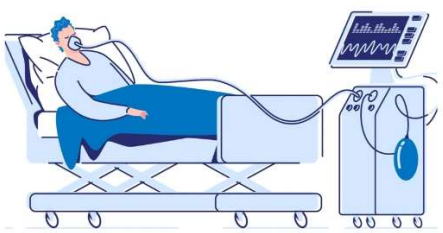
Appendix H: Mechanical Ventilation Setup Infographic



MECHANICAL VENTILATION BASICS

Initial Ventilator Settings

- Set ventilator to Volume Assist/Control: Consider pressure support as needed
- Set driving mechanics by type of ventilation
  - Tidal Volume at 4-6 ml/kg Ideal Body Weight
  - Quick Reference (Male): (Appendix A)
  - 66" = ~380cc [min: 255 / max: 510]
  - 69" = ~420cc [min: 283 / max: 566]
  - 72" = ~465cc [min: 310 / max: 621]
  - 75" = ~505cc [min: 338 / max: 676]
- Set Rate to maintain proper minute ventilation (Ve) of 4-8 L/min (Vt x RR) Example: Ve of 6L/min=Vt of 500ml x RR of 12/min
- Set FiO2: Start at 100% and titrate down using ABGs/SpO2
- Set Inspiration:Expiration (I:E) ratio: 1:2
- Set appropriate PEEP
  - Min of 5 cmH20 and titrate as needed
  - Consider starting hypoxic patients at 10 cmH20
- Use continuous capnometry/capnography (ETC02), Especially in TBI patients
- Calculate O2 requirements
  - Minute Ventilation x FiO2 = LPM of pure O2
  - LPM x mission length (min) = Total L of pure O2
  - Example: Ve of 6LPM @ 50% FiO2 = 3 LPM of O2 required D cylinder (425L O2) will last ~141 min using 3 LPM
  - Consider 1.5x planning factor

Troubleshooting using DOPE

Displacement of Advanced Airway/Endotracheal Tube AA/ETT

- Pull back if advanced
- Do NOT advance blindly without bougie
- If in doubt remove AA/ETT and use BVM
- Consider advanced airway (supraglottic or cricothyroidotomy)
- If AA/ETT moves freely, assess bulb for rupture

Obstructions

Suction secretions in AA/ETT as needed

Pressure

- Tension pneumothorax/hemothorax
  - Chest tube in place/properly
  - Suctioning/not kinked or clamped
  - If suspected tension pneumothorax →needle thoracentesis
- Circumferential burns
  - Consider escharotomy
  - Patient not tolerating ventilation
  - Consider additional paralysis/sedation

Equipment

- Ventilator failed?
- O2 tank empty?
- Trace circuit to/from patient ensuring patency/connections

(Utilize waveform capnography to assist in determining cause if available)

Airway Compromise/Lost Airway
Immediately disconnect ventilator and use manual BVM (plus PEEP if avail) with 100% O2

METRICS

- Initial Tidal Volume based on IBW (target 6cc/kg IBW)
- ETCO2 monitored when available (target 35-45 mmHg)
- Adjustments to RR, Vt, FiO2, and PEEP based on clinical indicators and documented
- Patients arrive with PaCO2 of 35 – 45 mmHg

This information is pulled from the evidence-based Joint Trauma System (JTS) Mechanical Ventilation Basics Clinical Practice Guideline (CPG). JTS CPGs can be found at the JTS CPG website or the JTS Deployed Medicine site.

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