Reviewer's report

Title: Assessment of Haemostasis in Patients undergoing Emergent Neurosurgery by Rotational Elastometry and Standard Coagulation Tests: A Prospective Observational Study

Version: 0 Date: 28 Jul 2017

Reviewer: Ecaterina Scarlatescu

Reviewer's report:

The authors conducted a prospective observational study with the purpose of comparing preoperative SCTs to ROTEM derived parameters in patients scheduled for emergent neurosurgical interventions lasting at least 90 minutes. The patients were divided in two groups based on the amount of PRBCs transfused: High bleeders (more than 3 units of PRBCs) and low bleeders (less than 3 U of PRBCs). The results indicated a good correlation between preoperative SCTs and ROTEM parameters; however, ROTEM tests proved more reliable for predicting the need for transfusing at least 3 units of PRBCs and were useful to guide hemostatic therapy. The problem raised in this paper is of interest for everybody involved in perioperative care of neurosurgical patients and is of importance for daily clinical practice. However, I would suggest some revisions of the manuscript:

Major revisions
* The first conclusion on page 12 row 2: "Trauma induced coagulopathy was detected preoperatively in …based on SCTs and ROTEM..." is not supported by the data shown in previous sections, as patients with anticoagulant treatment were not excluded from the study group. In this way the coagulopathy detected preoperatively is not restricted to trauma induced coagulopathy and could be the result of previous treatment.
* The thresholds of FIBTEM MCF <8 mm and EXTEM CA 15<45 mm to predict transfusion, as stated in Discussion section page 13 rows 15-21 are not described in the Results section. Please consider adding those in the Results section and removing any new results of the present study from the Discussion section.
* I would suggest to add more data about the number of patients on anticoagulant/antiplatelet therapy in each group (HB, LB) and the results from SCTs and ROTEM in those cases. If the number of patients allows, I would suggest a separate analysis of data from patients with/without antithrombotic treatment in order to conclude about the role of SCTs and ROTEM in trauma induced coagulopathy in neurosurgical patients.

Minor Essential Revisions
* In Introduction section second paragraph row 39: stimulation of protein C pathway leads to inhibition of activated factor VIII, not VII. Please correct this mistake. I would suggest to change the following wording in the same row: "...along with decreased conversion of fibrinogen to fibrin" to "...and decreased thrombin generation leading to a decrease in fibrin formation"
* In Introduction section page 5 instead of the sentence " In contrast with SCTs performed in plasma samples, these POC-VHA provide bedside information of the coagulation process", I would suggest to underline the benefits of performing whole-blood tests, such as the rapid
turnaround times and the better reflection of in vivo situation, for example the interaction between plasmatic factors and cells.

* In Methods section, Patient population, please state clearly the inclusion and exclusion criteria

* In Methods section, Coagulation testing- page 7, I would suggest to consider adding some references when ROTEM analysis and reagents are described.

* In Results section page 11, row 2- please explain the abbreviation used (CA-15) or use the same abbreviation described in Methods, page 7. Please consider adding in the table 3 also the values for CA15. The APTEM assay results are only mentioned in the results, without any precise data. Please consider adding the APTEM data in Table 3, if available.

* In Results section please put Table 4 instead of Table 5 on page 11 row 24 and Table 5 instead of Table 6 on page 11 row 40

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

No

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

No

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I recommend additional statistical review

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Acceptable
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