Category :**Cardiovascular: Monitoring**

A177 - *Cardiac dysfunction in intubated covid-19 and the effects of inhaled nitric oxide*

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Introduction:

Cardiac involvement of COVID-19 is not fully explored in intubated ICU-patients although findings suggest a link to worsened outcome. To the best of our knowledge there are no prospective studies evaluating changes over time using ultrasound. We aimed to evaluate right ventricular (RV) and left ventricular (LV) systolic function, and resolution of pulmonary hypertension (PH).

Methods:

We performed a sub-study of a prospective RCT at a Swedish ICU (NO SARS-COVID) examining the effects of inhaled nitric oxide (iNO) on the recovery of ICU-patients treated for COVID-19. Adult patients were included within 72 hours of intubation and evaluated by echocardiography at study inclusion and at follow-up 3-5 days after randomization.

Results:

Thirty-nine patients were included, 33 completed follow-up, table 1. At inclusion, 8 patients had RV dysfunction evaluated by tricuspid annular plane systolic excursion (TAPSE) and 8 evaluated by right global longitudinal strain (RVGLS). None had LV systolic dysfunction evaluated by ejection fraction (EF), but 10 evaluated by global longitudinal strain (GLS). Thirty-two patients had signs of PH, median (IQR) mean pulmonary artery pressure (MPAP) 35.3 mmHg (28.0-46.8).

At follow up, none had RV failure evaluated by TAPSE in the control group and 1 in the iNO group, but 3 in the control group and 5 in the iNO group evaluated by RVGLS. No patients in either group had LV systolic failure at follow up evaluated by EF, but GLS unmasked dysfunction in 4 patients in the control group and 1 in the iNO group. All patients in the control group had signs of PH, MPAP 56 (38-62) and 17 in the iNO group, MPAP 39 mmHg (28-54).

Conclusion:

As expected, PH was frequently seen in our cohort of intubated patients with COVID-19 and did not resolve after administration of iNO. We encourage use of strain analysis to assess chamber function more accurately beside conventional echocardiography parameters to unmask subclinical cardiac dysfunction.

Table:

	All	Inhaled nitric oxide	Control
Age (years)	61 (50–69)	61 (50–69)	60 (49–69)
Male	31 (79%)	17 (81%)	14 (78%)
BMI (kg/m2)	29.7 (27.1–34.4)	29.2 (26.6–34.2)	30.8 (27.3–35.0)
SAPS III	66 (58–72)	66.0 (59.0–77.0)	68.0 (57.0–71.0)
APACHE II	31 (30–36)	33.0 (31.0–36.5)	29.5 (26.7–30.0
Vasoactive inotropic score	6 (2–11)	4 (1–10)	8 (3–15)

Values are presented as median with (IQR) or numbers (percentages) of patients. SAPS III = Simplified Acute Physiology Score III. APACHE II = Acute physiology and Chronic Health Evaluation II.