

Mortality Rates in Mechanically Ventilated Patients with COVID-19

Jonathan Class, Sikandar Khan IUCAR, Babar Khan IUCAR

Indiana University School of Medicine, Regenstrief Institute, Indiana University Center for Aging Research

Background/Objective:

High mortality rates among mechanically ventilated COVID-19 intensive care unit (ICU) patients have raised concerns regarding use of mechanical ventilation in management of patients with COVID-19. Additional data is needed in this discussion to better understand treatment strategies for this vulnerable population. We conducted a study to examine length of stay, duration of mechanical ventilation, mortality, and risk factors for death in critically ill patients with COVID-19.

Methods:

Observational study in patients admitted to Eskenazi Health and Indiana University Health Methodist ICUs. Participants were 18 years and older patients admitted to the ICU from March 1 2020 to April 27, 2020 who tested positive for COVID-19. Primary outcomes for this study were in-hospital mortality, duration of mechanical ventilation, and the length of stay in the ICU.

Results:

The study cohort was made up of 242 patients. The mortality rate was 19.8% (48/242) for the overall cohort and 20.5% (38/185) for mechanically ventilated patients. Age was a significant risk factor for in-hospital mortality [increased hazard in in-hospital mortality: age 65-74 years (HR: 3.1, 95%CI=1.2-7.9, p=0.021), age 75+ (HR: 4.1, 95%CI=1.6-10.5, p=0.003) compared to those younger than 65]. In our Cox's proportional hazard model, ESRD (HR:5.9, 95%CI=1.3-26.9, p=0.021) along with age were the only risk factors with statistical significance. The median duration of mechanical ventilation in the overall cohort was 9.3 days (IQR=-5.7-13.7). In patients that died, median ICU length of stay was 8.7 days (IQR=4.0-14.9), compared to 9.2 days (IQR=4.0-14.0) in those discharged alive.

Conclusion/Clinical Impact:

We found lower mortality rates and longer length of stays in our cohort than in previous studies. While more data is needed, this study supports continued use of mechanical ventilation ARDS recommendations for treating patients with ARDS from COVID-19. Further, this data potentially shows a benefit to not having a strained healthcare system.