Reviewer's report

Title: Activated coagulation time vs. intrinsically activated modified rotational thromboelastometry in assessment of hemostatic disturbances and blood loss after protamine administration in elective cardiac surgery: analysis from the clinical trial (NCT01281397)

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Reviewer: Harun Avdagic

Reviewer's report:

Thank you for submitting this excellent article to the Journal of Cardiothoracic Surgery.

In this paper, Petricevic and colleagues conducted a prospective observational study with the aim to compare activated coagulation time vs. thromboelastometry parameter (INTEM test) in assessment of excessive bleeding. INTEM, but not ACT correlated significantly with amount of chest tube output.

This paper presents an interesting and important topic.

Objectives of the paper and importance of the research question is clearly stated. Optimal hemostatic management remains to be challenging. Early intraoperative prediction of excessive bleeding risks seems to be very important because of possibility to timely treat hemostatic disorder and to timely prevent excessive bleeding.

The study was conducted in prospective observational fashion enrolling 148 consecutive patients undergoing elective cardiac surgery procedures. Prospective observational study is appropriate research setting for this particular research question.

Outcome measures are clearly defined. Post hoc definition of excessive bleeding according to the distribution of chest tube output among study participants is very interesting and precise. There are several ways in defining excessive postoperative bleeding, however, this approach presented by authors is adjusted to the study cohort as well as to anesthetic, perfusionistic and surgical techniques. ROC analysis is appropriate model of testing diagnostic tests accuracy.

Results are clearly present. ROC analyses have had significant model. However, although statistically significant, the correlations are "moderate" and authors should state that. We can expect moderate correlations due to several reasons: 1) chest tube output consists of both "surgical" bleeding and bleeding due to hemostatic disorder, 2) hemostatic disorder is multicausal, and assessment of one part of hemostasis may not provide strong correlations. Reported correlations are clinically relevant and useful i.e. sensitivity of 82.9% (ROC test for INTEM A 10 less or equal to 38mm) enables early (10 min) detection of patients who are not in risk of excessive bleeding. Therefore, it is possible to reduce
transfusion requirements in some proportion of patients. Discussion is well researched. Very recent paper by Galeone et al (JCVA 2013) should be considered for inclusion into discussion since that paper has a similar research question.

**Level of interest:** An article of outstanding merit and interest in its field

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

I declare that I have no competing interests.