

## Non-invasive NAVA in preterm infants with RDS: effect of changing NAVA levels

Lefevere, Julie Sara; Van Delft, Brenda; Vervoort, Michel; Cools, Wilfried; Cools, Filip

*Publication date:*  
2021

[Link to publication](#)

### *Citation for published version (APA):*

Lefevere, J. S., Van Delft, B., Vervoort, M., Cools, W., & Cools, F. (2021). *Non-invasive NAVA in preterm infants with RDS: effect of changing NAVA levels*. Poster session presented at 15th European conference on pediatric and neonatal mechanical ventilation, Montreux, Switzerland.

### **General rights**

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

### **Take down policy**

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

# Non-invasive NAVA in preterm infants with RDS Effect of changing NAVA levels

Julie Lefevere, Brenda Van Delft, Michel Vervoort, Wilfried Cools, Filip Cools

Universitair ziekenhuis Brussel – Vrije Universiteit Brussel

## Introduction

NIV-NAVA is a novel, promising approach for non-invasive respiratory support in preterm infants.

As the NAVA level increases, the workload is shifted from the patient to the ventilator. The breakpoint (BrP) is the point at which the patient's diaphragm is adequately unloaded.

## Materials and methods

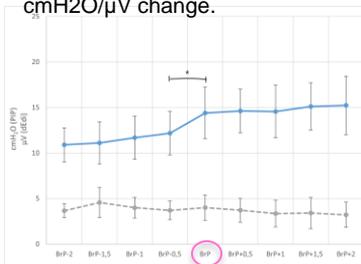
Clinically stable preterm infants supported with NIV-NAVA for RDS were eligible.

NAVA levels were progressively increased starting from a level of 0,5 up to a maximum level of 4,0 cmH<sub>2</sub>O.

## Results

Characteristics	N = 12
Gestational age at birth, mean weeks (SD, range)	30,6 (3,5, 25 4,7 – 35 2,7)
- 24 – 27 6,7 weeks, n	3
- 28 – 31 6,7 weeks, n	4
- 32 – 36 6,7 weeks, n	5
Birth weight, mean grams (SD, range)	1454 (667, 580 – 2570)
Age at the time of the study, mean days (SD, range)	1,3 (0,6, 1 - 3)
Surfactant therapy, n (%)	9 (75)
Caffeine, n (%)	8 (75)
Baseline NAVA settings, mean (SD)	
- NAVA level (cmH <sub>2</sub> O/ $\mu$ V)	1,3 (0,3)
- PEEP (cmH <sub>2</sub> O)	6,2 (0,4)
- FiO <sub>2</sub> (%)	24 (5)
- Apnea time (s)	3,5 (0,9)

Combined data of effect of changes in neurally adjusted ventilatory assist levels on peak inspiratory pressure (solid line) and change in electrical activity of the diaphragm (dashed line). Values are given as averages with SD. \* p < 0,05 between a 0,5 cmH<sub>2</sub>O/ $\mu$ V change.



For all patients a breakpoint could be identified. The breakpoint was on average (SD) at a level of 1,96 (0,66) cmH<sub>2</sub>O/ $\mu$ V.

Respiratory rate decreased significantly with increasing NAVA levels.  
No severe complications occurred.

## Conclusions

This is the first study exploring the effect of increasing NAVA levels in premature neonates in the early phase of RDS supported with NIV-NAVA.

Preterm infants with RDS supported with NIV-NAVA display a biphasic response to changing NAVA levels with an identifiable breakpoint.

The breakpoint was at a higher level than commonly used in this clinical situation.

Immature neural feedback mechanisms warrant careful monitoring of preterm infants when supported with NIV-NAVA.

## Literature cited

Lefevere, J. Non-invasive neurally adjusted ventilatory assist in preterm infants with RDS: effect of changing NAVA levels. *Eur J Pediatr* (2021). <https://doi.org/10.1007/s00431-021-04244-3>

## Acknowledgments

The UZ Brussel medical ethics committee approved the study. Signed written informed consent by the parents of the participants was obtained. The authors declare no competing interests.

## Further information

Julie Lefevere  
Neonatology, Vrije Universiteit Brussel (VUB), Universitair Ziekenhuis Brussel (UZ Brussel), Brussels, Belgium  
[Julie.Lefevere@uzbrussel.be](mailto:Julie.Lefevere@uzbrussel.be)