Abstract 4

Ventilator-Induced Barotrauma in Critically Ill Patients with COVID-19: A Retrospective Observational Study

Anuraag Sah MD a, Emilio C Fabian MD, Carlos Remolina MD, Department of Internal Medicine, Rutgers New Jersey Medical School/Trinitas Regional Medical Center Department of Pulmonology, Trinitas Regional Medical Center

Background: Ventilator-induced Barotrauma is a complication of intubation that is associated with high driving pressures and positive end-expiratory pressure use. We attempt to determine the incidence of barotrauma in intubated patients with SARS-CoV-2 infection.

Methods: Retrospective observation case series of patients with SARS-CoV-2 infection who were intubated in the ICU. Data was collected for a total of 3-months from electronic health records on patient's age, sex, BMI, incidence of barotrauma, total length of intubation and outcome.

Results: 19 out of the 100 included patients developed barotrauma as defined by radiographic evidence of pneumothorax, pneumomediastinum or subcutaneous emphysema. The average BMI of patients with barotrauma was 32.06 kg/m^2 with average age of 56.84 years and 9 patients being classified as obese (BMI $\geq$30 kg/m^2). 14 out of 19 patients (73%) with barotrauma were intubated for 10 or more days with median of 16.52 days. The overall mortality rate was noted to be 92% amongst intubated patients.

Conclusion: Rate of barotrauma in COVID-19 intubated patients was noted to be 19% in our study, which is on par with the rate of ventilator-induced barotrauma with the previous SARS virus associated ARDS, and higher than that of the general population with ARDS. Patients who developed barotrauma were also noted to be intubated for a significantly longer duration (16.52 days) as compared to their non-barotrauma counterparts. These findings suggest a need for more data and randomized studies to establish appropriate ventilator management strategies for patients with lung injury associated with COVID-19.

Key Words: COVID-19, Intubation, Obesity, Barotrauma