

Epicardial adipose tissue volume improves cardiovascular risk reclassification: the Framingham Risk Score example

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On behalf of GENEMACOR study

Funding Acknowledgement: Type of funding sources: None.

Introduction: Epicardial adipose tissue (EAT) volume can be noninvasively detected by CT and has been suggested to predict major adverse cardiovascular events (MACE). Framingham Risk Score is one of a number of scoring systems used to determine an individual's chances of developing cardiovascular disease, hence identifying who is most likely to benefit from prevention.

Objectives: The purpose of this study was to determine net reclassification improvement (NRI) and improved risk prediction based on EAT volume, in comparison to a traditionally known cardiovascular risk score, such as the Framingham.

Methods: 895 asymptomatic volunteers were prospectively enrolled in a single Portuguese center (mean age 51.9±7.7, 78.5% male) and underwent a median follow-up time of 3.7 years (IQR 5.0). EAT volume was measured by Cardiac Computed Tomography (CCT) using a modified sim-

plified method. For NRI assessment, EAT volume as a continuous variable was added to the Framingham Risk Score.

Results: After 3.7 median years of follow-up, 27 patients developed a MACE. Using NRI, the net proportion of events (netNRIe) that assigned a higher risk was 33.3% (better reclassified), and the net ratio of non-events (netNRIne) was 24.7%, resulting in a net reclassification index (netNRI) of 58.0%. When the new marker was included in the model, 58.0% of patients were better reclassified. In our work, a total of 33.3% of patients who suffered events (n=27) were correctly reclassified and assigned a higher risk.

Conclusion: EAT volume results in a high reclassification rate in an asymptomatic, low-risk population, demonstrating the benefit of this marker beyond traditional risk assessment models. Our study supports its application, especially in carefully selected individuals.

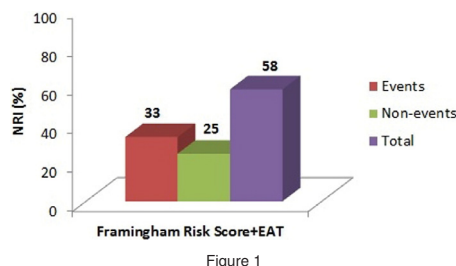


Figure 1