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Clinical utility of CT angiography over and above TAVI procedural planning

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Topic(s):
CT Imaging of Structural Heart Disease

Citation:

Funding Acknowledgements:
K Patel: Edwards Lifesciences. PR Scully: BHF clinical research training fellowship, F Pugliese: Siemens Healthineers

Introduction

Among patients who undergo transcatheter aortic valve implantation (TAVI), computed tomography angiography (CTA) is routinely used for procedural planning.

Purpose

This study reports on its clinical utility over and above TAVI procedural planning.

Methods

CTA were analysed, with all incidental findings and coronary assessments recorded. Incidental findings were classified as clinically significant (requiring treatment), indeterminate (requiring further assessment), or clinically insignificant. Coronary evaluation was defined as diagnostic if all 3 epicardial coronary arteries and their main branches could be confidently assessed.

Results

100 patients (46% male, mean age 86) were included in this sub-study. 23% had non-diagnostic coronary evaluation of which 8 (35%) went onto have subsequent invasive coronary angiography and 1 percutaneous coronary intervention (PCI). Of the 68% of patients who had a diagnostic coronary evaluation by CTA, 28 (43%) had at least 1 coronary artery with a >50% stenosis. Of these patients, 2 (7%) went onto have invasive coronary angiography and subsequent PCI. The causes of non-diagnostic coronary evaluation were blooming artefact secondary to coronary calcification (57%) and stents (4%), motion artefact (26%) and others (13%).

Incidental findings were found in 90% of patients, of which 1% was clinically significant and 4% indeterminate. These included 3 potential malignancies and 2 pulmonary nodules.

Conclusions

CTA adds value beyond procedural planning in patients undergoing a TAVI. Coronary evaluation was possible in the majority of patients (77%) and identified significant stenosis in 28%. Incidental findings were very common in this population, of which a minority were significant.
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