LETTERS TO THE EDITOR

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Appropriate criteria for the use of cardiac computed tomography angiography

Dear Editor,

We have read with great interest the manuscript recently published in your journal by Jin Kim et al. entitled: ‘Meaning of zero coronary calcium score in symptomatic patients referred for coronary computed tomographic angiography’.1 We completely agree with their conclusions; as it has been shown in different series previously published, that a calcium score of zero cannot rule out obstructive coronary artery disease especially in symptomatic patients with cardiovascular risk factors.2,3 But we have several points of discussion with the authors. First of all, it is not reflected in the manuscript whether these patients had a previous functional test to detect ischaemia or not. We must not forget that according to the present guidelines for the appropriate use of Cardiac CT, this should only be used when a functional test is not practicable or inconclusive.4 Perhaps some of the symptomatic patients should not have undergone a Cardiac CT as a first diagnosis tool. What is the usefulness of Cardiac CT in a patient with typical angina? We believe that first we should know the severity of the ischaemia with a functional test, and then if the patient is still symptomatic under treatment we should send him to invasive coronary angiography in order to revascularization but not to Cardiac CT. Another point of debate is the level of cardiovascular risk of the patients included in the study. There are 340 diabetic patients. Which level of cardiovascular risk has a diabetic patient? We think that a diabetic patient is considered as a high-risk patient and, as a result, should not be referred for a coronary computed tomography angiography. So, although we agree with the authors about their main conclusion, we think that we all should follow the proper indications for non-invasive coronary angiography in order to avoid unnecessary diagnosis techniques and what is more unnecessary radiation.

References

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Appropriate criteria for the use of cardiac computed tomography angiography in patients with high risk of coronary artery disease

We would like to thank Dr Maria Martin and her colleagues for their interest and comments regarding appropriate use of coronary-computed tomography angiography (CCTA) in our recent article.1 First of all we agree with their comment that we should follow the proper indications for non-invasive coronary angiography to avoid unnecessary radiation. Although it should be a small number of patients, we admit that some patients included in this study may be inappropriate indication for CCTA according to the current guideline.2 Basically, as we retrospectively collected data from consecutive patients for a certain period of time, it was inevitable to include some patients who underwent CCTA not abided by the current guideline2 in real clinical practice. However, we have to be careful to interpret guidelines to apply to an individual patient. Typical angina itself is not necessarily an inappropriate criterion in the current guideline. Women patients with typical angina and age <60 years are classified as having intermediate pre-test probability which is one of appropriate criteria. In addition, patients with high-pre-test probability who are not able to exercise or whose ECG is not interpretable belong to uncertain criteria. Uncertain criteria imply both that test may be generally acceptable and may be a reasonable approach for the indication and that more research and/or patient information is needed to classify the indication definitively. Therefore, appropriateness of CCTA in this specific group of patients is still debatable or should be individualized.

Otherwise, the current guideline is based on a definition that high-pre-test probability is >90% pre-test probability of coronary artery disease (CAD) which is from the invasive angiography-based guideline probabilities. However, a recent study showed that the prevalence of significant CAD on CCTA was much lower than those estimated by the invasive angiography-based guideline probabilities even in patients with typical angina (29 vs. 86%).3 This result may suggest that many patients with high-pre-test probability estimated by current guideline are actually with intermediate pre-test probability and indicated for CCTA. In regard to diabetes, although it is not incorporated into the algorithm, it should be an important risk factor that affects pre-test likelihood of CAD. However, there is no consensus-based guideline or evidence yet about the way how to incorporate diabetes in estimating pre-test probability for CCTA indication. We have to be aware of the limitation of the current guideline for CCTA, which is mostly from

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