Reviewer's report

Title: Validity of Electron Beam Computed Tomography for Coronary Artery Disease: A Systematic Review and Meta-analysis

Version: 1 Date: 7 September 2007

Reviewer: Alexander Becker

Reviewer's report:

General
The meta analysis by Nandini Dendukuri is a very detailed review of existing studies on coronary calcification and coronary artery disease. Especially the sharp distinction between studies in symptomatic and studies in asymptomatic patients has to be pointed out. It is a problem of the analysed studies, that different score groups had been used, still the authors managed to achieve a reasonable summary of the results.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

The meta analysis focused on the diagnosis of coronary artery disease, which is hampered by a reduced specificity. As shown in different studies, an increase in specificity can be achieved by using age abjusted percentiles, which of course is not possible in this meta analysis. Still in all age groups the exclusion of coronary calcification is associated with a very high negative predictive value. This is also true for symptomatic patients, making the calcium score a valuable tool for the exclusion of coronary artery disease helping to reduce the number of invasive examinations. Even if the group of patients with score O is not a separate group in this meta analysis I would suggest to give the sampled negative predictive value of these patients in the studies with symptomatic patients as this illustrates the possible use of coronary calcium. As already mentioned in the meta analysis the specificity in symptomatic patients is not adequate in some score groups for a reliable diagnosis.

Due to technical progress today usually the volume score determined by multislice CT is used to assess coronary calcifications. I would mention, that this technique can be used equivalent to EBCT and Agatston score.

Discretionary Revisions (which the author can choose to ignore)
**Which journal?**: Appropriate or potentially appropriate for BMC Medicine: an article of importance in its field

**What next?**: Accept for publication in BMC Medicine after minor essential revisions

**Quality of written English**: Acceptable

**Statistical review**: No