Category :**Respiratory: monitoring**

A121 - ***Comparison of occlusion pressures and p0.1 in neuro and non – neuro patients considered for a spontaneous breathing trial: a single center prospective pilot study.***

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Introduction:

Monitoring inspiratory effort and lung stress during assisted ventilation has become an important aspect of lung- and diaphragm protective ventilation. Two noninvasive parameters are important for estimating lung stress and inspiratory effort: decrease in airway pressure during the first 100ms of inspiration ($P_{0.1}$) and the full-breath occlusion pressure (Pocc). Their value in ventilated patients with acute brain injury, is unclear, considering that brain injury can lead to high respiratory drive. We hypothesize that $P_{0.1}$ and Pocc would be higher in patients with acute brain injury, compared to non-neurological ventilated patients appearing ready for extubation.

Methods:

This prospective pilot study included mechanically ventilated patients admitted to the ICU for acute brain injury (neuro group) or primary respiratory failure (non-neuro group), estimated to be ready for a spontaneous breathing trial (SBT) and possible extubation within 24h. Pocc and $P_{0.1}$ values (average of 2 measurements within 5-min interval) were collected. Exclusion criteria: tracheostomy, pH<7.35, metabolic encephalopathy and agitated delirium.

Results:

Twenty-one patients (mean age = 51±17 years, mean days ventilated = 7) were enrolled (n = 8 neuro, n = 13 non-neuro). Neuro-patients showed no increase in Pocc (6.6±2.8 vs. 9.2±2.6 cm H2O) or $P_{0.1}$ (1.2±0.8 vs. 1.2±0.9 cm H2O) compared to non-neuro patients (Fig.1A-B). One extubation failed, in the non-neuro group. $P_{0.1}$ values and the set support level were correlated in the neuro group (R = -0.67, P = 0.012) (Fig.1D), no such correlation was observed for Pocc (Fig.1C).

Conclusion:

$P_{0.1}$ and Pocc values in patients considered ready for SBT did not differ significantly between patients with and without acute brain injury. Additional analysis with a larger sample size and including the effect of ventilator support on drive is necessary to determine the clinical value of monitoring drive and effort in neurological ICU patients.

Image :

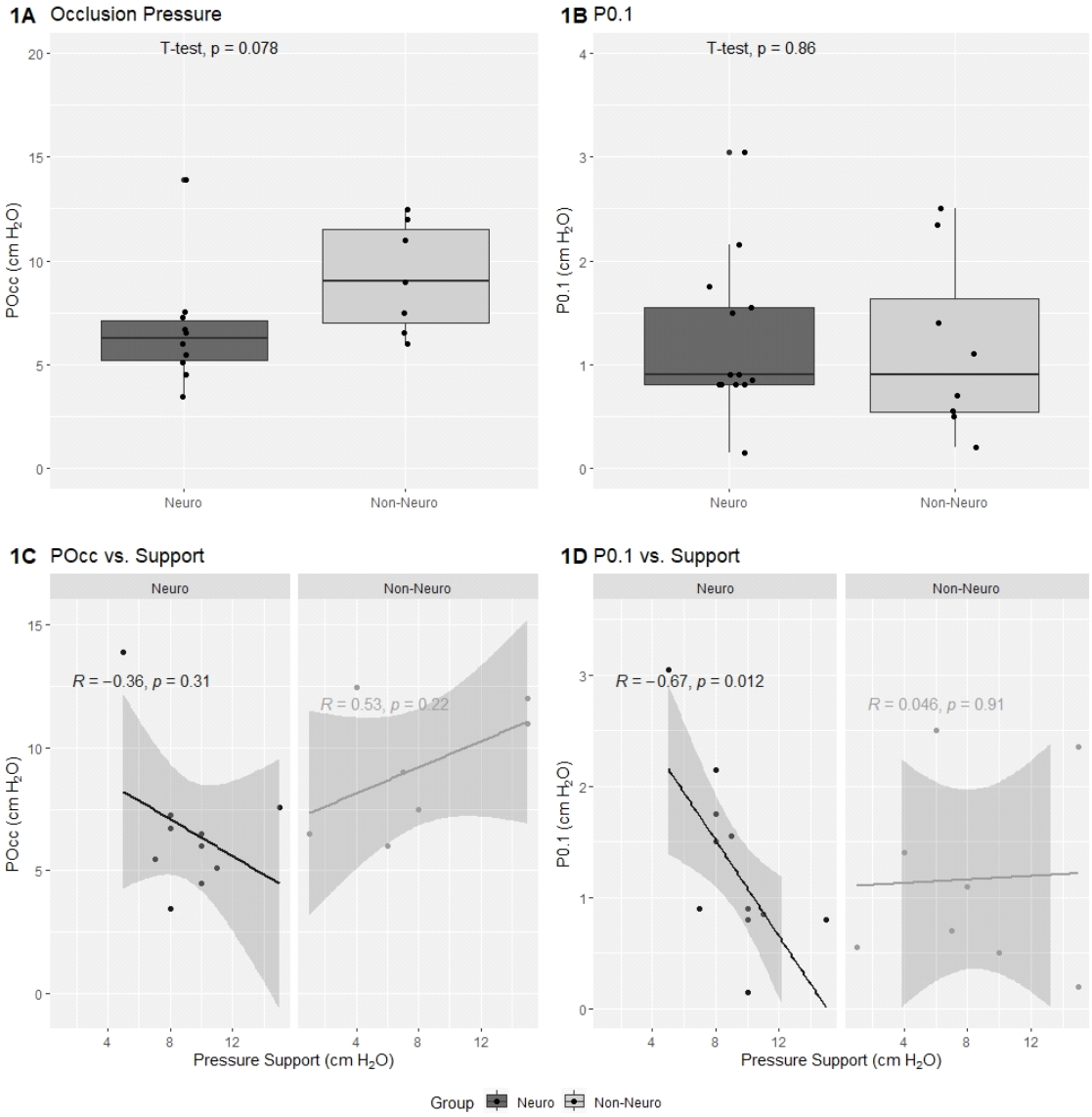

Figure 1: Occlusion pressures and P0.1 values for each group in the upper section. The lower section depicts the relationship between Pocc and P0.1 concerning the levels of support for each group.