Comparing mortality rates in COVID patients requiring tracheostomy vs non-COVID patients requiring tracheostomy

N. Zamith, MD; S. Islam, MD MPH; R. Bechara, MD - Medical College of Georgia, Augusta University, Augusta, GA, UNITED STATES

Background

Tracheostomy is a frequently performed procedure in mechanically ventilated patients requiring prolonged respiratory support. Prior to the COVID-19 pandemic, studies describe benefits that include improved patient comfort, decreased nursing burden, decrease in sedation requirements, faster weaning from mechanical ventilation, lower risk of ventilator associated pneumonia, and lower mortality, just to name a few. During the COVID-19 pandemic, there was a dramatic increase in the need for prolonged mechanical ventilation. The mortality of COVID-19 patients requiring tracheostomy is yet to be elucidated. In this retrospective trial, we compare the mortality in COVID and non-COVID patients requiring tracheostomy due to prolonged respiratory support.

Methods

In this retrospective trial, we reviewed charts of all tracheostomies performed at our institution between October 2018 and February 2022. Overall mortality at 7 days, 14 days, 21 days, and 30-day following tracheostomy was assessed in 74 COVID patients and 97 non-COVID patients.

Results

	COVID 19	Non-COVID	P-value
Age (yr)	56.5	56.5	0.998
Gender	62% M / 38% F	64% M / 36% F	0.82
Average BMI	36	30.8	0.002
Number of Comorbidities	2.1/patient	2.0/patient	0.86
APACHE score on admission	42.6	51.2	<0.001

The COVID-19 patient population had the same age, gender distribution, and average number of comorbidities per patient as the non-COVID patient population. COVID-19 patients did have a higher average BMI ($p=0.002$) and lower APACHE score on admission ($p<0.001$).

COVID-19 patients were found to have a statistically significant higher 14-day mortality rate ($p<0.001$), 21 days ($p<0.001$), and 30-day mortality ($p<0.001$) when compared to non-COVID patients.

COVID patient mortality rates were 13.2% at 7 days, 39.3% at 14 days, 45% at 21 days, and 49.1% at 30 days. For non-COVID patients, mortality rates were 5.4% at 7 days, 12.4% at 14 days, 17% at 21 days, and 18.2% at 30 days.

Conclusions

We showed that COVID-19 patients requiring tracheostomy have a higher mortality rates when compared to non-COVID patients at all time points when measured at 7, 14, 21, and 30 days. We did not find any significant differences between the COVID and non-COVID patient that might explain this difference in survival; the COVID population had a lower APACHE score on admission, and, other than higher average BMI, they had the same average number of comorbidities. Given this worse survival, we suggest that benefit of prolonged ventilatory support in patients with COVID should be assessed and discussed prior to performing tracheostomy.

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