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Young Investigator Awards Competition

CARDIORESPIRATORY FITNESS AND CORONARY ARTERY CALCIFICATION: COMPLEMENTARY CARDIOVASCULAR RISK PREDICTORS IN ASYMPTOMATIC TYPE 2 DIABETICS

Oral Contributions
Room 4
Monday, March 16, 2015, 9:00 a.m.-9:15 a.m.

Session Title: Young Investigator Awards Competition: Clinical Investigations, Congenital Heart Disease, and Cardiovascular Surgery
Abstract Category: Clinical Investigations, Congenital Heart Disease, Cardiac Surgery
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Background: Coronary artery calcification (CAC) is a strong predictor of cardiovascular disease. We investigated the independent and joint effects of cardiorespiratory fitness (CRF) and CAC on all-cause mortality, myocardial infarction (MI) or stroke in patients with diabetes.

Methods: We studied 600 type 2 diabetics aged 55-74 years without known coronary heart disease. CRF was quantified in metabolic equivalents by maximal treadmill testing and categorized as low (1st tertile) or high (2nd and 3rd tertiles) CRF. CAC score was calculated by non-enhanced computed tomography scans. CAC score <10 Agatston units was considered low CAC. The individual and joint association of both measures with the outcome event was determined over a mean follow up period of 80±16 months.

Results: There were 72 (12%) events during follow-up. Low CRF was independently associated with event risk after adjustment for traditional risk factors and CAC (HR 2.04, 95% CI 1.28-3.23, p=0.003). Low versus high CRF allowed further outcome discrimination amongst diabetics with low CAC scores (10% vs 1.4% event rate) and amongst diabetics with high CAC score (22% versus 13% event rate); Figure 1. The addition of CRF to the UKPDS + CAC scores improved the area under the curve for event prediction from 0.66 to 0.71, p<0.001.

Conclusion: CRF provided independent prognostic information which was additive to CAC. Low CRF may identify asymptomatic diabetic subjects at higher risk for all-cause mortality, MI or stroke, despite low CAC.