



Valvular Heart Disease

AORTIC VALVE CALCIUM SCORE BY COMPUTED TOMOGRAPHY IN PREDICTING PERIVALVULAR AORTIC INSUFFICIENCY POST TRANSCATHETER AORTIC VALVE IMPLANTATION (TAVI)

ACC Oral Contributions

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Background: Aortic valve (AV) calcification measured by computed tomography (CT) correlates with severity of aortic stenosis (AS) and prognosis. Perivalvular aortic regurgitation (AR) is relatively common after TAVI, and more severe AR is one of the major complications. We hypothesize that patients with higher AV calcium score on CT would have more perivalvular AR.

Methods: All subjects scheduled for TAVI underwent a non-gated non-contrast chest CT. Aortic valve calcium score (AVCS) was calculated using the area-density method. Echo was performed immediately post implantation and again at 1, 6, and 12 months. Perivalvular AR was graded as none, trace, mild, moderate, or severe.

Results: 59 patients underwent TAVI. Immediately post procedure 40 patients (67.8%) had no or trace AR, 15(25.4%) mild AR, and 4(6.8%) at least mild-moderate AR. At follow up (done at 7.9 +/- 8.9 months), there was increase in mild-moderate or greater AR as compared to baseline (7(11.9%) vs. 4(6.8%)). Subjects with at least mild-moderate AR had higher AVCS (2786 +/- 1207) compared to patients with no AR (848.2 +/- 388, $p=0.02$) or trace AR (920 +/- 302, $p=0.02$) on follow up. In the AVCS ≥ 2000 group (12 (20.3%)), 42% had at least mild-moderate AR vs. 4% in the <2000 group ($p=0.03$). In the ≥ 3000 group (5 (8.5%)), 3(60%) had at least mild-moderate AR vs. 4(7%) in the <3000 group ($p=0.01$).

Conclusion: AVCS by CT is predictive of the development of perivalvular AR post TAVI. Patients with AVCS ≥ 2000 have increased risk of mild/moderate AR.

