Reviewer’s report

Title: The changes in clot microstructure in patients with ischaemic stroke and the effects of therapeutic intervention: a prospective observational study

Version: 2 Date: 18 November 2014

Reviewer: Yasuhiro Suzuki

Reviewer’s report:

This is a review on a paper entitled “The changes in clot microstructure in patients with ischaemic stroke and the effects of therapeutic intervention: a prospective observational study” by Stanford et al. They established a new haemorheological technique using three parameters in healthy volunteers (Ref. 17). In this study, they evaluated these structural biomarker in patients with ischemic stroke. Based on these results, further studies are needed to assess the clinical implications of the new biomarkers.

However, some issues decrease the potential impact of this manuscript.

Issues that need to be addressed:

Major Compulsory Revisions:

1) Line 56, in conclusion of Abstract,

Although you described “--- the new biomarkers such as predicting successful recanalization and bleeding risk following thrombolysis ---”, I think it is most important that this biomarkers is predicting the recrudescence of stroke. Although the means of the parameters in patients with stroke were within the range of the mean and standard deviation in healthy volunteers, do you mean they can be the prediction of recanalization and the bleeding risk when they are down from baseline?

2) Although you discussed in Line 203, these biomarker would be unsuitable for clinical use because the changes in these biomarker was small. However, if as described the line 207, you should show the additional data of 1.74 and 1.76 in Fig. 2. If we can tell the difference just by looking, df will be suitable.

3) On Fig. 1,

The differences in aspirin treatment recovered to the baseline at 24 hours after treatment. However, there was no explanation for the time point in the result section. Perhaps, it looks like that authors only described the results at 2-4 hours after the first administration of aspirin. As you described in Line 225, aspirin irreversibly binds to COXs, which results in the continuous inhibition of platelet aggregation until the life-span. Was the value of 24 hours the trough level? You should discuss that the parameters in Fig. 1 recovered to the baseline levels. This point is important as predicting biomarkers.
4) On Fig.3,

There was no explanation for Fig. 3 in the result section. It looks like that the surface of fibrin net was smooth in panel A and was rough in panel B. What is the humps of the surface in panel B? Were a lot of platelets or neutrophils adhered to the surface of fibrin? It would be helpful for readers to provide the in-depth explanation with Fig. 3. If they were the adhered platelets after aspirin treatment, you would need to discuss it.

Minor Essential Revisions:

1) Would you mind many typographical errors in this manuscript carefully? (e.g. Ref. 17 and so on)

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

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.