May 16th, 1:45 PM

Pericardial Fat Thickness Increases with Greater Burden of Adverse Metabolic Factors Among Adults with Normal-Range Body Mass Index: The Framingham Heart Study

Philimon N. Gona  
*University of Massachusetts Boston*

Jane J. Lee  
*Boston Children's Hospital*

Noriko Oyama-Manabe  
*University of Hokkaido*

See next page for additional authors

Follow this and additional works at: [https://escholarship.umassmed.edu/cts_retreat](https://escholarship.umassmed.edu/cts_retreat)

Part of the [Cardiology Commons](https://escholarship.umassmed.edu/cts_retreat), and the [Translational Medical Research Commons](https://escholarship.umassmed.edu/cts_retreat)


[https://escholarship.umassmed.edu/cts_retreat/2017/posters/29](https://escholarship.umassmed.edu/cts_retreat/2017/posters/29)

This material is brought to you by eScholarship@UMMS. It has been accepted for inclusion in UMass Center for Clinical and Translational Science Research Retreat by an authorised administrator of eScholarship@UMMS. For more information, please contact Lisa.Palmer@umassmed.edu.
Presenter Information

Keywords
pericardial fat thickness, Framingham heart study, body mass index, cardiac magnetic resonance

Creative Commons License
This work is licensed under a Creative Commons Attribution-Noncommercial-Share Alike 3.0 License.
PERICARDIAL FAT THICKNESS INCREASES WITH GREATER BURDEN OF ADVERSE METABOLIC FACTORS AMONG ADULTS WITH NORMAL-RANGE BODY MASS INDEX: THE FRAMINGHAM HEART STUDY

Philimon N. Gona, PhD1, Jane J. Lee, MD2, Noriko Oyama-Manabe, MD, PhD3, Carol J. Salton, BA4, Warren J. Manning, MD4, Michael L. Chuang, MD4, Christopher J. O'Donnell, MD, MPH5
1University of Massachusetts Boston; 2Boston Children's Hospital, Boston, MA; 3University of Hokkaido, Sapporo, Japan; 4Beth Israel Deaconess Medical Center, Boston, MA; 5VA Boston Healthcare System, Boston, MA

Introduction: Greater burden of pericardial fat is associated with increased body mass index (BMI). Obesity is associated with unfavorable metabolic characteristics such as hypertension, dyslipidemia, and glucose intolerance. We sought to determine whether unfavorable metabolic profile alone, in the absence of excess BMI, was itself associated with increased pericardial fat thickness (PFT).

Methods: From the 1,794 Framingham Offspring cohort adults who underwent cardiac magnetic resonance (CMR), we identified 446 free of non-skin cancer and prevalent clinical cardiovascular disease (CVD) who had 18.5≤BMI<25.0 kg/m² and complete covariates. We calculated a metabolic score (MS) based on ATPIII criteria where 1 point was assigned for each of: a) fasting glucose≥100 mg/dL or diabetes; b) SBP≥130 or DBP≥85 mmHg or antihypertensive treatment; c) triglycerides≥150 mg/dL; d) HDL cholesterol <40(M)/<50(W) mg/dL or lipid-lowering treatment; e) HOMA-IR≥2.5; f) waist circumference ≥102(M)/ ≥88(W) cm. Participants were stratified as MS0 (no points), MS1 (1 point), MS2 (2 points) or MS3+ (≥3 points). PFT over the right ventricle (RV) was measured at the RV apex, at mid-ventricle and at maximal PFT. The RV was selected because pericardial fat is commonly and well visualized over the RV. Analysis of covariance adjusted for sex, age, and BMI, was used to compare MS1, MS2 and MS3+ groups to the MS0 group. We further tested for linear trend across MS groups.

Results: PFT increased with worsening metabolic score at the fixed locations of the apical and mid-level RV, as well as at maximal PFT. On pairwise comparisons, only the MS3+ group had PFT that was consistently significantly greater than that of MS0.

Conclusions: In a community-dwelling cohort, among participants who were free of cancer and clinical CVD and had normal-range or BMI, worsening metabolic profile was associated with increased pericardial fat thickness.

Contact: Philimon N. Gona, PhD
University of Massachusetts Boston
phil.gona@umb.edu