



ACC.15

TCT@ACC-12 | innovation in intervention

A1263  
JACC March 17, 2015  
Volume 65, Issue 10S

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

**THIRD GENERATION DUAL SOURCE COMPUTED TOMOGRAPHY FOR EVALUATION OF PATIENTS PRIOR TO TRANSCATHETER AORTIC VALVE REPLACEMENT: COMPREHENSIVE IMAGING WITH AN ULTRA LOW-DOSE OF CONTRAST AGENT**

Poster Contributions

Poster Hall B1

Sunday, March 15, 2015, 3:45 p.m.-4:30 p.m.

Session Title: Non Invasive Imaging: CT/Multimodality, Angiography, and Non-CT Angiography

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

Presentation Number: 1207-026

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**Background:** Chronic renal insufficiency is a common comorbidity in patients referred for transcatheter aortic valve replacement (TAVR). Pre-procedural CT evaluation of the aortic root as well as the aortic and peripheral arterial anatomy is recommended and provides crucial information prior to TAVR. We evaluated the feasibility of an ultra low-dose contrast scan for pre-procedural CT imaging using a third generation dual source CT.

**Methods:** 40 consecutive patients referred for TAVR were examined using a third generation dual source CT scanner (Force, Siemens Healthcare, Forchheim, Germany). All acquisitions were performed using prospectively ECG-triggered high-pitch spiral acquisition. Scan parameters were: tube voltage 100 kV, tube current 350 mAs. CT angiography was performed using 30 ml contrast agent (Imeron 350, Bracco Imaging) at a flow rate of 4ml/sec followed by a 40 ml saline chaser at a flow rate of 4 ml/s. For each patient 2 reconstructions were performed: a small field of view (FOV) data set for assessment of the aortic root (heart reconstruction) and a large FOV data set for aortic and peripheral access assessment (aortic reconstruction). The image quality for both reconstructions was graded on a visual scale from 1 to 4 (1=excellent, 2=good, 3=fair and 4=not evaluable).

**Results:** CT angiography was successfully performed in all patients. The mean patient age (23 men and 17 women) was 82±6 years. The average image quality was 1.5 (SD 0.6) for the heart reconstruction and 1.8 (SD 0.9) for the aortic reconstruction. One scan needed to be repeated because of timing issues. In 2 patients the image quality for the peripheral reconstruction was graded as poor, however in spite of the poor contrast, a transfemoral access was regarded in both cases as not possible (peripheral arterial disease with prior bi-iliac aortic stenting in one case and extensive calcified plaque load with minimal luminal diameter of 4 mm in the other case).

**Conclusion:** Pre-procedural CT angiography with an ultra low-dose contrast agent approach is feasible using third generation dual source CT scanner owing to the wider detectors and better temporal resolution allowing faster coverage along the Z-axis.