Reviewer’s report

Title: Influence of isoflurane exposure in pregnant rats on the learning and memory of offsprings

Version: 0 Date: 12 Oct 2017

Reviewer: Rany Makaryus

Reviewer’s report:

This is an interesting study looking at the effects of anesthesia exposure during gestation on learning and memory in the offspring.

This study is well designed and thought out. I have a few important concerns as follows:

Major concerns:

1) It is unclear in the methods whether all groups (Iso1, Iso2, and control) had a subgroup of rats who had arterial lines placed the day before anesthesia exposure. Furthermore, how many were used in each group? Were the catheters then subsequently removed; when and how? This can be partly resolved potentially by including this in figure 1, which defines the maternal groups and experimental design. Finally on this point, the results of the BPs / ABGs were not presented, but this would be very helpful to see to determine the quality of anesthesia delivery.

2) The discussion (pg 16) states, "However, in clinical practice, it is infeasible that pregnant women received anesthesia but did not receive surgery and that surgery is performed under anesthesia for several weeks." This statement is too broad and may be over-reaching. It can be better worded, as there are possibilities that pregnant patients may end up in critical condition with prolonged intubation requiring prolonged periods of anesthesia sedation. This also negates the point of performing this study. I think it can be argued that though there is not a clear correlation to clinical practice, this is an important finding that needs further investigation.

Minor concerns:

1) In the methods section (pg. 7) and discussion section (pg. 13), the use of the term "middle trimester" is unusual, might consider utilizing the term "second trimester"

2) The use of the word "resuscitate" on pages 7 & 8 is not correct, I assume this is referring to the recovery from anesthesia - should be reworded.

3) Figure 1 is not referred to in the manuscript.

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

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If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.
I am able to assess the statistics

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