Patients with ARDS from COVID-19 present variable levels of potential for lung recruitment and elevated ventilation-perfusion mismatch

Title

Potential for lung recruitment and ventilation-perfusion mismatch in patients with the acute respiratory distress syndrome (ARDS) from coronavirus disease 2019 (COVID-19)

Objective and Design

Prospective cross-over physiological study aimed to describe specific pathophysiological characteristics of ARDS from COVID-19

10 intubated patients in Northern Italy with ARDS and confirmed diagnosis of COVID-19

Intervention

2-step positive end-expiratory pressure (PEEP) trial with change of 10cm H2O in random order

Results

At higher PEEP - No significant change to respiratory mechanics

- High compliance with low driving pressure
- Improved oxygenation and ventilation inhomogeneity
- Increased PaCO2

Large variability in Recruitment / Inflation Ratio (R/I Ratio)

Median 0.79 (0.53-1.08), range (0.16-1.40)

FiO2 at lower PEEP significantly correlated with R/I Ratio

$r = 0.603, p=0.05$

Ventilation-Perfusion mismatch elevated

Median 34 (32-45) % of lung units

Data from Mauri T, et al: Crit Care Med, 2020