Reviewer’s report

Title: The influence of different patient positions during rapid induction with severe regurgitation on the volume of aspirate and time to intubation. A prospective randomised manikin simulation study

Version: 0 Date: 15 Dec 2018

Reviewer: Morgan Le Guen

Reviewer's report:

The article entitled "The influence of different patient positions during rapid induction with severe regurgitation on the volume of aspirate and time to intubation. A prospective randomised simulation study » submitted by St Pierre et al. compared aspiration after anaesthesia induction according to the head position on a manikin. This is an original study with a dedicated simulator which aims was to reproduce and assess the volume of aspirate in the three followed groups: regurgitation during induction in proclive position with laryngoscopy in Trendelenburg, regurgitation after anesthesia but before intubation in Trendelenburg position and regurgitation after anesthesia but before intubation in Trendelenburg with sellick position. The other primary outcome was the time to intubate. The author demonstrated the third position as the more protective against regurgitation with a prolonged delay of intubation (15s [8-30] in comparison to 10s [8-15], with p<0.05. The method was clearly described and the sample is interesting. The manuscript is well-written and it could be accepted pending minor revisions.

Major comments:

There are two methodological limits which could be discussed or revised in the manuscript. The first one is the fact that authors have not optimized their human resources with a cross-over study. The best method may be the repetition of the three situations for every participant with a randomized order in the groups. This would have decreased a possible bias in each group about experience and technical skills. Second, the power would be significantly increased. Second, I am sometimes disturbed by the choice to analyze separately Trendelenburg (before and after regurgitation) and Sellick position. In fact, the behavior and the delay to manage the airway may be influenced by the group especially with a situation awareness more acute in the first group. As a consequence statistics may vary with a different conclusion. I think this is important to explain your choice in the statistic section. You have built a 3-group trial and finally you have described only two samples regarding the primary outcome. In a similar manner, the Figure 2 represents only 2 groups: why do you do this?
Minor comments:

Abstract: please starting with results about regurgitation. It is your main hypothesis: last sentence of the background section.

In the method section: In my opinion, I was a little confused in reading your manuscript about the timing of regurgitation in the 2d and 3rd group. Then I have understood the followed:

- regurgitation during induction in proclive position and laryngoscopy in the Trendelenburg position
- regurgitation after induction but before intubation in the Trendelenburg position
- regurgitation after induction but before intubation in the Trendelenburg + sellick position.

In the result section; Keep a similar order in the method, the results and the discussion.

In the discussion: it could interesting to discuss the intubation during or after regurgitation. This is a challenge: should I wait for the end of regurgitation? Or should I protect the upper airway as quick as possible

Figure 2: Only two groups are represented.

References: some of them are old! You must limit this kind of reference. Please reduce the number of references.

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 am able to assess the statistics

**Quality of written English**
Please indicate the quality of language in the manuscript:

Acceptable

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