Reviewer's report

Title: Sustained inflation and incremental mean airway pressure trial during conventional and high-frequency oscillatory ventilation in a large porcine model of acute respiratory distress syndrome.

Version: 1 Date: 24 April 2006
Reviewer: Klaus Markstaller

Reviewer's report:

General:

The manuscript Sustained inflation and incremental mean airway pressure trial during conventional and high-frequency oscillatory ventilation in a large porcine model of acute respiratory distress syndrome from Muellenbach et al. compares the effect of a lung volume optimization trial in pressure controlled ventilation versus high frequency ventilatory ventilation on hemodynamics and oxygenation.

This is an animal study interesting for the readers of BMC Anesthesiology. The experiments are well conducted and described.

There are some flaws in the description of the study, which should be addressed prior to publication.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

None.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

General:

Please revise the whole manuscript carefully regarding the language style to be scientifically correct; e.g. blood pressure is not "falling", but decreased; oxygenation does not "rise", but ameliorates etc. - What exactly is "normalisation" of pulmonary shunt fraction?

Title / Abstract:

Title: ok.

Abstract:
- Result section: Data should be included for the most important findings (e.g. PaO2/FIO2 Index and CO)

Background:

Please clarify your hypothesis:
What is the motivation to compare CV and HFOV recruitment manoeuvres? "to demonstrate that HFOV allows effective lung recruitment at lower airway pressures, thus aiming for a more lung protective recruitment strategy?"

Methods:

A respiratory rate of 30/min at PCV could lead to auto-PEEP in the surfactant depleted lung. Was auto-PEEP measured and ruled out?
The respiratory settings chosen after lung damage are not completely clear to me: in the PCV group a PEEP of 5mbar and a Vt of 6 ml/kg are described in table 2 the mPAW between the groups was identical between both groups does this mean that a Vt of 6ml/kg assured in all animals a predictable and prospectively chosen mPAW? (please clarify also in figure 1).

In the HFOV group no airway pressure (CDP) is described before the recruitment manoeuvre. The sustained inflation was not performed during PCV, but in an expiratory breath-hold and not during HFOV, as the oscillator was stopped at the mPAW of 50 mbar.

It was not necessary to stop the SI due to critical hemodynamic compromise this sentence should be moved to the Results section of the manuscript.

The paO2 was used as surrogate marker for lung volume recruitment, as lung volumes were not directly quantified - this sentence should be moved to the Discussions section of the manuscript.

Statistical analysis:

Please state whether the data were tested for normal distribution.

Please revise some typing errors in the methods section.

Results:

Please reduce the text to relevant results. E.g.: AT T60 the oxygen consumption tended to be lower but was not significant.
- In case your comparisons do not show statistical significance, please decide whether your observed results seem clinically relevant to you (if so you might report them as clinical relevant).

Discussion:

Ok.

Tables / figures:

Figure 2-4: The mPAW would be more informative on the x-axis than the time course.

Discretionary Revisions (which the author can choose to ignore)

None.

What next?: Accept after minor essential revisions

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: No

Declaration of competing interests:

I declare that I have no competing interests