Reviewer's report

Title: Multidetector CT Angiography for assessment of in-stent restenosis: Meta-analysis of Diagnostic Performance

Version: 2 Date: 20 March 2008

Reviewer: Johannes Reitsma

Reviewer's report:

+ Framing the question
The authors now discuss the possible role of the index test as a triage test to select patients for further (invasive) testing. However, in my view the authors should then judge the performance of the test against this background. So rather than phrasing in the conclusion: “Sensitivity and specificity of MDCTA for the detection of in-stent stenosis is good” I would expect something like “The sensitivity of MDTCA for the detection of in-stent stenosis is insufficient to use this test to select patients for further invasive testing as with this strategy around 20% of the patients with in-stent stenosis would be missed. Further improvement of scanner technology is needed before it can be recommended as a triage instrument in practice. In addition, the number of non-assessable stents is also high.”

+ Quality assessment
The authors have performed a formal quality assessment using the QUADAS instrument, but unfortunately they do not present these results. I can hardly believe that all studies scored 14/14 for the QUADAS instrument. In addition, The QUADAS instrument not only generates information in the yes or no form. For instance, question 1 of QUADAS requires a description of the patients included, how were patients selected: was it routine testing after x month after stenting or on the basis of complaints etc. How often was information not provided (not reported) in the paper? All this information is paramount to judge the potential for bias and to understand the variability in results between studies. I strongly recommend a table with the clinical and methodological characteristics of each study.

Because individual quality items are more relevant than summary scores, I would refrain from calculating a summary quality score.

+ Meta-analysis and presenting the data
The analysis is much improved.
- Assessment of publication bias
Given all uncertainties, I think there is too much attention for publication bias. I would drop the figures and only provide the p-values for the test of publication bias.
Presenting the results

The results of table 4 are not understandable. What it is meant by the sensitivity of Publication year is 0.84? I would have expected either a sensitivity for a specific year early and late in the range of publication years to show its impact or a relative change in sensitivity / specificity if a publication is one year later. The same is true for all the other covariates. The best way to present binary covariates is to show the values for sensitivity and specificity in both subgroups.

Because of the low number of studies in various subgroups, testing (p-values) are of limited value. It is important to show the magnitude of effect (= the mean sensitivity and specificity in each subgroup) in addition to p-values as in general the power to detect differences will be small. Therefore, potentially relevant covariates should be defined a priory, and then analyzed and presented, even if the p-value is above 0.05.

Minor revisions

- Check manuscript and tables for use of “,” rather than “.” as de decimal sign.
- Legends: there are two legends for figure 3 but none for figure 4.
- Not sure whether presenting the graphical results (nomgram) both for a per stent and per patient basis is of additional value.

What next?: Accept after minor essential revisions

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

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests