Reviewer's report

**Title:** Respiratory physiotherapy and incidence of atelectasis in off-pump coronary artery bypass graft surgery: an observational follow-up study.

**Version:** 1  **Date:** 22 March 2009

**Reviewer:** Paulo Roberto Evora

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1. Is the question posed by the authors well defined?
   No, the title mentions respiratory physiotherapy and incidence of atelectasis and the study objective is to determine if preoperative respiratory physiotherapy diminishes the incidence of pulmonary. The title could be compatible with the objective, since atelectasis is only one of the possible respiratory complications.

2. Are the methods appropriate and well described?
   No, I have doubts if this type of study is observational, since one group receives physiotherapy care and the other did not. The study does not report of where the information had been obtained, from patient’s health records or from a 2005-2006 study database.

   The anesthesia type, anesthesia and surgery time durations were not reported time of anesthesia, these parameters can in such a way intervene with atelectasis and other pulmonary complications; the value of PEEP during the mechanical ventilation is also not mentioned. Who guarantees that it was not the effect of PEEP and appropriate mechanical ventilation that prevents atelectasis?

   In the first paragraph it lacks the tab space to start a paragraph; p.5

   In the third paragraph they are inserted data that are part of the result in my point of view, since it mentions p value, standard error and average; p.6

   In page 8 new results are mentioned, including statistic values.

   X-ray films were used to evaluate the atelectasis and it is well known that it is a poor method when compared to CAT scan. If CT scan was adopted the results could not be different?

3. Are the data sound?
   What means HTA?

   64.6% had 3 affected coronary vessels, 16.3% 4 vessels and the remained patients (one, two vessels?). The number of coronary vessels grafted is close related with anesthesia and operative times.

   In P. 11 it is mentioned 17,3% of atelectasis incidences among the patients who received physiotherapy assistance, however in a total of 159 patient 27 individuals had had atelectasis (A percentage of 16, 98% that is not shown in table 3). The same difference happens with 37 patients in a total of 104 (35.57%
and not 36.3%). It would be interesting to recalculate the data. Maybe with these new values it would have different statistical significances.

Which would be the explanation for a bigger incidence of atelectasis in women, as is shown in the results of p.11? Fewer patients included?

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?
   The study is valid, since there was few publications on the physiotherapy performance in cardiac surgery. An extensive revision is necessary.

5. Are the discussion and conclusions well balanced and adequately supported by the data?
   As mentioned as in title criticism it is mentioned “reduction of the pulmonary complications”, but the study is focused only on atelectasis. I guess that this aspect have to be better considered, or the investigation objective have to be restricted to atelectasis.

   The text as a whole is excessively wordy including a lot of literature data review that “dilutes” the investigation targets.

6. Are limitations of the work clearly stated?
   It is important to discuss the study limitations mainly considering that the best image study to evaluate atelectasis through is the CT scan and not the X-ray.

7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?
   Good literature review.

8. Do the title and abstract accurately convey what has been found?
   The title mentions respiratory physiotherapy and incidence of atelectasis and the study objective is to determine if preoperative respiratory physiotherapy diminishes the incidence of pulmonary. The title could be compatible with the objective, since atelectasis is only one of the possible respiratory complications.

9. Is the writing acceptable?
   Yes.

Additional comments

1. Meta-analysis presented in the literature suggest that, in patients undergoing heart surgery without complications, the use of physiotherapy during the period of post-intubation does not bring additional benefits to the postoperative evolution of patients undergoing cardiac surgery.

2. The usefulness of respiratory physiotherapy for the prevention of respiratory complications after cardiac surgery remains unproven so far. Moreover, if the benefits are not real, a cost-benefit analysis is difficult, since the physiotherapy adds costs for patients who have undergone heart surgery.

3. Although the relevance of routine physiotherapy is questioned in patients who
have undergone no complicated cardiac surgery, its value is clear in no cardiac thoracic surgeries, in which the role of the physiotherapist becomes crucial.

These additional comments were based in the following references:


**Level of interest:** An article of limited interest

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

No competing interests.