Epicardial Fat and Diastolic Filling in Subjects Without Heart Disease

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Introduction: Epicardial fat (EF) is part of the visceral fat, and is correlated to ultrasound measurements of central fat and waist circumference. It also has been found to correlate with coronary artery disease. In diabetics and morbidly obese, EF was associated with diastolic dysfunction.
Aim:to test the association of EF and diastolic filling in subjects without heart disease.
Methods: In volunteers without cardiac disease, EF was measured by Echocardiography, from parasternal long axis (LAX) and short axis (SAX) views, as the echo-free space betwen the myocardium and visceral pericardium located anterior to the right ventricle free wall at end diastole. Diastolic filling was assessed by measuring mitral inflow (E wave, A wave, E/A ratio, A duration), pulmonary vein flow (S wave, D wave, S/D ratio, S wave VTI, D wave VTI, systolic filling fraction, Ar velocity, Ar-A duration), TDI (septal e', lateral e', E/e') and color M-mode flow propagation velocity (Vp).
Results: 44 subjects, age (mean±SD) was 52±11 years, 79% males, BMI 30±6, diabetes 20%. PF thickness was 3.2±1.4 mm in LAX view and 3.2±1.3 mm in SAX view. PF thickness in LAX view was significantly correlated with E/A ratio (r= -0.33, p=0.037) and septal e' (r= -0.31, p=0.045). PF in SAX view significantly correlated with E/A ratio (r= -0.34, p=0.023) and Vp (r= -0.32, p=0.037). These correlations remained significant after adjustements for age and gender. Correlations between PF and other indices of diastolic filling were not significant.
Conclusion: Increased pericardial fat, negatively influences diastolic filling in subjects without heart disease.