

NYU Langone Health Percutaneous Tracheotomy Protocol in COVID19 Positive Intubated Patients

Objectives:

- To standardize percutaneous tracheotomy procedures in COVID19 positive intubated patients and provide a guide to safely performing the procedure at all NYU Langone Health Hospitals

Patient Criterion:

- COVID19 positive intubated patients who are (5-7) days of intubation and >5 days of therapy (per ID)
- Expected to have prolonged mechanical ventilation needs
- PEEP \leq 12, FiO $_2$ \leq 60%, PIP<35, RR<25, PaCO $_2$ <60 or placed on ECMO
- No significant extra-pulmonary organ dysfunction
- INR <1.8
- Platelet count >50K
- No contraindication to neck extension
- No anticipated need for proning
- Not on high vasopressors (>0.05mcg/kg/min of norepinephrine or equivalent)

Team

- Two Attendings (Transplant/Surgery/IP Service) (or one attending and IP fellow)
- One Nurse/Clinical care provider to help with medications, ventilator...etc

Equipment:

- Dedicated bronchoscopy tower for COVID19 patients
- Therapeutic bronchoscope with a 2.8 mm working channel (Olympus T180 or T190 bronchoscope) (disposable bronchoscopes will not be used)
- Bronchoscope adapter
- Wall suction and tubing
- Oral suctioning device
- Airway box ready outside the room

- Blue rhino percutaneous tracheostomy kit
- Percutaneous tracheostomy tube (Shiley #8 and #6) cuffed
- Procedure team to inform the primary team if alternative sizes are required ahead of time
- 500 ml bottle normal saline solution
- Medium sized Mepilex or equivalent

Medications:

To be ordered by the primary team and ready at bedside:

- Propofol drip or equivalent to maintain RASS-4
- Fentanyl 400 mcg or equivalent
- Rocuronium 100 mg
- Phenylephrine or equivalent in case of sedation related hypotension

Preparation:

- List of all potential patients to be sent to the tracheostomy team the day prior
- Consent obtained and placed in patient's chart
- Hold Heparin drip for 2-6 hours
- Hold Plavix (or similar antiplatelets) for 3-7 days.
- Hold tube feeds for 6-8 hours
- All procedures to be done in negative pressure rooms
- Limit non-essential personnel in the room to minimize exposure
- COVID19 tracheostomy team will perform NON-COVID19 tracheostomies on separate days

Pre Procedure:

- All personnel should have full PPE per institutional policies
- Bronchoscopy tower and the bronchoscope should be set up outside the room to minimize time in the room
- Nurses to set up continuous wall suction with oral suctioning device in advance
- Bronchoscopist will be positioned at the head end of the bed
- Proceduralist will be on either side of the patient with the height of the patient's bed adjusted as needed

- Patient should be supine with shoulder roll in place to extend the neck and expose the tracheal rings
- Bronchoscope tower should be set up at the side of the patient's bed such that the images are visible to both the bronchoscopist and the proceduralist
- Once all the equipment is cross checked, the ventilator is put on assist mode of ventilation with FiO₂ increased to 100% and alarms limits are set to maximum
- Administration of sedation and paralysis by proceduralist or nurse

Procedure:

- Tracheostomy site ultrasound/doppler is performed to identify anatomical landmarks, vascular structures and to mark site of insertion
- Tracheostomy site is prepped with chlorhexidine and draped in the usual sterile fashion.
- Bronchoscopist will free the endotracheal tube (ETT) from the holder.
- Bronchoscope is inserted orally and advanced alongside the ETT to the level of the vocal cords then entered into the trachea through the anterior commissure anterior to the ETT
- Once proper visualization is confirmed and subglottic secretions are aspirated, ventilator is paused, ETT cuff is slightly deflated and ETT is advanced towards to main carina to position the cuff in the distal trachea
- ETT cuff is re-inflated and ventilator is restarted
- Finder needle is inserted into the airway at the pre-marked insertion site under direct visualization, followed by removal and insertion of large needle then guide wire is threaded into the airway through the needle and directed caudally towards the main carina under direct visualization
- Small incision is created at the skin level at the guidewire site and track is dilated in sequential fashion using the blue rhino dilator
- Before insertion of the tracheostomy tube, the ventilator is put on hold, ETT cuff is deflated and in coordination with the bronchoscopist, the tracheostomy tube is inserted into the trachea while ETT is removed simultaneously
- Bronchoscope is then inserted through the tracheostomy tube to confirm position and clean secretions, cuff is inflated and ventilator connected then restarted once the circuit is closed

Post procedure:

- Bronchoscope will be cleaned with provided cleaning solution, placed in soiled box/bag and sent to respective processing units for standard recommended processing.
- Mepilex form dressing or equivalent dressing to be applied under all tracheostomies to prevent pressure ulcers
- Tracheostomy ties used to secure tracheostomy tube in place
- Sutures are not required
- Restart tube feeds after procedure
- Restart anticoagulation 2 hours after procedure