary artery disease	P value
No. of subjects	34	119	
Age (years)	59.18 ± 12.25	61.76 ± 10.05	0.210
Male gender, n (%)	14 (41.1)	98 (82.3)	< 0.001
BMI (kg/m ²)	30.74 ± 5.9	28.92 ± 3.87	0.198
Obesity n (%)	33 (97%)	118 (99.1%)	0.791
WC (cm)	100.97 ± 11.81	103.47 ± 8.81	0.256
Waist/hip index	0.917 ± 0.08	0.98 ± 0.06	< 0.001
Smoking, n (%)	6 (17.6)	64 (53.7)	< 0.001
Diabetes mellitus, n (%)	13 (38.2)	65 (54.6)	0.093
Hypertension, n (%)	26 (76.5)	85 (71.4)	0.564
Hyperlipidemia, n (%)	24 (70.5)	85 (71.4)	0.924
Metabolic syndrome n (%)	29 (85.2)	111 (93.2)	0.141
FPG (mg/dl)	104.00 (95.00-119.25)	119.50 (97.00-152.25)	0.076
Total cholesterol (mg/dl)	175.97 ± 41	164.94 ± 48.55	0.231
LDL-C (mg/dl)	103.85 ± 33.58	91.63 ± 37.33	0.088
HDL-C (mg/dl)	42.35 ± 11.35	35.81 ± 8.94	0.003
TG (mg/dl)	141.00 (106.50-203.50)	151.00 (105.00-245)	0.353
CRP (mg/dl)	1.08 ± 2.08	3.01 ± 5.65	0.002
Adiponectin (µg/ml)	11.66 ± 6.77	8.88 ± 4.64	0.039
Fibrinogen (mg/dl)	547.00 (469.00-660.00)	591.50 (480.50-744.00)	0.090

Data are expressed as number and % of patients, mean ± SD or median (25th, 75th percentiles). BMI, body mass index; WC, waist circumference; FPG, fasting plasma glucose; LDL-C, low-density lipoprotein cholesterol; HDL-C, high-density lipoprotein cholesterol; TG, triglycerides; CPR, C-reactive protein. Obesity was defined as increased waist circumference.

Multiple regression analysis for the prediction of significant coronary artery disease		
	OR (95% IC)	P value
Male	14.182 (3.877 a 51.876)	< 0.0001
WC	0.952 (0.921 a 0.985)	0.004
Smoking	3.385 (1.064 a 10.767)	0.039
HDL-C	0.992 (0.943 a 1.044)	0.761
CRP	1.165 (0.979 a 1.385)	0.085
Adiponectin	0.977 (0.898 a 1.063)	0.583
EAT thickness	1.903 (1.366 a 2.653)	< 0.0001

WC, waist circumference; HDL-C, high-density lipoprotein cholesterol; CRP, C-reactive protein; EAT, epicardial adipose tissue.