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Imaging

NON-ALCOHOLIC FATTY LIVER DISEASE BUT NOT EPICARDIAL FAT IS ASSOCIATED WITH CORONARY ARTERY CALCIFICATION

ACC Moderated Poster Contributions

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Background: Epicardial adipose tissue (EAT), thoracic adipose tissue (TAT) and visceral abdominal fat may be predictive of coronary artery disease (CAD). Using a coronary calcium score (CCS) >100, we prospectively examined whether EAT, TAT, and non-alcoholic fatty liver disease (NAFLD) as determined from non-contrast computed tomography predict CAD.

Methods: 93 asymptomatic patients undergoing self-referred screening non-contrast CT to determine CCS were studied. EAT and TAT volumes were quantified automatically using QFAT software with user-defined range of CT slices covering the heart. Upper abdominal CT images were used to determine the presence of NAFLD by measuring the difference in liver and spleen attenuation ≤ 10 HU by an independent blinded observer. EAT, TAT, and NAFLD were corrected for the presence of the metabolic syndrome in determining the predictive value of CAD. Chi-square and t-test were used where applicable.

Results: 42/93 patients had CCS >0 with average Agaston score of 73.1; 11/42 had CCS >100. 24/93 and 15/93 patients met the criteria for metabolic syndrome and hepatic steatosis respectively. EAT, TAT, and NAFLD had statistically significant correlation with metabolic syndrome. However, only hepatic steatosis had statistically significant correlation with CCS >100 ($p=0.006$).

Conclusion: NAFLD correlated with an abnormal CCS and demonstrated correlation more significantly than metabolic syndrome, EAT or TAT.

Table: Association of CAD predictors with CCS

	Total	CAC \geq 100		P-Value
	n = 93	Yes n = 11	No n = 82	
Metabolic syndrome	24 (25.81%)	5 (45.45%)	19 (23.17%)	0.113
Hypertension	37 (39.78%)	6 (54.55%)	31 (37.80%)	0.287
Diabetes Mellitus	11 (11.83%)	3 (27.27%)	8 (9.76%)	0.091
Smoking	36 (38.71%)	5 (45.45%)	31 (37.80%)	0.625
LDL	117.30 \pm 31.28	108.36 \pm 33.29	118.55 \pm 31.01	0.315
NAFLD	15 (16.48%)	5 (45.45%)	10 (12.50%)	0.006
EAT >125 cm ³	28 (30.11%)	4 (36.36%)	24 (29.27%)	0.630
TAT >250 cm ³	28 (30.11%)	6 (54.55%)	22 (26.83%)	0.060