Reviewer’s report

Title: Pretreatment with nimodipine reduces incidence of POCD by decreasing calcineurin mediated hippocampal neuroapoptosis in aged rats

Version: 0 Date: 29 Apr 2017

Reviewer: Yong G. Peng

Reviewer's report:
Using Morris water maze tests, authors compared four groups of aged rats that were pretreated with/without nimodipine. They found that the aged rats pretreated with nimodipine resulted in less cognitive disturbance. This finding was associated with down regulating the expression of calcinerurin. The study investigated an interesting phenomena and potential mechanism. It is a well-designed study. However, after further review, the following questions should be addressed for journal publication

1) In the abstract, the resulting section was very ambiguous; it is unclear which group(s) of rats compared to baseline led to the current findings?
2) Since each group had allocated 24 rats, it is unclear which 10 of the 24 trained/behavior test rats were the same 10 rats sacrificed for the neuron histological analysis from each group? Why select 24 rats for each group? How many rats were used to generate each individual experiment result?
3) Authors did not specify if the hippocampal cells that were collected for analysis were from the representation of certain rat(s) or pooled hippocampal tissues of 10 rats from each group?
4) In the Morris water maze test section, authors stated that compared with group S, group N+S revealed prolonged escape latency and decreased times crossing the platform, this result was not what one expected and contradicted the finding that was presented in figures 1 and 2.
5) In the detection of hippocampal neuroapoptosis and Ca section, authors stated that apoptosis rate and Ca concentration decreased in group S and group N+S, however, the results presented in table 1 is exactly opposite with the above statement.

6) There is lack of hemodynamic profiles on the rats that were treated with Nimodipine. Since Nimodipine is a calcium channel blocker, with intraperitoneally injection 1mg/kg of nimodipine, is there a hemodynamic impact on these rats? For example, did the treatment lead to hypotension or decreased cerebral perfusion pressure?

**Are the methods appropriate and well described?**

If not, please specify what is required in your comments to the authors.

Yes

**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.

Yes

**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

**Quality of written English**

Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

**Declaration of competing interests**

Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?
2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal