Reviewer's report

Title: Haemodynamics and oxygenation improvement induced by High Frequency Percussive Ventilation in a hypoxic cardiac surgery patient.

Version: 2 Date: 30 March 2010

Reviewer: Christian Gernoth

Which of the following following best describes what type of case report this is?: None

Has the case been reported coherently?: Yes

Is the case report authentic?: Yes

Is the case report ethical?: Yes

Is there any missing information that you think must be added before publication?: Yes

Is this case worth reporting?: Yes

Is the case report persuasive?: No

Does the case report have explanatory value?: No

Does the case report have diagnostic value?: No

Will the case report make a difference to clinical practice?: No

Is the anonymity of the patient protected?: Yes

Comments to authors:

Dear editors,

Regarding the high-frequency-percussive-ventilation as technique to improve lung function compared to conventional ventilation there exists an already published study showing improved oxygenation in burn patients which is missing in the mentioned literature (Burns 2003 Reper P et al). The effect mentioned there seems to be due to better alveolar recruitment. Another study showed better secretion clearance and outcome when using hfpv during thoracotomy (Crit Care Med May 2009 Lucangelo U et al). Please set this literature in context to your findings.

In the described case lung function decreases more from day to day until day 10 with the result of severe hypoxemia. Can you give more details about the
mentioned recruitment manoeuvre you did and why not using the ARDS-network mentioned 6-7 ml/kg tidal volume (described here with 7.5 ml/kg). How did you set up PEEP to 14 mbar, please explain this. Why did you stay on the I:E ratio of 1:1.5 and didn’t try to lower the peak inspiratory pressure (target < 30 cmH2O). The blood gas samples you mentioned in your tables showed hyperventilation (pH 7.51), which is not conform with lung-protective ventilation strategy. Another question is whether you used kinetic therapy ("swimmer position", prone positioning)? The use of hfpv showed fast improvement in oxygenation while reducing mean airway pressure. In the text you mentioned first MArP with 16, than later on you described the reduction from 24 to 20 which is inconsistent. Please explain this. Another detail that need to be explained a little further is whether RVSWI decreased after improved oxygenation, which could be due to reduced pulmonary vascular resistance and not directly to reduced MArP. Please comment on this.

In conclusion the case report needs to be revised. Whether an optimised lung-protective ventilation strategy with optimised peep level (peep-trial) would have prevented a ten day long decreasing lung function remains unclear. But focussing on the safety and usability of hfpv in a patient after heart surgery this is a valuable case report.

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