ASSOCIATION BETWEEN PERICARDIAL FAT, CORONARY VASOREACTIVITY, AND OUTCOMES IN PATIENTS WITHOUT OVERT OBSTRUCTIVE CORONARY ARTERY DISEASE

Moderated Poster Contributions
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Background: Although pericardial fat has been associated with coronary risk factors and adverse cardiovascular events, the mechanisms underlying these associations are not well understood. We hypothesized that increased pericardial fat volume (PFV) is associated with impaired coronary vasoreactivity, which in turn relates to cardiovascular events.

Methods: We included 827 consecutive patients (74% female; age: 62±12 years) without obstructive coronary artery disease on myocardial perfusion PET/CT. Rest and stress myocardial blood flow (MBF, in mL/min/g) and pericardial fat volume (PFV; cm3) were quantified. Linear regression was used to determine the univariate predictors of PFV and to determine whether PFV is independently predictive of sMBF. Cox proportional hazards were used to determine the relationship of PFV and sMBF to MACE, defined as CV death, non-fatal myocardial infarction, heart failure hospitalization, and late revascularization.

Results: There was a modest inverse correlation between PFV and sMBF overall and across relevant subgroups including gender, obesity, and diabetes. In multivariable modeling adjusting for age, gender, BMI, and coronary risk factors, PFV remained associated with stress MBF (p < 0.001). During a median follow-up of 3.6 years, 50 MACE (death, myocardial infarction, late revascularization, and heart failure hospitalization) occurred. In survival analysis adjusting for clinical risk score (Morise) and LVEF, stress MBF but not PFV was associated with MACE.

Conclusions: Increased pericardial fat deposition is associated with impaired coronary vasoreactivity. This suggests that pericardial fat, located near the coronary arteries, has a locally toxic effect on the vasculature, which in turn associates with MACE.