Author's response to reviews

Title: Comparison of three point-of-care testing devices to detect hemostatic changes in adult elective cardiac surgery. A prospective observational study.

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Author's response to reviews: see over
Dear Editor,

We were glad to learn that you are willing to consider a revised version of our manuscript entitled “Comparison of three point-of-care testing devices to detect hemostatic changes in adult elective cardiac surgery. A prospective observational study.” We are grateful to the reviewers for their comments, which have helped us improve the manuscript. Below we have detailed our responses and the corresponding changes in the manuscript. In addition, a detailed revision of the journal style was performed.

We hope that you now find the manuscript suitable for publication.

Yours sincerely,

Aurora Espinosa, MD
Reviewer #1:

Minor essential Revisions:

1. Results and discussion, paragraph 10 - "preoperative" has a typo as "peroperative".
   - This is corrected now (page 8, line 190).

Discretionary Revisions:

1. Table 1 could be better organized to show parameters that are closely related (e.g. TEG R time and ROTEM CT time are conceptually similar).
   - We thank the reviewer for this very helpful suggestion. The table is organized in a new way in the revised manuscript, taking into account the similarities among the instrument variables (page 16).

2. It would have been helpful to have immediate post-CPB data, which is arguably where the most timely data is needed.
   - Unfortunately, no samples were drawn immediately following CPB due to logistic reasons. The manuscript has therefore not been altered regarding this point.

3. It would also be helpful to have some data on patients with more significant coagulopathies. As it stands, the "routine" lab tests are relatively normal for post-CPB patients.
   - We agree that such data would have been interesting. However, there were no such patients among those included in our study. The manuscript has therefore not been altered regarding this point.

4. Discussion of how Rapid TEG fits in would be nice.
   - We thank the reviewer for this suggestion. A short description of rapid TEG is now added in the manuscript (page 7, lines 154-158) as well as two new references (ref. 35 and 36).

5. "Routine" coagulation tests are being treated much like a gold standard in this article, but many have argued that viscoelastic tests are actually better than these assays that were not designed to assess complex coagulopathies and do not examine the entire coagulation system.
   - Even if the use of POC instruments is increasing, we would like to argue that the routine hematology tests should still be considered the gold standard. The reason is mainly the lack of interchangeability among the different POC instruments and the problems related to standardization. The manuscript has been amended to include this point (page 9, line 210-212).
6. Statistical analysis, 1st paragraph: Why is ROTEM the only test where "endpoint values were used"?

- The RoTEM instrument provides early variables such as for example A10, A15, A20 and A30, as a measurement of the amplitude (A) at times 10, 15, 20 and 30 minutes. However, because the TEG and Sonoclot instruments to not give similar early variables, only endpoint variables were used for all instruments to ensure comparability. We have now added this supplementary information in the manuscript to avoid confusion (page 4, lines 88-90).

7. Results and discussion, 5th paragraph - was there evidence of fibrinolysis in the patients given an additional dose of tranexamic acid? Detection of fibrinolysis is one of the big advantages of these tests over routine tests. It is noted in the next paragraph that fibrinolysis was not observed in general.

- There was no evidence of fibrinolysis in the patients given an additional dose of tranexamic acid, as stated in the manuscript. This was probably due to the fact that all patients were receiving tranexamic acid before CPB, which is also stated in the manuscript. We have added a sentence to the manuscript where we explain that postoperative administration of tranexamic acid was given at the discretion of the attending physician on clinical grounds and not based on results from the POC instruments (page 6, lines 130-131).

Reviewer #2:
No suggestions for changes were given by the reviewer.