Incremental prognostic value of cardiac computed tomography in coronary artery disease using CONFIRM: COroNary computed tomography angiography evaluation for clinical outcomes: an InteRnational Multicenter registry.

Abstract: Large multicenter studies validating the prognostic value of coronary computed tomographic angiography (CCTA) and left ventricular ejection fraction (LVEF) are lacking. We sought to confirm the independent and incremental prognostic value of coronary artery disease (CAD) severity measured using 64-slice CCTA over LVEF and clinical variables. A large international multicenter registry (CONFIRM Registry) was queried, and CCTA patients with LVEF data on CCTA were screened. Patients with a history of myocardial infarction, coronary revascularization, or cardiac transplantation were excluded. The National Cholesterol Education Program-Adult Treatment Panel III risk was calculated for each patient, and CCTA was evaluated for CAD severity (normal, nonobstructive, non-high-risk, or high-risk CAD) and LVEF<50%. Patients were followed for an end point of all-cause mortality; 27 125 patients underwent CCTA at 12 participating centers, with a total of 14 064 patients meeting the analysis criteria. Follow-up was available for 13
966 (99.3%) patients (mean follow-up of 22.5 months; 95% confidence interval, 22.3 to 22.7 months). All-cause mortality (271 deaths) occurred in 0.65% of patients without coronary atherosclerosis, 1.99% of patients with nonobstructive CAD, 2.90% of patients with non-high-risk CAD, and 4.95% for patients with high-risk CAD. Multivariable analysis confirmed that LVEF<50% (hazard ratio, 2.74; 95% confidence interval, 2.12 to 3.51) and CAD severity (hazard ratio, 1.58; 95% confidence interval, 1.42 to 1.76) were predictors of all-cause mortality, and CAD severity had incremental value over LVEF and clinical variables. Our results demonstrate that CCTA measures of CAD severity and LVEF have independent prognostic value. Incorporation of CAD severity provides incremental value for predicting all-cause death over routine clinical predictors and LVEF in patients with suspected obstructive CAD.