

The role of Neurally Adjusted Ventilator Assist (NAVA) in the management of Sars-CoV-2 related ARDS: an observational single-center study

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INTRODUCTION

NAVA uses electromyographic signals from the diaphragm as a measure of neural respiratory drive and as a means of controlling the delivery of inspiratory support by a mechanical ventilator. Many studies have suggested several important physiological benefits, including improved patient-ventilator synchronization and effective assist that is proportional to neural respiratory drive (1). We speculated that the use of NAVA might help in reducing ventilator induced lung injury (VILI) and patient self-inflicted lung injury (P-SILI) in patients affected by Sars-CoV-2 ARDS.

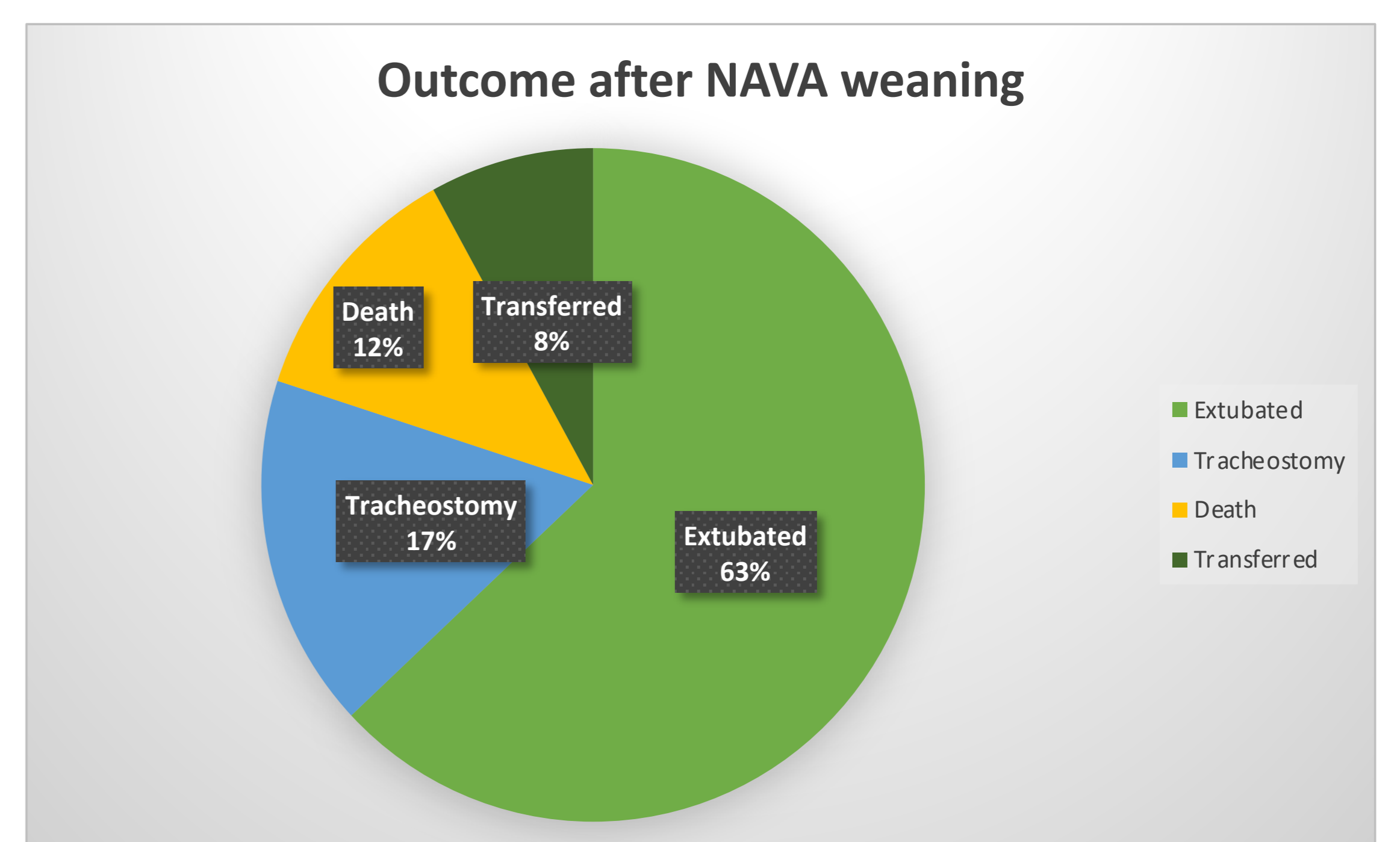
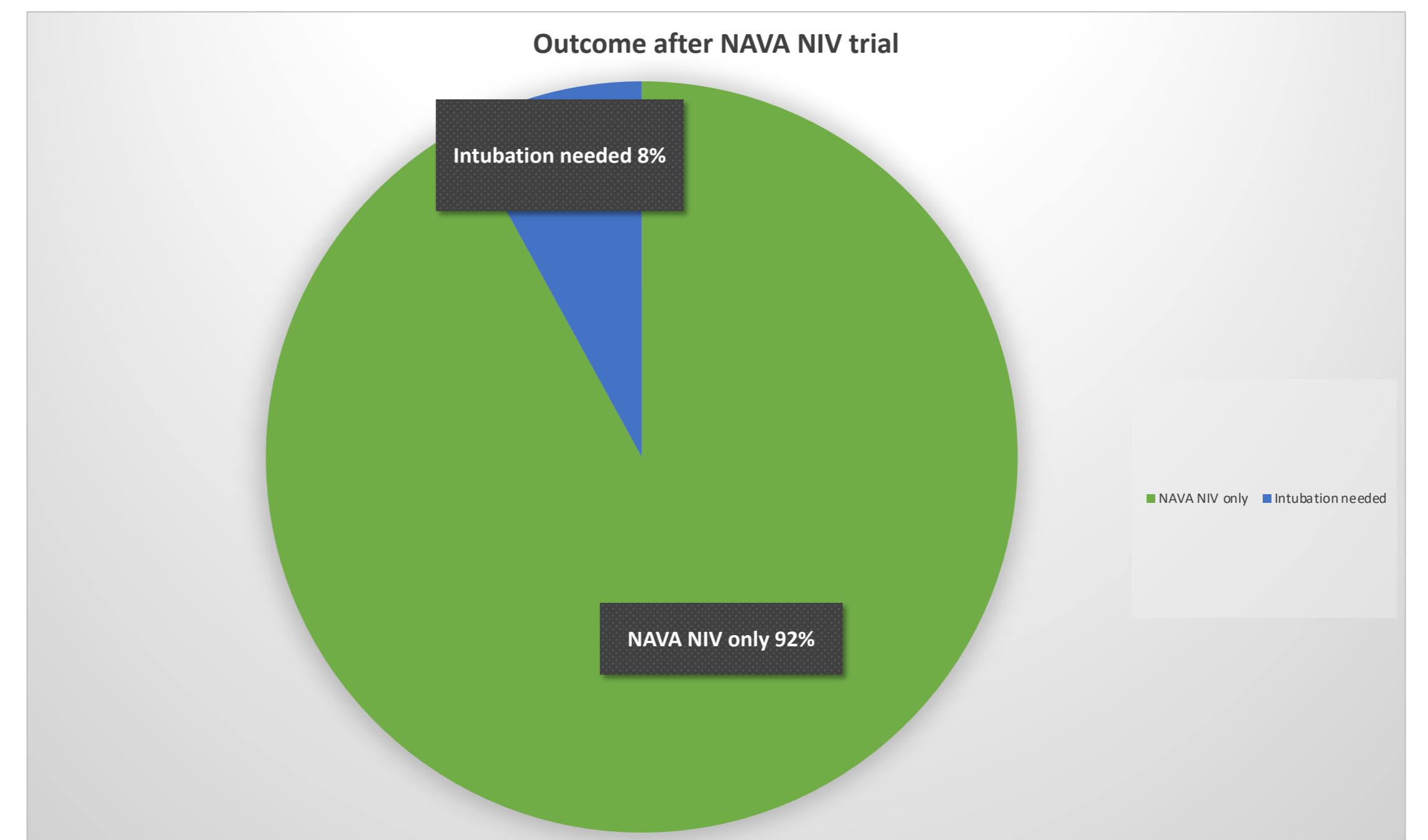
METHODS

