Category :**Cardiovascular: circulatory shock (general)**

A43 - ***Acute cor pulmonale and mortality in mechanically ventilated patients with covid-19 acute respiratory distress syndrome***

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Introduction:

Although COVID-19 affects primarily the respiratory system, several studies have shown evidence of cardiovascular alterations and right ventricular dysfunction. Our aim was to evaluated cardiac function and its association with lung function, hemodynamic compromise and mortality.

Methods:

Prospective, cross-sectional multicenter study in four university-affiliated hospitals in Chile. All consecutive patients with COVID-19 ARDS on mechanical ventilation admitted between April and July 2020 were included. Transthoracic echocardiography was performed within the first 24 hours of intubation.

Results:

Consecutive 140 patients on mechanical ventilation with COVID-19 ARDS were included in the study, the mean age was 57±11 years, PaO2/FiO2 ratio was 155 [IQR 107-177], cardiac output was 5.1 L/min [IQR 4.5-6.2] and 86% of the patients required norepinephrine. ICU mortality was 29% (40 patients). Fifty-four patients (39%) exhibited right ventricle dilation and 20 of them (37%) exibited acute cor pulmonale (ACP). Eight of twenty (40%) patients with ACP exhibited pulmonary embolism. Patients with ACP had higher norepinephrine requirement, lower stroke volume, tachycardia, prolonged capillary refill time and higher lactate levels. In addition, acute cor pulmonale patients presented lower compliance, higher driving pressure and the presence of respiratory acidosis. Left ventricular systolic function was normal or hyperkinetic in most cases and only thirteen patients (9%) exhibited left ventricular systolic dysfunction (ejection fraction < 45%). In the multivariate analysis acute core pulmonale, PaO2/FiO2 ratio and pH were independent predictors of mortality.

Conclusion:

Right ventricular dilation is highly prevalent in mechanically ventilated patients with COVID-19 ARDS. The presence of acute cor pulmonale is associated with poorer lung function, but only in 40% of patients it was associated to pulmonary embolism. Acute cor pulmonale is an independent risk factor for mortality in the ICU.

Table:

	All n =140	Normal RV n = 86	RV dilation n = 34	ACP n = 20
RS compliance, ml/cmH2O	33 [26-40]	35 [27-40]	32 [26-42]	28 [20-37]*
PCO2, mmHg	43 [39-56]	43 [39-53]	45 [38-57]	55 [43-65]*
pH	7.33 [7.24-7.38]	7.33 [7.26-7.38]	7.35 [7.24-7.40]	7.24 [7.18-7.32]*
NE, mcg/kg/min	0.05 [0.03-0.14]	0.05 [0.03-0.12]	0.04 [0.01-0.08]	0.20 [0.05-0.30]*
LVOT VTI, cm	20 [16-24]	21 [17-24]	18 [16-21] #	16 [14-20]*
TAPSE, mm	20 [18-23]	21 [18-23]	22 [19-24]	16 [13-20]*
ICU mortality	40 (29%)	23 (27%)	3 (9%)	14 (70%)*

Principal differences among patients with normal right ventricle, right ventricle dilation without acute cor pulmonale (ACP) and ACP.