

REGULATED ON ACTIVATION, NORMAL-T CELL EXPRESSED AND SECRETED (RANTES/CCL5) LEVELS: AN ASSOCIATION WITH EPICARDIAL VISCERAL FAT THICKNESS

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Introduction: Epicardial adipose tissue (EAT), accumulated around the heart, is considered an index of visceral adiposity and a promising indicator of high cardio-metabolic risk. Evidences showing that EAT is a metabolically active organ and a source of inflammatory adipo-chemocytokines suggest a condition of chronic inflammation in this small cardiac fat depot. However, the potential links between cardiac adiposity and circulating levels of inflammatory adipo-chemokines, as markers of subclinical inflammation, are not completely understood.

Our aim is to evaluate whether cardiac adiposity, measured as EAT thickness, is related to Regulated on activation, Normal T Cell Expressed and Secreted (RANTES/CCL5) levels, in obese patients.

Methods: EAT thickness (measured by echocardiography, on the free wall of right ventricle), RANTES/CCL5 and other inflammatory markers (by ELISA kit) were measured in 36 women with uncomplicated obesity (OB) (BMI 41.6 ± 5.6 kg/m²) and 15 normal-weight controls. Abdominal visceral adipose tissue (VAT) and subcutaneous adipose tissue (SAT) were assessed by computed tomography (CT).

Results: OB patients had thicker EAT (6.8 ± 0.9 vs. 1.3 ± 0.3 mm, $p < 0.0001$) (Fig.1) and higher RANTES/CCL5 levels (2468.9 ± 745.5 vs. 1272.1 ± 413.7 pg/ml, $p < 0.03$) than controls (Fig. 2). The EAT thickness positively correlated with RANTES/CCL5 concentrations ($r^2 = 0.65$, $p < 0.001$) (Fig.3). Moreover, EAT thickness and RANTES/CCL5 concentration were directly correlated with indices of fat distribution (VAT, VAT/SAT and waist, $p < 0.001$ for all). Notably, when using multiple regression analysis, RANTES/CCL5 levels most closely correlated with EAT thickness ($t = 3.93$) and VAT areas ($t = 3.77$), while other indices of fat distribution did not enter the model.

Conclusions: EAT thickness, an indicator of cardiac adiposity, may be related to inflammatory adipo-chemokines in visceral-obese patients and might be used as a reliable marker of visceral adiposity. The elevated RANTES/CCL5 levels, contributing to the pro-inflammatory state, may also lead to cardio-metabolic disorders.