

Cardiac Surgery: Respiratory Weaning Protocol

Purpose:

To describe the weaning protocol to be used on post-op Cardiac surgery patients and in conjunction with the CABG clinical pathway.

Description:

The Cardiac surgery respiratory weaning protocol is designed to allow for the expedient removal of the post-op cardiac surgery patient from mechanical ventilation. It is designed for patients without significant cardiopulmonary compromise in that it is designed to achieve rapid extubation with a minimal amount of lab work and respiratory procedures. This approach complies with the overall goals of the hospital's CABG clinical pathway. The Cardiac surgery respiratory weaning protocol, as designed by the CABG clinical pathway steering committee, is as follows:

Cardiac Surgery: Respiratory Weaning Protocol

Patient Criteria: This protocol will be used only for cardiac surgery patients. Initiation of the protocol will be indicated in the physician's orders.

Equipment: Patients in the Cardiac surgery respiratory weaning protocol will require an Ohmeda 4700 ETCO2 monitor at bedside. This monitor will be used to provide SaO2 and ETCO2 data.

Initial Ventilator Settings: The initial ventilator settings will be called from the OR. The physician may make adjustments after the patient arrives in the SICU. The initial settings must be documented in the chart.

Physician specific instructions: Dr. Ari Holderson requests that his patients' endotracheal tube (ETT) be trimmed to approximately 3 cm beyond the lip. After determining correct placement via chest x-ray, secure ETT, and then trim to appropriate length.

Note: Prior to initiating weaning, the therapist should consult with the physician.

Pre-Weaning Criteria: Before initiating weaning the patient must be assessed and the following criteria met.

- No acute ischemia
- Hemodynamically stable(MAP >65, CVP and PCWP <20, CI >2)
- Absence of new arrhythmia
- Blood loss < 2cc/kg/ hour
- Urine output > 1cc/kg/hour
- Demonstrating signs of awakening from anesthesia
- Core temp 97.0 or greater

Begin weaning oxygen with pulse oximeter from .80 to .60 to .40 while keeping saturation 95 or greater. ETCO2 must remain 30< and <45 (Assuming correlation with ABG)

Weaning Criteria: Begin weaning ventilator support after the above conditions are met plus the following criteria.

- Patient is awake and cooperative (follows commands)
- Able to lift head off pillow
- PO₂ > 80 mmHg with FIO₂ ≤ .40 with PEEP 5 cmH₂O or less and PS 5cmH₂O or less
- Spontaneous tidal volumes > 5cc/kg
- Respiratory rate <30

If criteria are met, begin weaning IMV by 2 breaths per hour to a rate of four. After 1 hour assess patient for placement on CPAP 5 cmH₂O with PS 5 cmH₂O. After on PS of 5cmH₂O for 20 to 30 minutes, obtain an ABG. CPAP should not exceed one hour.

Extubation Criteria: If ABG obtained in CPAP trial meets the following criteria:

pH > 7.35, PCO₂ < 45, PO₂ >80 with an FIO₂ ≤.40 and RR < 30

The patient should now be considered for extubation. If extubation status is questionable, weaning parameters should be obtained and the following criteria assessed before extubation.

NIF >30cmH₂O
Vt > 5cc/kg
VC > 12cc/kg

Extubation: After physician approval (written order in the patient chart) the patient will be extubated to .40 aerosol mask (**Physician must be present during extubation**). After 4 hours on the aerosol mask, the patient can be placed on a 5LPM humidified nasal cannula if pulse oximeter readings are consistently above 95%. The oxygen can be weaned as long as the pulse oximeter is consistently above 95%.

Post Extubation Treatments: All protocol patients will receive IPPB treatments Q6 x 24 hours while in SICU. These treatments should be started within 2 hours of extubation. If the patient is unable to cooperate with a mouthpiece, IPPB with a mask should be attempted. Patients with a history of smoking and have not quit within one year prior to the surgery will receive a unit dose of albuterol with each treatment. Other patients will receive normal saline with each treatment. When patient is alert incentive spirometry will be used and the physician may evaluate the patient for any additional therapy.

Special Instructions: The success of the weaning protocol depends on effective communication between the physician, therapist and nurse. Any concerns about the patient's status that cannot be resolved by the resident (if available) should be addressed to the staff physician.

NOTE: Care Path orders for ICU include:

- **ABG on arrival, in 6 hrs, at 2AM, and when on CPAP**
- **EKG on arrival and in AM**

References:

1. CABG Clinical Pathway Steering Committee

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