



ACC.15

TCT@ACC-12 | innovation in intervention

A1067
JACC March 17, 2015
Volume 65, Issue 10S

Non Invasive Imaging (Echocardiography, Nuclear, PET, MR and CT)

LONG-TERM PROGNOSTIC VALUE OF CORONARY COMPUTED TOMOGRAPHIC ANGIOGRAPHY FINDINGS FOR ASYMPTOMATIC INDIVIDUALS: A 6-YEAR FOLLOW-UP OF 1,226 ASYMPTOMATIC INDIVIDUALS FROM THE PROSPECTIVE MULTICENTER INTERNATIONAL CONFIRM STUDY

Moderated Poster Contributions

Non Invasive Imaging Moderated Poster Theater, Poster Hall B1

Saturday, March 14, 2015, 11:30 a.m.-11:40 a.m.

Session Title: Cardiac CT: Diagnostic and Prognostic Aspects

Abstract Category: 16. Non Invasive Imaging: CT/Multimodality, Angiography, and Non-CT Angiography

Presentation Number: 1124M-15

Authors: *Iksung Cho, Adam Berger, Briain ó Hartaigh, Stephan Achenbach, Daniel Berman, Matthew Budoff, Tracy Callister, Mouaz Al-Mallah, Filippo Cademartiri, Kavitha Chinnaiyan, Augustin DeLago, Todd Villines, Martin Hadamitzky, Joerg Hausleiter, Jonathon Leipsic, Leslee Shaw, Philipp Kaufmann, Ricardo Cury, Gundrun Feuchtner, Yong-Jin Kim, Erica Maffei, Gilbert Raff, Gianluca Pontone, Daniele Andreini, James Min, Weill Cornell Medical College, New York, NY, USA*

Background: The long-term prognostic benefit of coronary computed tomographic angiography (CCTA) findings of coronary artery disease (CAD) in asymptomatic population is unknown.

Methods: From the prospective multicenter international CONFIRM long-term study (N=17,181), we evaluated asymptomatic subjects without known coronary artery disease who underwent both coronary artery calcium score (CACS) and CCTA (N=1,226). The traditional risk factors and CACS were used as a baseline model. Using C-statistics, we evaluated the incremental prognostic advantage of CCTA findings over traditional risk factors (RF) and coronary artery calcium scoring (CACS) to predict long-term all-cause mortality. CCTA findings included severity of coronary artery stenosis, plaque composition, and plaque location.

Results: During a mean follow-up of 5.9 ± 1.2 years, 78 deaths occurred. As demonstrated in Table 1, compared with RF model (C statistics 0.64), CACS demonstrated an incremental prognostic utility (C statistics 0.71; p for difference 0.03) for discrimination of future mortality. CCTA findings, including coronary stenosis severity, plaque composition, and plaque location, also demonstrated incremental prognostic utility over RF alone (C-statistics 0.71-0.73, all p<0.05).

Conclusion: While CCTA and CACS demonstrate robust prognostic utility for prediction of 6-year mortality, CCTA findings do not add improved discrimination over RF and CACS.

Table 1. Incremental prognostic benefit of coronary artery stenosis, plaque characterization, and plaque location information by coronary computed tomographic angiography over traditional risk factors and coronary artery calcium scoring for prediction of all-cause mortality in asymptomatic population.

Model	C statistics	P-value compared with traditional RF	P-value compared with traditional RF + CACS
Baseline models			
Traditional RF*	0.64	NA	NA
Traditional RF + CACS†	0.71	0.03	NA
Adding Degree of Stenosis Information by CCTA over traditional RF + CACS			
N of segments with any stenosis	0.72	0.01	0.31
N of segments with stenosis $\geq 50\%$	0.73	0.01	0.08
N of obstructed vessels (Non-obst, 1-, 2-, 3-VD/LM)	0.73	0.01	0.12
Adding Plaque Characterization Information by CCTA over traditional RF+ CACS			
N of segments with non-calcified plaques	0.73	0.01	0.07
N of segments with mixed plaques	0.71	0.03	0.87
N of segments with calcified plaques	0.71	0.03	0.60
N of segments with calcified or mixed plaques	0.72	0.01	0.23
Adding Plaque Location Information by CCTA over traditional RF + CACS			
N of proximal segment with any stenosis	0.73	0.01	0.07
N of proximal segment with stenosis $>50\%$	0.72	0.02	0.12
N of proximal segments with calcified or mixed plaques	0.72	0.02	0.13

*Traditional risk factor was measured using The National Cholesterol Education Program's Adult Treatment Panel III (NCEP ATP III) scores and categorized as low (<10%), intermediate (10-20%), and high (>20% or diabetes).

†CACS was measured using Agatston score and categorized as 0, 1 to 100, 101 to 400, and >400.

CACS indicates coronary artery calcium score; CCTA, coronary computed tomographic angiography; LM, left main disease; N, number; Non-obst, non-obstructive stenosis (<50%); RF, traditional risk factors