

**Title:**

Analysis of Cardiovascular Disease Risk Assessment Tools and Coronary Artery Diseases

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**Session Title:**

Health Promotion in Cardiovascular Care

**Slot:**

I 19: Monday, 30 October 2017: 3:45 PM-4:30 PM

**Scheduled Time:**

3:45 PM

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**Keywords:**

cardiovascular disease risk assessment, coronary artery calcification and coronary artery stenosis

**References:**

1. Chang, Hee. Jung<sup>1</sup>., Min, Jung. Lee., Yu, Mi. Kang<sup>1</sup>., Dong, Hyun. Yang., & Joon, Won. Kang. (2015). 2013 ACC/AHA versus 2004 NECP ATP III Guidelines in the Assignment of Statin Treatment in a Korean Population with Subclinical Coronary Atherosclerosis. Public Library of Science One, 10(9), e0137478
2. Gökdeniz, T., Kalaycıoğlu, E., Aykan, AC., Boyacı, F., Turan, T., Gül, İ., Çavuşoğlu, G., & Dursun, İ., (2014). Value of coronary artery calcium score to predict severity or complexity of coronary artery disease. Arquivos Brasileiros de Cardiologia, 102(2), 120-127.
3. Peter, W. F., Wilson, M. D., Ralph, B., D'Agostino, Ph. D., Daniel, Levy, MD., Albert, M., Belanger, B. S., Halit, Silbershatz., Ph, D., William, B., & Kannel, M. D. (2016). Prediction of Coronary Heart Disease Using Risk Factor Categories, 4(26), 1838-1847

**Abstract Summary:**

Using two cardiovascular disease risk assessment tools to predict the risk of coronary artery disease of relevance. A cross-sectional study. Both logistic regression analysis and the ROC curve analysis show the 10-year ASCVD Risk Estimator has a higher correlation than Framingham risk scores.

**Learning Activity:**

LEARNING OBJECTIVES	EXPANDED CONTENT OUTLINE
1.The learner will be able to tell the coronary artery assessment tools to predict heart disease.	The assessment tools are: Framingham Coronary Heart Disease Risk Score, version 2008 (FCHDRS 2008) and the Pooled Cohort Equations 10-year Atherosclerotic Cardiovascular Disease (ASCVD) Risk Estimator.
2.The learner will be able to tell the relationship between Coronary artery disease severity and cardiovascular disease.	The more Coronary artery stenosis and calcification, the more serious cardiovascular illness.

**Abstract Text:**

**Purpose:** The purpose of this study is to analyze the relationship between Coronary artery disease severity and cardiovascular disease, by using two cardiovascular disease risk assessment tools to predict the risk assessment of relevance of Coronary Artery Disease (CAD) patient in Taiwan.

**Methods:** This study is a cross-sectional study, analyze the records of patients' chart, who were come from a medical center in central Taiwan for checkup the coronary artery stenosis and calcification. The records of 438 checkup patients who also do a 640 multi-detector-row computed tomography examination were collected and estimated by two cardiovascular disease risk assessment tools: The Framingham Coronary Heart Disease Risk Score, version 2008 (FCHDRS 2008) and the Pooled Cohort Equations 10-year Atherosclerotic Cardiovascular Disease (ASCVD) Risk Estimator. And then, the data were categorized into three groups: (1) patients with stenosis of one coronary artery blood vessel  $\geq 50\%$ , (2) patients with coronary artery calcification  $\geq 400$ , and (3) patients with either stenosis of one coronary artery blood vessel  $\geq 50\%$  or coronary artery calcification  $\geq 400$  and analyzed with logistic regression and Receiver Operating Characteristic curve (ROC curve) methods.

**Results:** There are 100 (22.8%) participants in 438 with artery stenosis  $\geq 50\%$ , and 75 (17.1%) with calcification  $\geq 100$  score. The risk assessment by FCHDR 2008 are as follow: 213 (49.2%) participants have low-middle risk, 129 (29.7%) participants have middle risk, and 92 (21.1%) participants have high risk. While the risk assessment by ASCVD are: 266 (60.7%) have middle risk, and 169 (38.6%) have high risk. Male are more prone to coronary artery stenosis calcification than female. Both logistic regression analysis and the ROC curve analysis show the 10-year ASCVD Risk Estimator has a higher correlation with all the three groups than Framingham risk scores (logistic regression analysis:  $P < 0.000$ ,  $OR = 1.06$ ,  $95\%CI = 1.00-1.12$ ; ROC analysis:  $AUC = 0.709$ ).

**Conclusion:** Pooled Cohort Equations 10-year ASCVD Risk Estimator is the most effective risk assessment tool to predict coronary artery disease risks for people in Taiwan.