

Peer Review File

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Review Comments

The authors present an editorial commentary on the role of CT prior to TAVI and the recently published study by Lecomte et al. Coronary artery assessment on pre TAVI CT may avoid the need for additional coronary angiography.

Reply: We extend our gratitude to the reviewer for taking the time to thoroughly examine our editorial commentary and providing valuable feedback aimed at improvement of the contribution.

Comment 1: Some abbreviations need to be spelled out when used 1st time. Please spell out NICE.

Reply 1: In response to the reviewer's suggestion, we revised the abbreviations accordingly. *Changes in the text:* "Scottish Computed Tomography of the Heart (SCOT-HEART)" (page 3, line 39); "United Kingdom" (page 3, line 40-41); "National Institute for Health and Care (NICE)" (page 3, line 41); "CT: computed tomography; TAVI: transcatheter aortic valve implantation." (page 8, line 187-188).

Comment 2: There are some missing relevant references despite the suggested total number of references. Line 39, pls support the statement with a reference (PMID: 32865197 DOI: 10.1093/icvts/ivaa160). Also PMID: 32518659 DOI: 10.1136/openhrt-2019-001233 can be added as similar topic. Line 142 missing reference...

Reply 2: In response to the suggested inclusion of specific references, we have added a separate paragraph to ensure seamless integration of the reference by Sef and Birdi (Sef D, Birdi I. Clinically significant incidental findings during preoperative computed tomography of patients undergoing cardiac surgery. *Interact Cardiovasc Thorac Surg.* 2020 Nov 1;31(5):629-631. doi: 10.1093/icvts/ivaa160.). Also, the reference by Harries et al. has been included, as appropriate. *Changes in the text:* We included the following paragraph "In this context, it is relevant to note, that CT is increasingly performed as part of a preoperative work-up in patients scheduled for minimally invasive mitral and aortic valve surgical procedures, as well as complex cardiac surgery, which has been reported to increase the rate of incidental findings (15)" (page 3-4, line 54-59). The reference by Harries et al. has been included on page 4, line 65.

Comment 3 Line 50, it's suggested to add the importance of preoperative CT in aortic, reoperative and minimally invasive cardiac surgery (PMID: 32865197) as well as in TAVI. Nowadays, CTA is performed routinely among patients undergoing minimally invasive mitral valve repair or aortic valve replacement, and complex aortic surgical procedure which will often increase the rate of incidental findings such as CAD...

Reply 3: We thank the reviewer for this specific comment and added the suggested reference.
Changes in the text: We included the following paragraph “In this context, it is relevant to note, that CT is increasingly performed as part of a preoperative work-up in patients scheduled for minimally invasive mitral and aortic valve surgical procedures, as well as complex cardiac surgery, which has been reported to increase the rate of incidental findings (15)” (page 3-4, line 54-59).

Specific comment 4: Did the authors discuss how many patients underwent PCI based on TAVI-CT? What was the proportion of patients in which initial treatment plan has changed?

Reply 4: In response to this incisive question of the reviewer, we reassessed the study by Lecomte et al. The commented study included patients with TAVI-CT and coronary angiography before TAVI retrospectively as part of the FRANCE-TAVI registry. All patients with stents or coronary artery bypass grafts on TAVI-CT were excluded. The study did not include an analysis of the percentage of patients that underwent PCI based on TAVI-CT, but primarily aimed at assessing the percentage of invasive coronary angiographies that could have been safely avoided.

Changes in the text: To clarify this issue raised by the reviewer, we included the statement “The study aimed at assessing the percentage of invasive coronary angiography examinations that could have been avoided by implementation of TAVI-CT.” to the section “Main methods and results of the commented study” of our commentary (page 5, line 96-97).

Comment 5: Among 38% of patients that were not included in the analysis, were there patient that had TAVI-CT and due to change in plan had to undergo AVR+CABG? There were only 6.3% of patients who required coronary revascularization – was this possibly due to the previously mentioned reason?

Reply 5: Please see specific reply 4.

Changes in the text: Please see specific reply 4 and the corresponding changes in the text detailed there.

Comment 6: Relatively large proportion of patients had low quality of CT images – was this possibly related to different CT protocols?

Reply 6: Based on the CT protocol details provided in materials and methods of the commented study, a state-of-the-art 256-slice CT with prospective ECG-triggering technique for the thoracic scan was used in all patients. The reason for the high percentage of patients with poor image quality is rather the definition, including motion artifacts, presence of coronary artery calcifications with blooming artifacts, suboptimal arterial enhancement. Furthermore, it is stated in material and methods of the commented study, that a junior radiologist with only six months of experience in cardiac imaging performed image quality rating and that the threshold for possible obstructive CAD on TAVI-CT was low.

Changes in the text: We included the following statement to provide more detail for the high

number of low image quality and false-positive findings “Furthermore, it is stated in material and methods of the commented study, that a reader with limited experience in cardiac imaging performed the image quality rating.” to the section “discussion and critical appraisal” (page 7, line 147-148).

Comment 7: Optimal timing of coronary revascularization during TAVI is another important debate. I suggest adding authors' view on this topic.

Reply 7: We appreciate the suggested inclusion of our opinion regarding optimal timing of myocardial revascularization in the context of TAVI. We avoid PCI concomitant with TAVI and take a stance on this topic.

Changes in the text: We added the following paragraph to the section “discussion and critical appraisal”: “In absence of indicatory data from randomized clinical trials, it is important to note that decisions should be made on an individual basis and preferably in a multidisciplinary heart-team setting weighing the risk of bleeding with that of myocardial ischemia. Nevertheless, on the basis of our experiential knowledge, it is safe to proceed with TAVI first in absence of high-risk characteristics (e.g. significant left main disease or >70% disease of a proximal segment of a dominant coronary artery with anticipation of difficult coronary re-access after TAVI). Elective PCI of stable CAD should then be scheduled as a two-staged procedure following TAVI. This is in line with available evidence favoring this strategy over PCI pre-TAVI and PCI concomitant with TAVI due to improved clinical outcomes (26).” (page 7, line 157-164).