Reviewer's report

**Title:** Local versus General Anesthesia for Transcatheter Aortic Valve Implantation (TAVI) - Systematic Review and Meta-Analysis

**Version:** 1 **Date:** 8 October 2013

**Reviewer:** Brahmajee Nallamothu

**Reviewer's report:**

The paper by Frohlich and colleagues examines the use of local versus general anesthesia in patients undergoing TAVR through the use of meta-analysis. This is an important topic that is of growing interest to physicians performing these procedures. Overall, the paper is well-written and the study seems well-conducted. Honestly, I found some of the narrative components of this systematic review more valuable than the quantitative synthesis given the lack of data in this field. With this in mind, the main limitations of the paper relate to the quality of the reports that are available, all of which are observational and non-randomized studies. The authors recognize this limitation and have stated this limitation clearly. I have the following comments for the authors to consider for hopefully improving the clarity and message of the study:

1) The authors state their hypothesis was to evaluate if “GA is safer than MAC for patients undergoing TAVI”. I believe the setup in their introduction and the discussion of their paper suggest rather they wanted to ensure that MAC was not harmful in comparison with GA, as this latter approach is growing in use. I would suggest they re-frame the hypothesis in this regard (Minor Essential Revision).

2) I would use the term TAVR, which is gaining use in the published literature, rather than TAVI (Minor Essential Revision).

3) The search and review process seems appropriate and is described in detail. By my read, there is a minor discrepancy in the overall search results reported in the Supplement (n=81) and what is reported in the paper in Figure 1. Also, I have interpreted the authors’ data abstraction process to focus on unadjusted or observed outcomes – rather than adjusted rates of outcomes. Is this correct? If so, the authors should explicitly state this in their methods (Minor Essential Revision).

4) The results can be better organized. Right now, there is an independent listing of numerous outcomes and it is difficult to follow. I would organize the outcomes in categories, such as overall mortality, procedural outcomes, post-procedural outcomes and complications, and healthcare utilization measures (Minor Essential Revision). Another issue in the reporting of results is the variability in outcomes that were reported across trials. Thus, although percentages are reported, the number of patients across these outcomes differs tremendously. This needs to be better emphasized in the paper – perhaps using the structure the authors used for the section on vascular complications where they state “x out of x patients in the xx group” (Minor Essential Revision). Finally, there is little
mention of I2 measures of heterogeneity. For some outcomes like procedural time, the I2 was very high. This needs to be pointed out when it is relevant (Minor Essential Revision).

5) The ADVANCE study apparently reported 30-day mortality according to their Supplement. However, patients in the ADVANCE study were not included in their report of this outcome in the figure that was provided. This might be an oversight by the authors who included the sensitivity analysis figure instead. This should be clarified (Minor Essential Revision).

6) I believe some comment about patient preference should be discussed. Have any of the studies discussed this issue? Perhaps not, but it strikes me that patients may need to be involved in these discussions as well (Discretionary Revision).

7) I would ask the authors to lend their expertise as to whether a clinical trial is needed or not. They mention that a trial would be helpful to assess cost-effectiveness but are not explicit about their final recommendations in this regard. I believe the authors’ conclusions should be clearer. My impression of this study is that it suggests MAC is safe in select patients without evidence of worse outcomes. Randomized or better observational studies from national registries are needed to understand what types of patients may truly benefit from this approach and under what circumstances it should be considered (Minor Essential Revision).

8) A final request is to better organize the supplementary material into a single document that is easier to navigate (Minor Essential Revision).

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

I have no competing interests.