Reviewer’s report

Title: Mechanisms of pulmonary dysfunction after on-pump and off-pump cardiac surgery: a prospective study

Version: 1 Date: 7 January 2007

Reviewer: Jean-Louis Vincent

Reviewer’s report:

General

The authors studied permeability alterations and amount of edema formation in patients after cardiac surgery with and without cardiopulmonary bypass (CPB); there were no significant differences in the pulmonary leak index (PLI) or in extravascular lung water between patients with or without CPB. The data are interesting and timely – the authors have considerable expertise with this methodology.

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

1- The section on patient selection is confusing. The only inclusion criteria were the availability of a PA catheter or a central venous catheter – do not all patients have at least a central venous catheter for cardiac surgery?
   a) How were these 39 patients selected? Was this a convenience sample?
   b) Since preoperative informed consent was required, it would be better to start from there, and define the number of patients who were later excluded (heart failure, “overhydratation”, etc)
2- The diagnosis of atelectasis (versus basal hypoventilation) is notoriously difficult in this postoperative period, even when an experienced radiologist analyses the chest X rays – the importance of this should be de-emphasized.

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

1- bottom of page 4: “the patients underwent CPB…..”: but not all patients did.
2- Bottom of page 6: I believe the abbreviation ARDS has not been introduced
3- Page 9, line 11 from bottom “until inclusion study”: meaning?
4- Page 10 line 6 from bottom: “… was lower with O2 delivery higher…”?

Discretionary Revisions (which the author can choose to ignore)

What next?: Accept after minor essential revisions

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.