Reviewer’s report

Title: Development of a Risk Score to Identify Patients with Type 2 Diabetes Mellitus and Multivessel Coronary Artery Disease Who Can Defer Bypass Surgery

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Reviewer: Orestis Efthimiou

Reviewer's report:

In this paper the authors use data from a RCT in order to develop a risk score, aimed to identify patients who can safely defer bypass surgery. As I have a statistical background (and no clinical), my review is about the statistical methods.

Overall, the main problem I had was on the reporting of the methods that the authors used. The reporting was rather minimal, making it at times very hard to understand what exactly they did. However, based on what I could infer, they seem to have used valid methods. Therefore, my comments are mostly about clarifying these methods, and most of them are of minor importance.

More specific comments:

1. Page 5, line 53. What is "each potential predictor"? How were these selected? Was there some clinical consideration behind the selection? In essence what the authors do here is multiple tests, which of course runs the risks associate with multiple testing. Later in this sentence, it writes "the hazard ratio (HR) ...". They should clarify what the HR refers at, i.e. the effect of each covariate. Otherwise it is a bit ambiguous.

2. Page 6. What is a "sequential imputation algorithm"? Please provide a short description, as well as a citation of a paper that describes the actual algorithm. What is a "discriminant function"?

3. Page 6. What is a "regression predictive mean algorithm"? Please provide a description and a citation.

4. Page 6: "The performance of the risk score..." Although it becomes later evident what the risk score is, at this instance it is confusing. Please write here what this is and how it is calculated.

5. Page 6: Please describe shortly the jack-knife cross-validation method, and give a citation.
6. Page 6, it writes "The predictors included in the multivariable Cox proportional hazards model were identified based on clinical relevance and univariate model results". This is very unclear. Based on the univariate model but in what way? How was a decision made?

7. Although I know what a jack-knife cross-validation is, I am not really sure what the authors mean by "jack-knife sample". Maybe they can clarify.

8. Page 7. The authors say that based on their Cox model results, they developed a point scoring system, and they cite Sullivan et al. I found this description quite small, I would like to see at least the outline of how this score is developed.

9. Authors should mention which software and which package/command they use for each part of their analysis, so that other researchers can replicate it, or do something similar in another dataset.

10. Page 8. It writes that "...and yielded a calibration slope of 0.76 (see Figure 1a)." The way it is written it seems as if Figure 1a includes a calibration slope, but it actually does not. Including a calibration curve might be also useful and interesting.

11. Page 8, it writes "...patients in the IMT group had significantly reduced event-free survival (Figure 2b)". What is the HR between the groups?

Some minor comments:

1. Page 3, line 58, it writes "Within the CABG strata, however, a reduction in the composite outcome of death myocardial infarction (MI) and stroke was observed in the patients who underwent prompt CABG compared with those managed with IMT alone that was driven by a reduction in non-fatal MI in the CABG group." The last phrase, "that was driven by..." confused me. A reduction compared to what? CABG is the whole strata. Maybe the authors meant "in the prompt CABG group"?

2. Page 4, line 21, it writes that "The aim of this post-hoc analysis was to create a multivariable risk score to identify patients in the CABG strata at the time of randomization of BARI 2D for whom surgery may be safely deferred." I got confused initially, I thought this was referring to a previous analysis described before. Maybe the authors could rephrase to something like "The aim of this paper/this analysis", to make clear they are referring to this paper.
3. Page 5, line 51, and in many other places. What is "OMT"? Is this the same as "IMT". This abbreviation has not been introduced.

4. Page 8, line 46, it writes "…validation cohort for the point". What does this mean?

5. Table 2, first row of the table: Please correct the typo for the CI for age (10.17, 1.066)

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