Reviewer’s report

**Title:** Distribution of pulmonary blood flow 2 hours after acid aspiration measured by positron emission tomography

**Version:** 1  **Date:** 23 December 2014

**Reviewer:** Tanja Treschan

**Reviewer’s report:**

Richter and coworkers present a well written and clearly structured manuscript on a well-defined research question. They elucidate the relative distribution of pulmonary blood flow two hours after acid aspiration in mice and found a reduction of blood flow in injured regions, which accompanied a partial recovery in oxygenation. The changes in blood flow might be of clinical relevance for the timing of intravenous therapies.

**Minor essential revisions:**

I have few comments with the aim to improve this manuscript:

I think it should be clear from the title of the manuscript that this work was done in mice and that a reduction in pulmonary blood flow has been found in order have a title that accurately conveys what has been found.

Concerning the abstract I think it would be helpful to mention the partial recovery of oxygenation in its results section, as the conclusion refers to this phenomenon.

**Material and Methods:**

**Experimental protocol**

I would like to know how the number of animals was determined. Has a sample-size calculation been performed or was that determined on a different basis? How was the group assignment achieved, randomly? Please clarify.

If the catheter was blindly inserted into the left or right lung side, and this resulted mostly in left sided injuries (n=4), is this of relevance for the findings? In humans aspiration mostly affects the lower right pulmonary section. This could be added to the limitations section of the manuscript.

If I understand correctly, both groups received a tracheostomy tube, but the control group received nothing through the catheter. This could be further made clear by stating, “In both groups, a catheter was blindly inserted… Only in the injury group acid aspiration…

**Discussion:**

Page 11, line 228 ff: You refer to figure 5, which contains data from 10 minutes and two hours after aspiration. In the text you discuss data from within 1 hour after aspiration. This is not consistent. Please optimize.

**Figure legends.**

Figure 3, 4 and 5 show box and whiskers plots. I am missing an appropriate
description of their elements in each legend. Legend of figure 4 indicated that median and 25th and 75th percentiles are shown. Please define also the whiskers.

Discretionary revisions:

Results: Page 10, line 201: “The PBF ratio .. from the current and a previous study are shown”

Figure legend of figure 5: the definition of the spherical ROI is presented twice and should be shortened and summarized. I would also recommend deleting the term “Note” in line 466. I think the sentence in line 467 starting with “Additionally” can be deleted, then “in contrast” is not necessary and the sentence can begin with “higher mean…”

Level of interest: An article whose findings are important to those with closely related research interests

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.