Tracheostomy Guideline for Cervical Spinal Cord Injury

Scope: All patients with ASIA Impairment Scale A or B (complete or sensory incomplete) cervical spinal cord injuries.

Population: All Trauma Service and ICU providers

Objectives:

- To identify patients who are at high risk for failure of extubation and facilitate early tracheostomy in those patients
- To provide guidance on which patients may benefit from a trial of extubation

Definitions:

ASIA A: Complete. No sensory or motor function is preserved in the sacral segments S4-5.

ASIA B: Sensory Incomplete. Sensory but not motor function is preserved below the neurological level and includes the sacral segments S4-5 (light touch or pin prick at S4-5 or deep anal pressure) AND no motor function is preserved more than three levels below the motor level on either side of the body.

Early Tracheostomy: performed within 4 days, as patient stability allows.

Neurological level of injury (NLI): the most caudal segment of the cord with intact sensation **and** antigravity (3 or more) muscle function strength, provided that there is normal (intact) sensory and motor function rostrally respectively.

Recommendations:

All patients should have their injury classified by the International Standards for Neurological Classification of SCI (ISNCSCI). The level of injury referred to in this protocol refers to the NLI, not the level of bony injury. Spine surgical plans should be clarified with the appropriate service before proceeding with tracheostomy.

1. For patients with C1-C3 injuries, early tracheostomy is recommended.
2. For patients with C4-C7 injuries,
   a. Usual ventilator weaning according to the spontaneous awakening and spontaneous breathing trial protocols should be followed. If the patient meets criteria for extubation according to the SAT/SBT policy, a bronchoscopy should be performed to assess secretion burden. Determination of high or low secretion burden will be made by the attending intensivist performing/supervising the bronchoscopy. Patients with a high secretion burden on bronchoscopy, or have a high suctioning requirements by nursing or RT, or those who fail to progress after 3 attempts at standard weaning should be considered for early tracheostomy.
   b. If a low secretion burden is identified on bronchoscopy, the patient should be maintained on 18-24 hours of pressure support ventilation (PSV) at 5/5 for the first at least 16 hours. A chest xray should be obtained after the first 10 hours of PSV to assess for atelectasis. If satisfactory, proceed with a trial of 3/0 PSV for the last 2 hours. If the patient continues to meet usual extubation criteria, the patient may be considered for a trial of extubation, ideally in the morning. Patients who are unable to complete a prolonged trial of pressure support ventilation should be considered for early tracheostomy.