SUCCESSFUL LOW-DOSE CT ASSESSMENT OF CORONARY STENTS POST-PCI FROM A LARGE CONSECUTIVE COHORT UTILIZING A NEW HIGH-PITCH SPIRAL ACQUISITION MODE

I2 Poster Contributions
Ernest N. Morial Convention Center, Hall F
Monday, April 04, 2011, 9:30 a.m.-10:45 a.m.

Session Title: CTA/MRI, Imaging in the Cath Lab, Angiography
Abstract Category: 1. CT/MRI - Angiography and Interventional Aspects
Session-Poster Board Number: 2510-543

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Introduction With the 128-slice dual source CT scanner, a new high pitch (3.4) spiral scan mode acquires the heart in ¼ second. We applied an algorithm for scan protocol selection, & evaluated diagnostic quality & dose in the first 50 consecutive patients with stents post-PCI.

Methods 520 consecutive patients (55 ± 15 years, body mass index 25.3±3.9 kgm-2, 70% male) referred for coronary imaging over 1 year were scanned on the Somatom Definition Flash, Siemens Healthcare. 50 had coronary stents. All patients were given beta blockers to reduce the heart rate to ≤ 65 bpm. Patients who did not respond were scanned with a sequential scan mode. Tube voltage was set to 80, 100, & 120kV for patients 100kg (24%), respectively. All scans were evaluated for image quality.

Results 49 patients were scanned using the Flash mode, mean radiation dose 1.01±0.56mSv. Of these, patients scanned at 80, 100, & 120kV received doses of 0.38±0.03mSv, 0.90±0.36mSv, and 1.78±0.15mSv respectively. One patient was scanned with the axial scan mode (heart rate 75bpm) receiving 2.46 mSv. None were scanned with the spiral scan mode. The stents ranged in diameter from 2.75 to 4.0mm. 95% of the stented segments were deemed to be of diagnostic quality with confident reading by 2 experienced readers (see fig).

Conclusions
1) The algorithm yielded diagnostic scans of stented segments in all patients.
2) 99% of the patients were eligible for imaging with the Flash scan mode, which yielded consistent diagnostic quality imaging of coronary stents at a dose of 1 mSv.