PHYSICAL FITNESS AND INCIDENT DIABETES: AN ANALYSIS OF 55,897 PATIENTS FROM THE FIT PROJECT

Poster Contributions
Hall C
Saturday, March 29, 2014, 3:45 p.m.-4:30 p.m.

Session Title: Prevention: Diabetes, Obesity, and Lifestyle
Abstract Category: 20. Prevention: Clinical
Presentation Number: 1144-133

Authors: Mouaz H. Al-Mallah, Michael Blaha, Waqas Qureshi, Clinton Brawner, Steven Keteyian, Henry Ford Hospital, Detroit, MI, USA, King AbdulAziz Cardiac Center, Riyadh, Saudi Arabia

Background: Cardiopulmonary physical fitness is associated with improved survival among diabetic and non-diabetic patients. We tested the hypothesis that reduced fitness is associated with incident diabetes mellitus (DM).

Methods: We included 55,897 patients without DM at baselines (46% women, 27% Black) from The FIT (Henry Ford Exercise Testing) Project (1991-2009). Fitness levels were expressed as estimated METS achieved during a treadmill stress test and categorized as 12 METs. Incident DM was based on a new code of DM on three separate encounters in the electronic medical records or claims data or new glycosylated hemoglobin (HbA1C) more than 7 mg/dl. The association between incident DM and fitness was examined by Cox proportional hazards model adjusted for traditional DM risk factors.

Results: The mean age was 54 (10) years and the mean METs achieved were 9.1 (3.1). During a median follow-up period of 4.3 years (IQR: 2.6 to 7.3 years), there were 9,473 (17%) new cases of DM. The unadjusted annual incidences of DM across categories of METs were 4.6%, 3.9%, 2.7%, and 1.3% for patients achieving 12 METs respectively. After adjustment for age, sex, race, history of hypertension, hyperlipidemia, lipid-lowering medication use, obesity, smoking and prior coronary heart disease, there continued to be a graded increase in incident DM with decreased fitness. Compared to participants achieving > 12 METs, the adjusted hazard ratios of developing DM were 2.4 (95% CI 2.2-2.6), 2.1 (95% CI 2.1-2.3) and 1.7 (95% CI 1.7-1.9) for participant achieving <6, 6-10 and 10-12 METs respectively.

Conclusions: Our findings suggest that lower level of physical fitness is an important, independent risk factor for incident DM. Strategies aimed at facilitating regular exercise to improve fitness should be encouraged for patients at risk of developing DM.