We analyzed two groups:

- The first included patients just admitted to the Intensive Care Unit (ICU) who were undergoing a preliminary 3-hour NIV trial before evaluating the possibility of proceeding with endotracheal intubation. In this group our aim was to evaluate whether NAVA NIV would help avoid intubations.
- The second group of patients included intubated patients who were undergoing weaning from mechanical ventilation and our aim was to evaluate their outcome.

RESULTS

- In the first group 13 patients were analyzed. The mean ICU stay was 9.9 days. 92% of these patients were discharged from the ICU without the need of endotracheal intubation. All these patients have been discharged to the ward with a mean P/F ratio of 246.
- In the second group 47 patients were included, mean ICU stay 22 days, mean ventilator days 16.6. 63% of these patients were discharged with no further need for ventilatory support, 17% had to undergo a tracheostomy, 12% died and 8% were transferred to other institutions.



CONCLUSIONS

NAVA NIV was associated with a better patient compliance.

During invasive ventilation weaning less ventilator asynchronies were observed and diaphragmatic dysfunction was an indicator of the need of tracheostomy performance.

NAVA may be a useful tool in the management of SARS-CoV-2 ARDS both in the initial and weaning phases.

REFERENCES

- (1) Hadfield DJ, Rose L, Reid F, Cornelius V, Hart N, Finney C, Penhaligon B, Molai J, Harris C, Saha S, Noble H, Clarey E, Thompson L, Smith J, Johnson L, Hopkins PA, Rafferty GF. Neurally adjusted ventilatory assist versus pressure support ventilation: a randomized controlled feasibility trial performed in patients at risk of prolonged mechanical ventilation. Crit Care. 2020 May 14;24(1):220. doi: 10.1186/s13054-020-02923-5. PMID: 32408883; PMCID: PMC7224141.