Letters to the Editor

Out of Sight, out of Mind; Subcutaneous, Visceral, and Epicardial Adipose Tissue

Ojos que no ven, corazón que no siente: el tejido adiposo subcutáneo, epicárdico y visceral

To the Editor,

I have read the article entitled "The Ratio Between Visceral and Subcutaneous Abdominal Fat Assessed by Computed Tomography Is an Independent Predictor of Mortality and Cardiac Events" by Ladeiras-Lopes et al.[1] with great interest. The investigators report that the visceral adipose tissue/subcutaneous adipose tissue ratio was an independent predictor of death and cardiac events, irrespective of cardiovascular risk factors, coronary artery calcium, and the presence of coronary artery disease.[1]

Epicardial adipose tissue (EAT) is defined as the adipose tissue between the visceral pericardium and the outer margin of the myocardium.[2] EAT is not only a passive lipid storage unit, but is also actively involved in lipid and energy homeostasis. The basic difference between EAT and other visceral adipose tissue is its greater capacity for the release and uptake of free fatty acids and a lower rate of glucose utilization. Acetyl-CoA carboxylase and lipoprotein lipase activity are consistently lower in EAT than in subcutaneous adipose tissue. Free fatty acid oxidation is responsible for about 50% to 70% of the energy production of the heart.[2] EAT is considered as an endoparacrine organ that secretes inflammatory adipokines, such as tumor necrosis factor alpha, monocyte chemoattractant protein-1, interleukin-6, interleukin-1β, plasminogen activator inhibitor-1, resistin, and many others.[2] EAT volume is associated with coronary calcification, advanced atherosclerosis, cardiovascular risk factors, the incidence of myocardial infarction, and the severity of coronary artery disease in the general population.[3] EAT volume has been reported to be significantly larger in patients with mixed or noncalcified plaques than in patients with calcified plaques or no plaques, which supports the hypothesis that EAT may be linked to early plaque components.[3] A high epicardial fat volume index determined by computed tomography was an independent risk factor for the future development of non-calcified coronary plaque even after adjustment for traditional cardiovascular risk factors.[4] Lu et al.[5] reported that greater volumes of EAT are associated with high-risk plaque but that lower attenuation EAT was not an independent predictor for high-risk plaque features.

In the study by Ladeiras-Lopes et al.,[1] the association between the visceral adipose tissue/subcutaneous adipose tissue ratio and all-cause mortality/cardiac events was evaluated and the correlation of the results with EAT (visceral adipose tissue/EAT, subcutaneous adipose tissue/EAT) might be beneficial due to the close relation between EAT and cardiac events.

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Out of Sight, out of Mind; Subcutaneous, Visceral, and Epicardial Adipose Tissue. Response

Ojos que no ven, corazón que no siente: el tejido adiposo subcutáneo, epicárdico y visceral. Respuesta

To the Editor,

We have read with great interest the Letter to the Editor concerning our recently published paper on the association between an increased ratio of visceral to subcutaneous abdominal adipose tissue and higher risk of major adverse cardiovascular events, independently of traditional cardiovascular risk factors and coronary calcium.[1]

Epicardial adipose tissue (EAT) is an ectopic fat storage site in direct contact with adjacent coronary arteries and myocardium; therefore, it can have a paracrine effect on coronary atherosclerosis and myocardial function through the secretion of several adipokines that might regulate insulin resistance and inflammation.[2]

The putative association between EAT and visceral or subcutaneous abdominal fat is a promising research line that should continue to be addressed in future studies. Our group has already shown that EAT volume is positively correlated to coronary atherosclerotic burden, assessed by coronary artery calcium score, independently of abdominal visceral adipose tissue.[3] Furthermore, in patients after a myocardial infarction, EAT volume was independently associated with decreased E' velocity and increased E/E' ratio, therefore suggesting impaired diastolic function.[4]

Thus, EAT seems to be associated not only with atherosclerotic burden and risk of cardiovascular disease, but also with maladaptive changes in myocardial function that increase the risk of heart failure. It is our opinion that ectopic adipose tissue, with special emphasis on EAT, greatly contribute to metabolic homeostasis and modulate activation of inflammatory cascades, therefore being a key player in cardiovascular health and disease.

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Relaxin Concentrations in Acute Heart Failure Patients

Concentración de relaxina en pacientes con insuficiencia cardiaca aguda

To the Editor,

I have read the article entitled, "Relaxin Concentrations in Acute Heart Failure Patients: Kinetics and Clinical Determinants", that appeared in *Revista Española de Cardiología.*[1] This article reports the measurement of serum relaxin in patients with acute heart failure.

I note that the authors used a commercial enzyme-linked immunoassay kit from Immundiagnostik, reporting that this is a validated assay for measuring serum relaxin. However, this assay has not been properly validated for serum relaxin, neither by the authors nor the manufacturer of the assay. No assurance has been given that serum samples dilute in parallel with authentic H2 standards. Specificity for H2 relaxin and cross-reactivity for possible interfering molecules has not been provided by the authors or the manufacturer. The sole exception is that the manufacturer reports that insulin does not interfere but no details are provided on the insulin doses tested. Although it is true that others have reported results using this assay, they also failed to report any assay validation. Because this assay relies on polyclonal antibodies, assay validation needs to be rigorous; however, it is completely absent. Thus, no valid conclusions can be drawn from the data presented in this article. The authors could have used a commercially available assay for serum relaxin that has been validated for clinical studies.[2–4]

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Relaxin Concentrations in Acute Heart Failure Patients. Response

Concentración de relaxina en pacientes con insuficiencia cardiaca aguda. Respuesta

To the Editor,

We would like to thank Dr. Stewart for his constructive contribution to the discussion of our study findings with the suggestion that failure to find a clinical determinant for of circulating relaxin concentrations in patients with acute cardiac failure could be due to the commercial assay used (Inmunodiagnostik; Bensheim, Germany).[1] Several points, however, suggest that this assay is appropriate. First, this is the most sensitive assay