Reviewer’s report

Title: Equivocal tests after contrast stress-echocardiography compared with invasive coronary angiography or with CT angiography: CT calcium score in mildly positive tests may spare unnecessary coronary angiograms.

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Reviewer: Thomas Porter

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Interesting paper examining what clinical or additional non-wall motion imaging variables affect the ROC curves for equivocal dipyridamole stress echo wall motion results in detecting angiographically significant CAD. The authors retrospectively examine data from equivocal studies that subsequently underwent either CTA (n=137) or iCA (n=supposedly 314). Additional variables tested included patients symptoms during the stress test, EKG changes, reversible perfusion defects when perfusion imaging was performed, CFR data in the LAD when performed, as well as subsequent calcium score in those underwent CTA.

Interesting retrospective review, but there are some significant questions:

1. The definition of equivocal seems to be different in the Methods section when compared to the Results as well as Figure 1. In the Methods section on page 6, equivocal tests are only those who have a delta WMSI of ≤ or equal to 0.016, but in the ICA Results more than 0.06 change is described as a method of reducing the false positive rate of such studies to 29%. Why are WMSI changes of >0.06 appearing in the Results when the purpose of this paper was to discuss equivocal stress echo results? Also, in the Methods section it states the 2 minor findings which are "extremely abnormal" would be considered a frankly positive cSE, but in Figure 1 it appears that EKG and chest pain would never be considered in the frankly positive category.

2. Are the authors presenting the results of both equivocal and non-equivocal cSE studies? Or just equivocal cSE studies? This is not specified in the Results section pages 9-12, but in the Results section in the Abstract it is stated that only equivocal cSE studies were retrospectively examined. Yet, in the Results, patients with reversible WMSI >0.06 appear to be included (although these are not considered equivocal). This must be clarified.

3. The word "prospectively" should probably not be used on page 5. This is all retrospective analysis of data.

4. Page 7, line 150: How can a slice interval be in mm? An interval is usually measured in msec.

5. The specific reason the over 3000 patient exclusions should be detailed in a flow diagram.
6. Only 176 had myocardial perfusion information in the iCA group. Was this because the data could not be analyzed, or because the study was just using LVO? When myocardial perfusion could be analyzed, did it impact sensitivity and specificity? Should just those with both wall motion and perfusion data be analyzed separately?

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