Reviewer's report

Title: Continuous positive airway pressure in bronchiolitis; a safe and effective treatment in ordinary paediatric wards

Version: 2

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Reviewer: Fabrice Michel

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The authors report a 4 years experience in CPAP treatment in bronchiolitis. 46 were treated with CPAP during this period. Among them 33 were treated in an ordinary pediatric unit while 13 required ICU admission. The main message of the study is that CPAP treatment can be safely performed in a ordinary unit.

CPAP is became the first line treatment of severe acute bronchiolitis despite lack of solid study proving that it decreases intubation rate. During epidemic periods, PICUs are full of children with CPAP for severe bronchiolitis. Therefore, CPAP use outside PICU may be a solution to limit PICU admission and the described clinical experience is therefore interesting. Nevertheless, such a organization can be dangerous for children because the level of care in standard units is not as high as in PICU.

Comments

Major Compulsory revisions

1. CPAP efficiency to decrease PCO2 has already be showed and is a secondary objective in this study.

2. The main objective of the study is to present a clinical experience in a paediatric ward. The conclusion of the study can be “CPAP in this ordinary paediatric ward is possible” but the authors cannot affirm it is safe.

3. It is no clear if the authors want to treat severe bronchiolitis in an ordinary pediatric ward or if they chose to treat early by CPAP children with lower severity. I suggest that the authors choose one of the directions and detail the means available in their units (see below). They also must highlight that these results are valid for this population (see below) and insist on the security, the need to be near a PICU, to have available physician and limited number of patients by nurse.

4. The methodology should precise if it is a prospective or retrospective evaluation. If it is prospective, why clinical score or oxygenation parameters were not recorded? This data are really lacking. Severity of patient is unknow. PCO2 is the only parameter available and not sufficient for severity evaluation.

5. Regarding data, it seems that patients have low severity. Gestational age, and age at admission are high compared with patients included in other studies. Similarly, duration of CPAP was very short. Length of stay in table 2 must be precised: is it hospital stay? These points must be discussed because probably
that in other countries, or other town the management of such patients is different.

6. Criteria for CPAP instauration or PICU admission are very fuzzy.

7. In the methods, details about care organization must be provided: number of children for one nurse by day and night, number of children in the pediatric ward… Were the children continuously monitored (SpO2, HR, respiratory rate etc…)? Was a physician promptly available in case of problem? Did the parents slept with their child? If no, was the protocol the same?

8. Because of high fresh gas flow used in CPAP, there is a risk of nasal obstruction with secretions. How was managed this problem? How were the gas humidified? How many nasal cares were provided?

9. Statistics: it seems that PCO2 would be compared using ANOVA for repeated measures?

10. In the discussion the authors are considering their study as a “before-after” study but only one period was considered in this study. However, it would have been interesting to compare patients admitted in PICU before and after the new practices instauration. In the same manner to compare patients treated in the pediatric ward before and after the new practices. Differences between the two periods could support the interest of CPAP use outside PICU.

The authors consider that PICU hospitalization is frightening for the parents. I don’t think that parent’s fear should be an argument to not admit a child in PICU. In contrary, with good information, a high level of care is probably more secure for the parents than a unit with overwhelmed nurses as it can be seen in some standard care unit.

Minor essential revisions

1. The sentence “When extra oxygen was needed…” is not clear. Is this situation is during nebulisation?

2. An important limit of the study is the low number of patients. It must be discussed.

3. Finally, at the end of discussion the authors suggest that early introduction of CPAP may improve outcome. An article (Essouri et al intensive care medicine) has recently tested this hypothesis and should be cited.

**Level of interest:** An article of importance in its field

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

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

**Declaration of competing interests:**
I declare that I have no competing interests