Reviewer's report

Title: Factors Determining Outcome of Children Hospitalized with Severe Pneumonia

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Reviewer: Cristiana Nascimento-Carvalho

Reviewer's report:

The manuscript reports the results of an interesting research project. Nonetheless, several methodological issues must be revised and the manuscript must receive a major compulsory revision:

1) the study included children with congenital heart disease (24) and this is a confounding variable for outcome. Therefore, it will be better to exclude those children; the authors also can describe the specific congenital heart disease and exclude only those with cardiovascular consequences (increased pulmonary blood volume, for example); actually, all children with immunodeficiency or any other condition that could influence on the treatment's response should be excluded.

2) the study included children that had community-acquired pneumonia diagnosed on clinical grounds, according to WHO recommendation; out of 200 children, 146 had abnormal chest x-ray. We must consider that 146 had pneumonia and 54 had possibly any other lower respiratory tract disease, like bronchiolitis, wheezing, etc. The use of the WHO recommendation on clinical grounds is absolutely acceptable in order to include children with pneumonia rather than exclude them, especially at primary health care setting. Taking into account that the study was conducted at a tertiary hospital, only those with radiological diagnosed pneumonia should be included. This is a very important issue when change of antibiotics is a dependent variable (outcome variable) because bronchiolitis or wheezing do not need antibiotics as treatment.

3) I understood that the variable described in the second paragraph of the Introduction is "inability to drink" and not "inability to feed".

4) In the Methods, the authors informed that the antibiotics were changed if the patient did not improve after 48 hours of initiation of treatment or deteriorated in form of increasing chest indrawing or worsening hypoxemia. Therefore, in the Results, the frequency of the worsening or not improvement criteria should be presented.

5) When did the children who died died, that is, during hospitalization (first 24h, 48h, etc)? This must be informed and discussed.

6) Which were the frequencies of the radiographic alterations (consolidation, infiltrate, pleural effusion)? The presence of pleural effusion is an known associated factor with change of antibiotics as well as prolonged hospital stay.
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests.