AAST Critical Care Committee Journal Article Review

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Performing tracheostomy during the Covid-19 pandemic: guidance and recommendations from the Critical Care and Acute Care Surgery Committees of the American Association for the Surgery of Trauma. C. Michetti, C. Burlew, E. Bulger, K. Davis, D. Spain, and the Critical Care and Acute Care Surgery Committees of the American Association for the Surgery of Trauma. Trauma Surgery & Acute Care Open 2020;5:3000482. doi: 10.1136/tsaco-2020-000482

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Context

Due to the continued progression of the Covid-19 pandemic, multiple research articles about caring for this complex patient population have been written. Procedural aerosolization of coronavirus particles leading to inoculation of healthcare providers has been a significant concern. As providers, we must simultaneously attend to ourselves while providing the best possible care for our patients. Given the inevitability of contact with contagion during a pandemic, providers must discern optimal pathways in procedural care. This guideline offers recommendations on how to execute tracheostomy safely to minimize undue risk of exposure and infection.

Methods

The Critical Care and Acute Care Surgery Committees of the American Association for the Surgery of Trauma (AAST) employed expert consensus, hospital devised guidelines, available evidence-based data regarding the disease, general value of tracheostomy, risks involved in performing the procedure, and outcomes of timing to create this procedural guidance.

Findings

These are the summary of recommendations:

- These guidelines were originally presented early in the pandemic (April 2020). New information has come to light; nonetheless remember that clinical judgment is necessary.

- The utility of recovery of Covid-19 patients from tracheostomy is unknown. It should not be done until the patient has ceased viral shedding. A negative test is ideal, but not mandatory. The utility of follow up or repeat testing has been evolving as the pandemic is ongoing.

- Decision to perform a tracheostomy in a patient that is Covid-19 positive should be made on a case-by-case basis and utilize a multidisciplinary, three-pronged approach with patient wishes, family wishes, and caregiver safety as focuses.

- For high-risk surgical airway (Cricothyroidotomy patients): Chemical paralytic (neuromuscular blockade) is warranted. Providers should wear appropriate PPE despite the urgency of the situation. A ventilatory hold should be done from just prior to incision in the cricothyroid membrane until placement of the definitive airway.

- For tracheostomy: open or percutaneous techniques are acceptable. Decision should be made based on clinical condition, anatomy of patient, operator experience, and logistical considerations (risk of transport, transmission risk during transport). Neuromuscular blockade is highly encouraged and warranted.

- Practical guidance for preparation and procedural safety for logistical considerations of open and percutaneous tracheostomy is provided, including PPE use, essential personnel, supplies (HEPA filter, PAPR, N95 mask), and procedural points.

- Practical guidance is given for the technique of open and percutaneous tracheostomy, including ways to prevent aerosolization of viral particles.

- For open tracheostomy, minimization of electrocautery, holding mechanical ventilation while airway is open, and not resuming ventilation until the cuff is inflated are advised to minimize aerosolization of viral particles.

- For percutaneous tracheostomy, performing without bronchoscopy should be considered. Holding ventilation after exhalation after placing a guidewire until the intratracheal placement of the tracheostomy tube with cuff inflation is advised.

Commentary

Tracheostomy benefits are widely known and accepted in the patient with prolonged intubation. During the ever-changing COVID-19 pandemic, surgeons are looking for guidance in performing procedures effectively, while minimizing risks to themselves and other healthcare providers. This guideline is necessary due to the continued need to perform aerosol generating procedures, specifically cricothyroidotomy and tracheostomy in those critically ill with Covid-19. It offers a common sense, easy to follow directive to protect oneself and the surgical team. It is an educated opinion created from the available but meager literature at the time and by those actively practicing these procedures. It should be noted that these guidelines were developed early in the pandemic (April 2020) and, although comprehensive, one should view them in the appropriate context prior to proceeding with the procedure in individual patients.

Implications

This insightful how-to guideline gives direction for safe performance of tracheostomy in those with ventilator dependent Covid-19 infection. This will not only confer the ability to safely perform this procedure and help to minimize risk to healthcare providers, but may also be beneficial to increase hospital throughput at a time when bed space is at a premium. During the publication of these guidelines, and in the intervening months since, we have seen continued

escalation of the pandemic. These expert guidelines seek to assist in keeping practitioners protected during this aerosol generating procedure. Further recommendations from established surgical groups are needed to safeguard frontline healthcare workers during a dynamic time of process improvement.