*Sedation During Neuromuscular Blockade (NMBA) in the ICU **

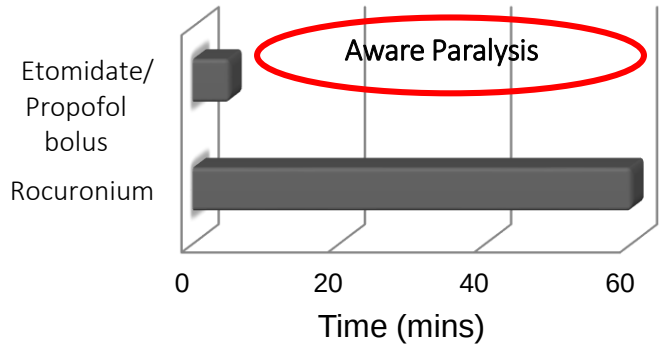
Overall Pharmacologic Paralysis:

- **Paralytics DO NOT have analgesic, amnestic, or sedative properties**
- During pharmacologic paralysis in the ICU, patients should receive deep sedation to avoid being paralyzed and aware of surroundings and/or sense pain

Peri-intubation Paralysis

- Rocuronium - most commonly used paralytic for intubation in the ICU
  - Duration of action is ~45-60 minutes and up to 2 hours with liver failure
- Most pre-intubation sedative (anesthetic) agents (etomidate, propofol, midazolam) last < 30 minutes
- After intubation, most patients should receive midazolam 2-4 mg every 15 minutes x 2 doses to avoid aware paralysis – reference below
  - Provider to use post-intubation orderset for orders

Peri-intubation Drug Effect



*** Reference the '*Guideline for Use of Neuromuscular Blocking Agents in the ICU*' accessed in the Penn Medicine Inpatient Formulary**

Continuous or Bolus Paralysis for Hypoxia, Asynchrony, or ARDS

Prior to Paralysis

- Confirm physiologic endpoints for using NMBA
- Ensure pt. is receiving **both** analgesia and sedative/amnestic infusions **prior** to any NMBA
  - Propofol preferred sedative, where no contraindication
  - Dexmedetomidine does not provide adequate sedation for use with paralytics
  - Achieve RASS/BPS goals
    - Patients should be deeply sedated to RASS -4 or -5 (ideally -5)
    - Optimize analgesia to BPS <6
- As clinically appropriate, initiate Train of Four (TOF) monitoring and obtain baseline

During Continuous Paralysis

- Due to an inability to assess sedation underneath paralysis, **DO NOT wean down sedation** unless the paralytics are interrupted and have worn off
- Sedative and analgesic continuous infusion doses that achieved pre-paralysis RASS -4/-5 should be maintained throughout
- Clinical considerations:
  - Hypotension – do NOT wean sedation; consider fluid or a vasoactive agent
  - Under-sedation (unexplained tachycardia, hypertension, BIS >60), consider increase in sedation as clinically appropriate

Post-Paralysis

- **Wait to wean sedation and analgesia until continuous infusion paralysis wears off:**
  - If TOF available: TOF 4/4
- Once the infusion is stopped, paralytic effect will persist based on drug half-life:
  - Cisatracurium = 60-80 mins
  - Vecuronium = 1-2 hours (may be longer dependent on liver/renal function)

Critical Care COVID Taskforce 5-29-20