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

POTENTIAL IMPACT OF NON-INVASIVE FFRCT ON RADIATION DOSE EXPOSURE AND
DOWNSTREAM CLINICAL EVENT RATE

Poster Contributions

Poster Hall B1

Saturday, March 14, 2015, 10:00 a.m.-10:45 a.m.

Session Title: Non Invasive Imaging: CTA and CT Myocardial Perfusion

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

Presentation Number: 1103-043

Authors: *Nicolas Bilbey, Philipp Blanke, Chesnal Arepalli, James Min, Bjarne Norgaard, Jonathan Leipsic, University of British Columbia, Vancouver, Canada*

Background: To determine the impact of introducing a new non-invasive diagnostic modality, fractional flow reserve based on CTA (FFRCT) into clinical practice, with respect to radiation dose exposure and downstream event rate. These factors will be evaluated in symptomatic patients being investigated for suspected CAD and compared to five other diagnostic modalities.

Methods: We modeled a population of 100 patients with suspected CAD with intermediate disease burden (34%) distributed in three risk profile categories: 50% low (0-20% probability), 40% moderate (20-80% probability), 10% high risk (80% probability). Six pathways were modeled based on the initial diagnostic study: (1) exercise treadmill; (2) Dobutamine Echo; (3) SPECT; (4) coronary CTA; (5) CTA + FFRCT, and (6) direct angiography (ICA). Patients with positive non-invasive tests were assigned to undergo ICA with re-vascularization dependent on the presence of anatomic stenosis. Diagnostic performance characteristics, radiation dose estimates and event rates were based on the published literature.

Results: The results illustrate that the CTA+FFRCT pathway resulted in a significant reduction in radiation exposure compared to SPECT, CTA alone and ICA and a significant reduction in estimated death/MI rate at 1 year relative to all five comparison pathways.

Conclusion: This modeling suggests that integration of FFRCT into the clinical pathway may result in reduced cumulative radiation exposure, while promoting favorable clinical outcomes.

