Reviewer's report

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

Version: 1 Date: 26 October 2007

Reviewer: Bernhard Gerber

Reviewer's report:

General

This is the first meta-analysis on diagnostic accuracy of multidetector CT for detection of in-stent restenosis. Therefore manuscript is potentially interesting

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

1) The authors should give more detail on how they obtained the information on the covariates (stent diameter, strut thickness and kernel) which they analyzed in their sROC analysis. How was this data collected? Was the data available for all studies in the literature? If not were authors contacted to obtain the missing data or were missing studies removed? I tried to examine some of the studies to find this data, but could not find the data in many studies. Also provide some more detail on how you homogenized the data. For instance, how did you compare reconstruction filters from Philips / Toshiba scanners vs. kernels by Siemens scanners?

2) Improve the description and interpretation of the I2 test and the Publication Bias for readers not so familiar with metaanalysis statistics
   a) : i.e. I2 is a measurement of heterogeneity of studies, which can vary from 0 to 100%. I2 = 0% would indicates that all variation results from sampling error within studies, on the other hand I2=100% would indicate that all would result from heterogeneity between studies. Also indicate what an acceptable level of I2 would be: <50% ?
   b) The regression equation and p value for the Eggers test should be plotted in Figure 2 and commented in page 9: for instance: The regression line was statistically significantly different from 0 with a positive bias, indicating publication bias.

3) In table 2 and Figure 4-7, it would be interesting to separate studies performed using 16 slice CT from those with higher numbers of detectors. Also it would be interesting to know if the heterogeneity of studies resulted from the differences in detectors. i.e. was heterogeneity or I2 less in 64 slice CT than in all studies?

4) Why were other covariates such as metal composition of stents or tube
voltage and current not examined in the sROC model?

5) In order to compare CT to other tests, it would be interesting to analyze data also on per-patient basis. Could you provide PLR and NLR and DOR of other tests, for instance stress test, nuclear imaging or dobutamine echo, for detection of instent restenosis? It would be interesting to compare CT to these other tests.

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

1) Define the abbreviation NAP in the abstract
2) In the discussion: what is a pooled sensitivity “poor to moderate to good”?
3) Reference numbers in table 2 and Figure 3-7 are misnumbered and do not correspond to the numbers in the reference list
4) Page 3 para 1 line 3 “most patients” do not develop restenosis. Luckily only 5 (DES) -20% (BMS) of patients develop restenosis.
5) Page 3 para 1 line 5 The term “catheter angiography” should be replaced by “invasive coronary angiography”

Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests