Reviewer's report

Title: Futile Reperfusion and Predicted Therapeutic Benefits after Successful Endovascular Treatment According to Initial Stroke Severity

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Reviewer: Huey-Juan Lin

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This registry-based retrospective cohort study aimed to answer the dispute that whether the effectiveness of EVT, defined by futile reperfusion or not, is uniform across all levels of stroke severity. Determinants of futile reperfusion were evaluated first. Then the therapeutic benefits were estimated by comparing with no-EVT patients in each defined stroke severity level, adjusting for age. The authors found that futile reperfusion of EVT within 12 hours in anterior circulation was more prevalent in more severe stroke by NIHSS, but compared with no EVT patients, successful EVT benefited patients with severe stroke more than those with minor stroke.

This is a clinically relevant subject, and the research results, if meeting up rigorous scientific criteria, could provide important information for selecting stroke patients suitable for EVT.

Specific comments

1. Regarding to the evaluation of therapeutic benefits for each NIHSS stratum, it is important to know how comparable between the EVT group and the control group (no-EVT) was. Although the authors used standardization to adjust for the age effect, there existed another important discrepancy which might affect the validity of the comparison- the stroke subtypes. According to Supplemental Table 4, the no-EVT group had more LAA and less CE than the EVT group. If the decision to do EVT was influenced by stroke subtypes, which would also affect stroke outcomes, then it might be not valid to do the comparison. This concern is especially relevant for those patients with mild stroke. Would the authors address such potential selection bias?

2. It might be helpful to provide information about the protocols for EVT in general across the participating hospitals of the registry. Is there any consistent rule/regulation, or is it up to each hospital's own practice decision?

3. Some minor suggestions

   a. In Table 1, there is an error in the TOAST % distribution for the futile group.

   b. In Table 2, what factors were adjusted for the adjusted OR? The title should be more clear and easily understood without referring to the text.
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?  
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