

Abstract Form

Hospital Affiliation:	UCLA Medical Center
Presenter Name (Last, First):	Haidar, Amier
Co-Authors:	Preethi Srikanthan, MD, MS, Matthew Allison, MD, MPH, Richard Kronmal, PhD, Tamara Horwich, MD, MS
Project Title:	Associations between visceral fat, visceral muscle, and coronary artery calcification: The Multi-Ethnic Study of Atherosclerosis

Research Category (please check one):

<input checked="" type="checkbox"/>	Original Research	<input type="checkbox"/>	Clinical Vignette	<input type="checkbox"/>	Quality Improvement	<input type="checkbox"/>	Medical Education Innovation
-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------	----------------------------	--------------------------	-------------------------------------

Abstract

BACKGROUND

Obesity contributes to an individual’s cardiometabolic health and body composition, including muscle and adipose tissue, which have been associated with coronary artery calcification (CAC), a marker of subclinical coronary artery disease. The objective of the present study was to examine the relationship between abdominal CT-derived fat and muscle area and density with CAC, using data from the Multi-Ethnic Study of Atherosclerosis (MESA).

METHODS

A total of 1,974 participants received abdominal CT scans as part of the Abdominal Body Composition, Inflammation, and Cardiovascular Disease ancillary study, a MESA sub-study. Medical Imaging Processing Analysis and Visualization (MIPAV) software was used to determine abdominal muscle and fat composition, using six cross-sectional slices spanning L2-L5. CT chest scans were used to obtain CAC scores, calculated using the Agatston method and spatially weighted calcium score (SWCS). Linear regression analysis was performed to assess the relationship between both abdominal visceral fat and muscle area and density to prevalent CAC.

RESULTS

The sample was 50% female, and consisted of 40% White, 26% Hispanic, 21% Black, and 13% Chinese participants. The average age of the cohort was 65 (SD 10) with an average BMI of 28 (SD 5). A total of 1,089 participants had a CAC by Agatston score greater than 1, with an average CAC score of 310, and an average SWCS score of 420. For every 1 cm² increase in visceral fat area on abdominal CT the likelihood of having a CAC > zero increased by 0.06%, in the fully adjusted model. Visceral muscle area was significantly associated with CAC>0, in the minimally adjusted model (p<0.05), however this relationship was not significant in the fully adjusted model. For every 1 Hounsfield unit increase in Visceral Fat HU (decrease in fat density), the likelihood of having a CAC score greater than zero decreased by 0.29%. No significant relationship was observed between density of visceral muscle and CAC>0.

CONCLUSION

Greater area and higher density of abdominal visceral fat was associated with an increased likelihood of having CAC, while there was no significant relationship between abdominal visceral muscle area, density, and CAC. Further studies of the impact of visceral fat and cardiovascular outcomes are warranted.