Author's response to reviews

Title: Respiratory support by neurally adjusted ventilatory assist (NAVA) in severe RSV-related bronchiolitis: a case series report

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Author's response to reviews: see over
Cover letter with point-by-point response

Please find our response to the points raised by the reviewer:

Abstract
In Background, please replace “set to” to “controlled by”
Please delete “collected” (line 2)

Changes were made as requested.

In Methods, The last sentence is unclear. Do you mean to say “Oxygen saturation indices for the three infants were 5.5, 9.4 and 6.8. The first two infants also demonstrated criteria for ARDS, and the third for ALI”? Is it perhaps necessary to define the oxygen saturation index?
These sentences were reviewed and replaced by the following sentences:

One of these children had diagnosis criteria for acute lung injury, another for acute respiratory distress syndrome.

Oxygen saturation index is now only mentioned and detailed in the body text.

In Results, please delete “excellent clinical”
In Results, the sentence “All 3 infants... prompt improvement in oxygen needs...” could be re-worded to “All three infants demonstrated less oxygen requirements after introducing NAVA”.

OK

Background
Line 2, please replace “set to” to “controlled by”

OK

Methods
2nd paragraph, please capitalize “PEEP” throughout the manuscript.

OK
3rd paragraph, please correct the first sentence to read “The Edi was multiplied by the NAVA level to adjust”...

OK
Page 5, description of the triggering with NAVA: I suggest re-wording this sentence to: “During NAVA, the ventilator is triggered when the deflection in the Edi curve exceeds 0.5 #V (default setting). The assist is cycled-off when the Edi decreases to 70% of its peak value”.

OK
Page 5, second paragraph, please use the word “assume” instead of “consider”

OK

Results
Page 6, Case 1, bottom of the page, please be more specific about “Since respiratory parameters were low”.
This sentence is now as follows:

One of these children had diagnosis criteria for acute lung injury, another for acute respiratory distress syndrome.
Since respiratory parameters were very low (Peak inspiratory pressure < 12 cm H\textsubscript{2}O with FiO\textsubscript{2}<25%) and blood gas values was normal, we extubated the child (10:30).

Also please replace “blood analysis” with “blood gas values”.
OK

Page 8, Case 2. Last sentence, if correct, please replace “This technique was continued...” with “NAVA was continued at the second facility...”
OK

Page 8, Case 3, please clarify “She was perfused”
This detail has been removed.

Please define “signs of extreme fatigue”, do you mean “respiratory muscle fatigue”? This sentence is now as follows:
She was intubated on arrival because of clinical signs of respiratory distress and collapse.

Please clarify what you mean by “bacterial overinfection”
OK

Although we suspected concomitant bacterial pneumonia because of a major inflammatory syndrome, we did not have bacteriological confirmation.

Page 9, please replace “oxygen requirements” with FIO\textsubscript{2} where appropriate.
OK

Page 9, last sentence Case 3, please reword ”Thereafter, a relay with nasal continuous airway pressure...” to “Thereafter, nasal continuous airway pressure was applied and the child...”
OK

Discussion
Page 11, lines 2-7. I suggest you delete the two sentences starting with "First, because the work ..." and then change the sentence starting with "This asynchrony results with increased morbidity..." to start with "First, asynchrony is associated with increased morbidity...
OK

Page 11, line 14: Please change "...sub-assistance that could..." to "...insufficient assist delivery and could...".
OK

Page 11, line 18: Please clarify what you mean by "some improper settings".
This sentence is now as follows:
Third, it is likely that NAVA can help clinician avoiding inappropriate ventilator settings that overload (or underload) respiratory muscles, preventing recovery.

Conclusion
Please begin the first sentence with “Based on three individual cases, NAVA appears...”
OK
Figure legends:

**Figure 1**
Figure 1 (suggested changes to first sentence of legend): “Figure demonstrates in the first patient the 24-hour evolution of FIO2 (Panel A), expiratory tidal volume (Panel B), mean airway pressure (Panel C), peak inspiratory pressure (Panel D), respiratory rate (Panel E) and Edi max (Panel F). The vertical arrows indicate the time point where the ventilator mode was switched from SIMV over to NAVA. (A first brief NAVA period was tested at 1400).

OK

Please spell out “one” for “1”

OK

Please re-word “The most dramatic changes related to pressure ventilation occurred when ...” to “One of the most remarkable changes observed with switching to the NAVA mode was the immediate reduction in the mean and peak airway pressure, which...”

OK

Please use another word for “labile” when describing the respiratory rate during NAVA. After starting NAVA, the respiratory rate became very variable over time.

Please mention when describing Edi max that it is the sum of inspiratory Edi and Edi min. It is the inspiratory Edi (Edimax-Edimin) that drives the assist during NAVA, not Edimax. (F) Edi max that it is the sum of inspiratory Edi and Edimin corresponds to the peak of electrical activity of the diaphragm. In SIMV, this activity is depressed, and in NAVA, the inspiratory Edi (Edimax - Edimin) drives the assist.

**Figure 2**

Please label “the first column on the right”, and then refer to the panel. The reference to “first column on the right” is very confusing. Please use the past tense when describing the results.

Similarly, please label “The second column on the right” and then refer to the panel. Please use the past tense. Please refer to panels, and not “graphs”. E.g. the upper panel shows a decrease...

What is “the black area”?

This paragraph has been entirely reviewed:

In the window untitled “Courbes de tendances” (Trend curves), three panels report trends over 24 hours of peak inspiratory pressure (cm H2O), respiratory rate (resp/mn), and minute volume (l/min). On the right of these panels, the values of these ventilatory parameters were collected to the vertical bar (at 18:57 while the child was not receiving NAVA). In the second panel, the white area under the curve corresponds to the mandatory respiratory rate, while the black area corresponds to the spontaneous respiratory rate.

The downward vertical arrow indicates the switch from SIMV to NAVA (at 20:30).
Outside the window untitled “Courbes de tendances”, on the right of the screenshot, ventilatory parameters were collected the next day at 10:15 while the child was receiving NAVA.

Figure 4
Please follow similar suggestions for labelling as Figure 1.
OK

Tables
Please correct “measureable” to “measured”
OK
Please correct the sentence about “widely fluctuating measurements” to read “Data expressed in parentheses represent measurements that were very variable over time, and hence an estimate of the measured parameter is provided”. Please use the same text for each table.
OK
Please delete either mm Hg or the Kpa measures in Table 1, depending on Journal requirements.
I did not find special requirements for BMC pediatrics. For BMC critical care, both units are required.