The Tip of The Iceberg: Non-Calcified Coronary Plague and Epicardial Adipose Tissue

Levent Cerit
Near East University-Nicosia-Cyprus

To the Editor,

I have read with great interest the article entitled "Relationship between Calcium Score and Myocardial Scintigraphy in the Diagnosis of Coronary Disease" by Siqueira et al.,[1] recently published in *Arquivos Brasileiros de Cardiologia* 2016; 107:367-74. The investigators reported the possibility of removing extensive coronary artery disease (CAD) by means of a zero calcium score, or by indicating the presence of an extensive disease when it is severely increased, which justifies the use of this method in the initial or joint evaluation in asymptomatic patients with suspected CAD and in cardiovascular risk stratification. The evaluation of symptomatic low-risk patients, despite suggestive evidence, should be re-evaluated in upcoming guidelines.[1]

Epicardial adipose tissue (EAT) is anatomically contiguous with the myocardium and several studies have shown it to be a potential contributing factor for coronary atherosclerosis.[2] EAT is a type of visceral adipose tissue with paracrine and endocrine effects.[3] EAT serves as an energy source for the myocardium and it is known to secrete proatherogenic cytokines.[3] Increased EAT is not only associated with a higher prevalence of CAD but it is also a prognostic parameter for future cardiovascular events, and, eventually, cardiovascular mortality.[4] Hwang et al.[5] have reported that 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.

In the light of these findings, assessment of EAT by computed tomography might be beneficial as a part of further evaluation for future cardiovascular events.

Keywords

Adipose Tissue / pathology; Coronary Artery Disease; Calcium Signaling; Biomarkers / analysis; Radionuclide Imaging; Tomography, Emission Computed.

Mailing Address: Levent Cerit •
Near East University. Postal Code 07100, Nicosia – Chipre
E-mail: drcerit@hotmail.com, drcerit@yahoo.com
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Letter to the Editor

Reply

We would like to thank you for your interest and comments related to our recent article.[1] We believe the great scientific basis referent to coronary calcium quantification clearly demonstrates the importance of this method in the stratification of asymptomatic patients with low to intermediate cardiovascular risk.[2-7]

Recent publications related to calcium score (CS) continue to point to flaws in clinical score classifications and reinforce their ability to distinguish the different cardiovascular events risk groups. The role of clinical score reclassification, when CS is implemented, is a warning to its clinical applicability.[2-7] Population studies with long periods of follow-up[2-7] have demonstrated that the use of CS is one of the best tools to determine cardiovascular risk, even when compared to other markers.[7]

The potential use of CS is not limited to cardiovascular risk evaluation, for it has proven to be a useful tool in the primary prevention and adequate treatment of sub-clinical forms of coronary artery disease.[8-15] The presence of a zero CS is indicative of a very low risk, often exempting the patient from early preventive treatment with statins.[8-11] On the other hand, in the presence of a CS that is not zero, and especially > 100 Agatston, therapeutic introduction may be recommended, even in patients who do not fit the indication of current guidelines for the use of statins and other medications, such as anti-hypertensives.[10-15]

Important changes in the guidelines can already be seen, putting CS in the recommendation class I for some of its indications.[16] However, there still are some discrepant recommendations,[17-20] such as in orientations about the beginning of treatment for cardiovascular risk reduction, that still do not include coronary calcification data, even with robust data that support this positioning.[21-22]

Therefore, we believe that in the next few years, this method will take on a growing importance in clinical guidelines, aiding in a more adequate follow-up of low to intermediate risk patients.

Yours truly,

Fabio Paiva Rossini Siqueira,
Claudio Tinoco Mesquita,
Alair Augusto Sarmet M. Damas dos Santos,
Marcelo Souto Nacif

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