Measure of Static and Dynamic Compliance of the Ventilator Patient

Purpose

To obtain a compliance value on the patient receiving Mechanical Ventilatory assistance.

Scope

Respiratory Care Services (RCS) monitors several pulmonary parameters of patients receiving continuous ventilation. Static and/or dynamic compliance may be used to monitor changing compliance/resistance of the lung thorax unit.

Indications

To monitor lung tissue distendability for early signs of pathologic changes in the pulmonary system.

Goal

A physician may utilize compliance values in assessment of a patient's pulmonary status. Assessments are done on an as needed basis.

Required Equipment

A ventilator capable of displaying Peak Inspiratory Pressure, Plateau Pressure, Peep and Tidal volume.

Procedure

Essential Steps:

Step	Action
1	Place the patient in supine position with head of bed raised to 30 degrees.
2	Explain procedure to the patient. Instruct patient to relax and breathe easily.
3	Suction the patient prior to performing maneuvers and allow patient sufficient time to recover.
4	Record the peak airway pressure as read on the on the peak pressure display when a machine breath is delivered.
5	When the ventilator is giving a mandatory breath, press the inspiratory hold button till a plateau pressure is read on the display screen.
6	Record positive end expiratory pressure (PEEP), Exhaled Tidal Volume and Peak Pressure from the monitor screen.

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Procedure Continued

Step	Action
7	Make sure alarms are adjusted properly and functional
8	Calculate dynamic and static compliance using the following formulas: • Dynamic compliance = exhaled tidal volume / cm H_2O peak inspiratory pressure - PEEP • Static compliance = exhaled tidal volume / cm H_2O plateau pressure - PEEP Calculated Dynamic compliance and Static compliance can also be obtained from the Monitor screen.

Infection Control

Follow procedures outlined in Healthcare Epidemiology Policies and Procedures #2.24; Respiratory Care Services.
http://www.utmb.edu/policy/hcepidem/search/02-24.pdf

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