

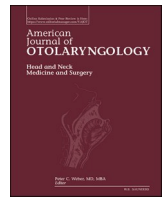


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Early vs. late tracheostomy in ventilated COVID-19 patients – A retrospective study

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ABSTRACT

Background: Tracheostomy is one of the most common surgical procedures performed on ventilated COVID-19 patients, yet the appropriate timing for operating is controversial.

Objectives: Assessing the effect of early tracheostomy on mortality and decannulation; elucidating changes in ventilation parameters, vasopressors and sedatives dosages immediately following the procedure.

Methods: A retrospective cohort of 38 ventilated COVID-19 patients, 19 of them (50%) underwent tracheostomy within 7 days of intubation (early tracheostomy group) and the rest underwent tracheostomy after 8 days or more (late tracheostomy group).

Results: Decannulation rates were significantly higher while mortality rates were non-significantly lower in the early tracheostomy group compared with the late tracheostomy group (58% vs 21% $p < 0.05$; 42% vs 74% $p = 0.1$, respectively). Tidal volume increased (446 ml vs 483 ml; $p = 0.02$) while PEEP (13 cmH₂O vs 11.6 cmH₂O, $p = 0.04$) decreased at the immediate time following the procedure. No staff member participating in the procedures was infected with SARS-CoV-2 virus.

Conclusion: Early tracheostomy might offer improved outcomes with higher decannulation rates and lower mortality rates in ventilated COVID-19 patients, yet larger scale studies are needed. Most likely, early exposure to COVID-19 patients with appropriate personal protective equipment during open tracheostomy does not put the surgical team at risk.

1. Introduction

Many of the critically ill patients with COVID-19 require invasive mechanical ventilation (IMV) through endotracheal tube, some for prolonged periods [1]. Tracheostomy has well described benefits for ventilated patients – reduction of breathing work to promote weaning off IMV, sedatives reduction, better pulmonary toilet, better patient comfort, larynx protection, etc. [2]. Thus, tracheostomy became one of the most common procedures in ventilated COVID-19 patients.

Since the outbreak of the pandemic there is a rigorous discussion regarding many aspects of the tracheostomy procedure and mainly regarding the appropriate timing. Current studies show conflicting results about the effect of the timing of the procedure on mortality, length

of stay at the ICU, time to decannulation and more [1,3–6]. Due to the inconsistent results, different recently published guidelines on tracheostomy in COVID-19 patients present contradicting suggestions regarding the appropriate timing to operate [7–10]. Most studies lack long-term perspective that may allow better understanding on the lingering effect of the timing of the procedure.

The initial approach at our tertiary medical center was to perform tracheostomy as early as possible, but it was later changed to a more permissive approach due to conflicting reports on timing of tracheostomy and outcome. We retrospectively analyzed our data and followed the patients until either decannulation or death. We aimed to evaluate the effect of the timing of the procedure on these outcomes.

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