Title: Early tracheostomy reduces Ventilator-Dependent Days in COVID-19 patients.

Authors:
Rohan K. Dhamsania, MS[1]; Constance Harrell Shreckengost, MD, PhD[2]; Alexandra Clarice Weber Reitz, MD, MPH[2]; Lily-Michelle Arthur, BS[3]; Randi N. Smith, MD, MPH[2]

Author Affiliations:
[1]Philadelphia College of Osteopathic Medicine, Georgia Campus
[2]Department of Surgery, School of Medicine, Emory University
[3]Rollins School of Public Health, Emory University

Abstract:

Background: Concern for SARS-CoV-2 transmission during procedures that generate aerosolized particles has led to delays in tracheostomy. However, pre-pandemic data have demonstrated clinical benefits including reduction in Ventilator-Dependent Days (VDD) for patients who undergo early tracheostomy. To understand the impact of tracheostomy timing on COVID-19 patients' outcomes, we compared VDD in early versus late tracheostomy hypothesizing that patients undergoing early tracheostomy would experience fewer VDDs.

Methods: A retrospective medical review was performed on confirmed COVID-19 adult patients who underwent tracheostomy in the Emory University Hospital system between March 2020-January 2021. Days between intubation and tracheostomy were calculated. Early tracheostomy was defined as 14-days or less between tracheostomy and intubation. R-studio was used for statistical analysis.

Results: Participants included 133 patients, 76 men and 57 women, 65% of patients were less than 65 years, and mean BMI of 34.7±11.7 (mean±SD).

29% (39) patients underwent early tracheostomy while 71% (94) underwent late tracheostomy. The mean VDD was significantly lower in early tracheostomy patients with 30.1 (±15.3) vs 38.3 (±18.1) days ($p< 0.009$). The mean P/F ratio in early and late groups was similar at 233±110 and 246±135 respectively. 30-day mortality for all patients was 20% (25), seven of those patients received early tracheostomy. 90-day mortality for all patients was 26% (33), while 10 patients received early tracheostomy and 23 received late tracheostomy.

Conclusion: This study demonstrated that COVID-19 patients undergoing tracheostomy were majority obese male, younger than 65 years. Early tracheostomy had significantly fewer VDD but did not experience significantly different mortality. These data suggest that performing tracheostomy prior to 14-days in COVID-19 patients facilitates ventilator weaning without impacting mortality.