Airlink Critical Care Transport

Mechanical Ventilation

Objective:

1. To maintain adequate oxygenation and ventilation on all intubated patients.
2. To maintain the standard of care on these patients.

Policy:

1. Whenever possible all intubated patients should be set up on a mechanical ventilator during all phases of transport.
2. All mechanical ventilated patients should be placed on cardiac, blood pressure, pulse oximetry, and ETCo2 monitors.
3. Ventilator settings will be appropriate for age, size and pathology.
4. Refer to BiPap/CPAP protocol for noninvasive ventilation.

Procedure:

1. Obtain report from referring agency/ care giver
2. Assessment of patient , To include but not limited to:
   a) ETT size and placement.
   b) Breath sounds.
   c) Vital signs including SaO2, ETCo2.
   d) Current ventilator settings, PIPs and ABG's if available.
   e) Obtain ABG's with Istat if available and clinically indicated.
   f) Review chest x-ray if available.

3. If extended scene time at inter hospital, connect to hospital O2 source to conserve transport tank.
4. Set appropriate ventilator parameters, alarms and verify function.
5. Place patient on ventilator, evaluate :
   a) ETCo2, SaO2, PIPs, Breath Sounds

Ventilator Setting Guidelines:

1. Modes: A/C , SIMV with or without pressure support
2. Rate
    a) Adult : 10-20 depending on the patient ventilator needs (Ve) and pathology.
    b) Peds: 16-30 depending on patient's weight, ventilator needs and pathology.
3. Tidal Volume (Vt)
    a) Adult: 6-8 cc/kg ideal body wt.
    b) Peds: 6-8ml/kg ideal body weight (start at 6ml/kg)
4. I : E ratio
    a) Keep I:E ratio at least 1:2 , avoid inverse I:E ratios
    b) Utilize longer E times for COPD and Asthma patients I:E of 1: 4 avoid auto–peep
5. PEEP
    a) 0-10 if indicated , usually start at 5cmH2O
    b) ARDS patients may need to be increased
6. FiO2
    a) Utilize % O2 that keeps SaO2 > 92%

Ventilator Monitoring

1. Ensure ventilator function
    a) Evaluate chest rise, breath sounds, ETCo2, SaO2, PIPs, Exhaled Vt, and Ve.
    b) Verify alarm function and settings
    c) Evaluate plateau pressure (keep<30cmH20)

1. adjust Vt per ARDS protocol

    d) Consider C collar to stabilize head and neck

1. reducing the chance of extubation
2. Ensure adequate portable O2 supply

2. Documentation & monitoring throughout flight

a) Istat ABG's when necessary and available

to be done on all transports > 20 min.

b) Ventilator parameters Q 15 mins.

PIPs, VT, SaO2, ETCo2, I:E, FiO2 ect.

c) Monitor ETT placement

Initial, during flight and at transfer of care to receiving facility.

d) Attach ETCo2 and SaO2 wave forms to chart initial and end wave forms

Reference:

1. Jauncey-Cooke, j., Bogossian, F., East, C., (7/2008). Lung protective ventilation strategies in paediatrics- review. *Australian College of Critical Care Nurses.* www.elsevier.com/locate/aucc
2. Emergency Medicine. A Comprehensive Study Guide. Sixth Edition. American College of Physicians. Tintinalli et. al. 2010
3. Flight Nursing Principals and Practice. Renee Hollaren. Second Edidtion. Mosby.