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Pericardial fat as a risk indicatior of coronary heart diseae

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BACKGROUND: Unlike subcutaneous fat, pericardial fat is metabolically active and has a higher secretion of inflammatory cytokines. Cytokines released from pericardial fat may act locally and play an important role in the pathogenesis of coronary atherosclerosis. AIM: The aim of this study is to assess whether pericardial fat is associated with the prevalence of coronary calcified plaque and coronary heart disease (CHD) using 64-slice multislice computed tomography (MSCT). METHODS AND RESULTS: Participants underwent 64-slice coronary CT angiography for the screening of CHD between 2007-2009 at Tomita hospital in Kyoto. The volume of pericardial fat, the presence of calcified coronary plaque, and the degree of coronary artery stenosis were quantified. Then, the relationships among pericardial fat, calcified coronary plaque, and CHD were assessed using logistic regression analysis. The analysis of 383 participants (mean age 71 years, range 30-98 years) demonstrated that increased pericardial fat volume was associated with the presence of calcified coronary plaque [odds ratio (OR) 2.35, 95% confidence interval (CI) 1.08-5.15; P = 0.02] and the presence of calcified coronary plaque was associated with significant coronary artery stenosis [odds ratio (OR) 18.11, 95% confidence interval (CI) 4.32-75.97; P = 0.0006. In addition, the pericardial fat volume of the participants with preexisting CHD was significantly higher than that of the participants without CHD. CONCLUSION: Pericardial fat was associated with calcified coronary plaque and CHD. In addition to coronary calcium scoring, noninvasive quantification of pericardial fat using MSCT could provide another useful indicator of risk of CHD.