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Using CPAP for Bronchiolitis: Authors' Reply

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The main point of criticism of our study [1] by all these readers is that we assessed only for benefits over the first hour of admission. This is a valid point. The reason for such protocol was the ethical issue. Theoretically, it was not logical to use CPAP (that increases dead space [2]) to treat a condition like bronchiolitis, which is characterized by air trapping [3]. This is why we decided to study this modality for the first hour, while we closely monitored the child, ready to switch to more conventional modalities if the baby's distress increased. Most babies did well on CPAP, and this was continued after the 1-hour study period, but the protocol was to study distress (improvement or deterioration) in the first hour. From this study over the first hour, we were able to identify patients who improved with CPAP. We know from our observation during the period that infants who improved in the first hour were continued on CPAP and maintained the benefits. However, we did not collect study data beyond the first hour. Respiratory rate is variable but a reduction in respiratory rate is usually a good sign of improvement.

Regarding inter-observer variability in counting the respiratory rate, the counting of respiratory rate is a simple procedure and we did not consider inter-observer variability to be significant although we did not test for this. We do not consider video recording would have been useful.

PEEP and flow rates are crucial factors in bubble CPAP. We used flow rates between 6 L/min and 10 L/min, and PEEP of 6 cm of water to 8 cm of water depending on the baby's size and flow rates that were comfortable for the baby.

The median and IQR values (Bubble CPAP vs Standard care) in our study were as follows: Respiratory rate (8 (3.5, 12) vs 5 (2.3, 7.8); $P=0.018$), SA Score (1 (0, 1) vs 0 (0, 1); $P=0.29$) and MPSNZ-SS (2 (1, 3) vs. 1 (0, 2); $P=0.012$).

Regarding our use of Silverman-Andersen score and Modified Pediatric Society of New Zealand Severity Score to assess respiratory distress in bronchiolitis, they have been widely used to evaluate distress in infants.

We acknowledge we could have recorded anthropometric data for comparison between cases and controls in this randomized trial to demonstrate comparability between the groups, but this was not a part of the study protocol.

References

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