Reviewer’s report

Title: Determination of the optimal inspiratory pressure providing adequate ventilation while minimizing gastric insufflation using real-time ultrasonography in Chinese children: a prospective, randomized, double-blind study

Version: 0 Date: 15 Apr 2017

Reviewer: Vincenzo Russotto

Reviewer's report:

Thank you for the opportunity to revise this manuscript.

Authors performed a randomized study investigating the use of gastric ultrasound for real-time detection of gastric insufflation in children (2 - 4 years old) undergoing general anesthesia and facemask (pressure-controlled) ventilation. Authors replicated, in the pediatric setting and with the introduction of neuromuscular blockade, the study published by Bouvet and colleagues (Anesthesiology 2014; 120:326-34).

Please consider my comments below:

Title

Since a major studied intervention is the realtime detection of stomach insufflation by the ultrasound aid, this should be specified in the title. Moreover, authors should also specify the study design.

Introduction

In the background section, authors define gastric insufflation as the appearance of a comet-tail or an acoustic shadow on ultrasonography. These findings describe the entry of air into the stomach. Further, authors assessed the cross-sectional antral area before and after face mask ventilation. For a better understanding also by non-expert readers, authors may better describe the meaning of these two ultrasound measures.

Methods

Authors should specify the study period.
Please specify the type of surgery children were scheduled for.

It is not clear, from the methods section, if real time assessment of gastric insufflation occurred during facemask ventilation. I realized that this occurred from interpretation of results, since authors classified patients as GI+ or GI - according to gastric insufflation which was detected, I suppose, as comet tails.

Since this description is missing, it is also not reported whether the anesthesiologist performing the ultrasound assessment during facemask ventilation was the same as the one assessing the antral area during the preoperative period. Moreover, since authors define the study as randomized and blinded, they should specify whether the anesthesiologist performing ultrasound was blinded to patient group allocation.

Results

Author should provide a flow chart of the study describing the total number of eligible patients, the number of enrolled patients, the number of excluded patients and reasons for exclusions.

Author should define what GI+ and GI - mean. (See comment above).

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Vt increased in group P12 (10.0 ± 3.0 ml/kg) in comparison with group P10 (6.8 ± 2.5 ml/kg) (P = 0.000). What is the p value for this comparison? The same comment applies to figure 4.

Figure 5: It is rather difficult to read this figure in relation to the significant p - values reported for the various comparisons.

Discussion

After summarizing major findings, the discussion starts describing the advantages of pressure controlled ventilation compared to manual ventilation in terms of peak airway pressures. However, this is not the main focus of the study and this section may be postponed in the discussion.

Authors should clearly describe which are the study limitations (i.e difference in antral area not necessarily means gas insufflation and increased risk of aspiration, impossibility to assess cross-sectional antral area in four patients due to marked gastric insufflation with subsequent patient exclusion from the analysis)
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?
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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Please indicate the quality of language in the manuscript:

Acceptable

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