Reviewer's report

Title: Computerized acoustic assessment of treatment efficacy in RSV Bronchiolitis: Nebulized Epinephrine Versus Albuterol- a double-blind study.

Version: Date: 13 June 2006

Reviewer: Gerd Schmalisch

Reviewer’s report:

General
The object of this study was the use of computerized lung sound analysis to assess the effect of inhaled albuterol or inhaled epinephrine in small children suffering from RSV bronchiolitis. Lung sound analysis for this patient is a relatively new diagnostic tool and, so far, not well investigated.

The authors are a well-known group with profound experience in bronchodilators therapy. However, the manuscript needs some clarifications.

---------------------------------------------------------------------

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

Major Points:

1. The aim of this study is clearly defined (see first sentence of abstract and discussion). However, introduction and discussion do not seem consistent with the proclaimed aim. Both focus only on treatment effects of albuterol and epinephrine and most of the references are hence addressed to this topic. This is surprising because the authors emphasized that this study was primarily designed to assess the utility of lung sound analysis (page 9).

Furthermore, the small sample size (15 vs. 12) does not sufficiently power the clinical assessment and is distinctly lower compared with other published inhalator studies (e.g. Bisgaard et al. 411 infants, N Engl J Med. 2006. Therefore, the description and discussion of treatment effects and the corresponding references should be distinctly reduced in favour of a discussion of the findings regarding the utility of the investigated diagnostic tool.

2. The computerized lung sound analysis is poorly described in the introduction and discussion. A critical assessment of both the potential and limitations of this new technique is missing completely. Please give additional information about the expense, the duration of the measurement and the evaluation of the signals. Please provide further references on this topic. The first sentence of the conclusion (page 9) can not be derived from the published results.

3. The protocol of measurement needs some clarification (e.g. time of measurement and behavioral state of the infants. Duration of inhalation.) How was poor feeding defined and which time period was considered? The clinical score used should be described as a table, especially the limits of respiratory rate, heart rate and oxygen saturation.

4. Independent from the treatment, was there an association between the clinical score and the results of the sound analysis? Was there a difference between wheeze rate and crackle count.

---------------------------------------------------------------------

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

Minor Points:

1. The title of the manuscript should be revised. To me, it is not clear why a randomized study should be necessary to assess the lung sound analysis (see page 9). The sound analysis was the same in all measurements. The term “randomized trial” is misleading from this point of view.

2. The abstract should contain the key results of the sound analysis. The comparison of both bronchodilators is less important. The last sentence of the conclusion is superfluous (see point 1 major point) and should be removed.

3. Page 4 (last paragraph): According this description the study was designed as a treatment study and not to investigate the lung sound analysis. Please clarify.

4. Page 7: The last sentence of the results seems to be incorrect (see Statistics).
5. Table 1: the terms “Adrenaline” and “Ventolin” should be corrected. Why are there so many drop outs in some parameters?

6. Table 2: What is the explanation for the significant differences between both treatment groups in (first row in table 2: $t=6.35, P<0.0001$)? Why is there a significant increase in the wheeze rate in the albuterol group ($t=3.51, P=0.015$) after treatment.

The statistics need a review: The t-test shows some significant differences between the treatment groups as well as between before and after treatment. This is in contradiction to the described results.

Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes

Declaration of competing interests:

I declare that I have no competing interests