

Multislice computed tomography SYNTAX score for coronary artery disease evaluation prior to transcatheter aortic valve implantation

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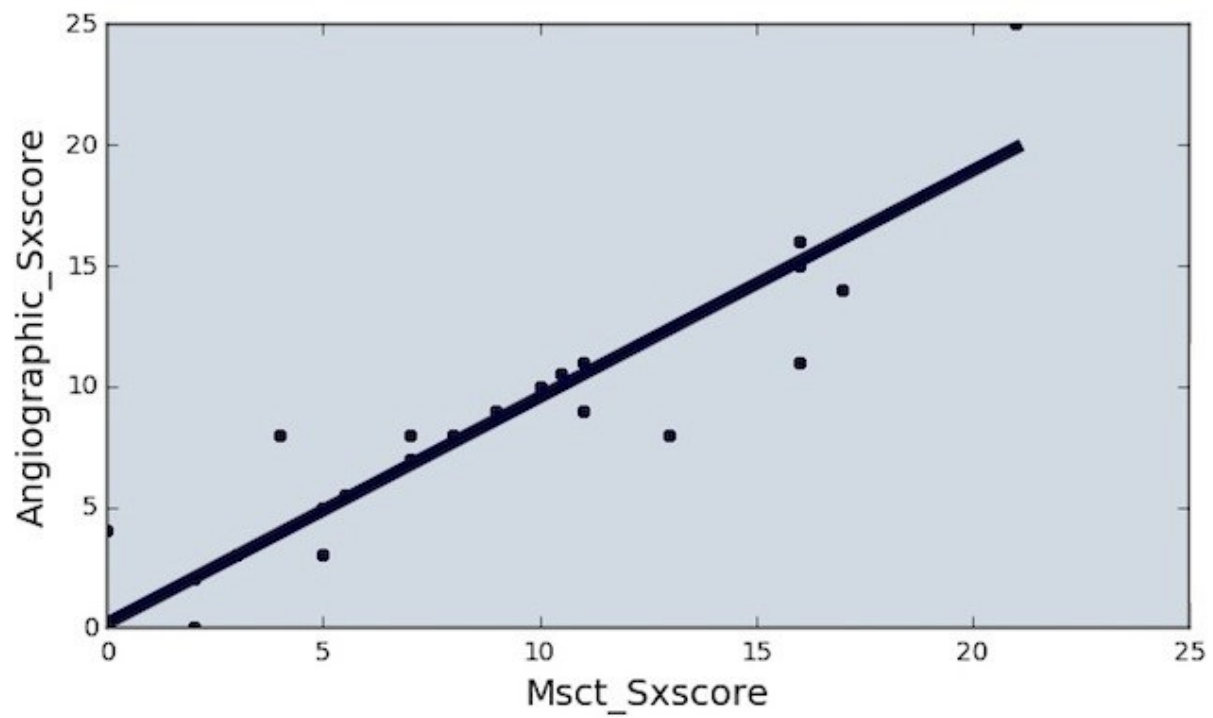
Background: Coronary computed tomography angiography (CCTA) is a useful tool for the evaluation of coronary anatomy prior to both surgical and transcatheter aortic valve implantation (TAVI). Multislice Computed Tomography (MSCT) SYNTAX score (SXscore) strongly correlates with the traditional angiographic SXscore, and the latter has proven to predict cardiovascular events in patients with coronary artery disease (CAD) referred to TAVI.

Purpose: The aim of the study is to evaluate the feasibility and accuracy of the calculation of MSCT SXscore in TAVI patients, compared to the gold standard angiographic SXscore.

Materials and methods: We evaluated 65 patients eligible for TAVI who underwent both CCTA and invasive coronary angiography (ICA) prior to valve replacement. CCTA was compared to ICA in terms of sensitivity, specificity, and positive and negative predictive values. CCTA performance was evaluated at 3 levels: patient-level, vessel-level and segment-level. MSCT SXscore was calculated, when possible (i.e. only in fully-evaluable scans), and compared to the angiographic SXscore.

Results: Overall CCTA diagnostic performance was good, with high sensitivity and negative predictive values (97.2% and 96.0%, respectively) and good agreement with ICA ($k=0.81$). As expected, specificity and positive predictive values were lower (82.8% and 87.5%, respectively). At vessel-level, the circumflex artery (CA) was more often misdiagnosed than the other arteries. We were able to calculate MSCT SXscore in 50/65 scans (76.9%). The correlation between MSCT and angiographic SXscore was excellent (Pearson's $R=0.965$, $P<0.001$).

Conclusions: MSCT SXscore emerges as an interesting tool with strong agreement with angiographic SXscore, providing a non-invasive ambulatory alternative to assess CAD severity in TAVI patients.



MSCT vs. angiographic SXscore