

Reviewer's report

Title: SPECT myocardial perfusion imaging as an adjunct to coronary calcium score for the detection of hemodynamically significant coronary artery stenosis

Version: 2 Date: 19 September 2012

Reviewer: Klaus Fuglsang F Kofoed

Reviewer's report:

The aim of this study was to "evaluate feasibility of MPI as an adjunct to CS to detect significant CAD in symptomatic patients referred for ICA". The authors included 351 symptomatic patients of which 37% subsequently received revascularization based on ICA findings.

In this patient cohort the authors found that CS has a high NPV with a low PPV whereas SPECT MPI had an overall superior diagnostic accuracy. The authors conclude that an additional SPECT MPI in those patients with CS>0 leads to a still sufficient diagnostic accuracy for the detection of CAD while reducing the number of patients needing invasive diagnostic procedure.

Diagnostic strategy in presumably stable patients with chest pain is challenging and several approaches have been suggested. The presented data has merits but has major limitations:

- 1) The clinical characteristics of the patient group is not reported in detail. The symptomatic profile (CCS class) and low-intermediate- high risk category is not given.
- 2) If all patients were referred for ICA regardless of non-invasive findings the clinical implications of the study is rather small
- 3) Whereas the aim of the study was to assess to what extent CS+MPI have higher diagnostic accuracy than CS alone this is not evident by the way the data is presented. A ROC curve comparing AUC for the two approaches should be given
- 4) CS has been determined by two different CT-scanners. This may pose a serious problem if no phantom cross-calibration was done, ensuring consistency of the CS between scanners.
- 5) The clinical situation in which a CT scan including CS will be followed by MPI is not evident – unless in a research setting.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Not suitable for publication unless extensively edited

Statistical review: No, the manuscript does not need to be seen by a statistician.