

MEDICATED AEROSOL THERAPY

PURPOSE:

INTERMITTENT MEDICATED AEROSOL THERAPY: To deliver medications, promote cough (bland aerosol), and relieve bronchoconstriction and thin secretions (mucolytic agents).

CRITERIA FOR USE:

- A. INTERMITTENT MEDICATED AEROSOL THERAPY:
 1. Patients should be alert, cooperative, and able to comprehend and follow instructions for medicated aerosol therapy. The delivery of aerosol to lower airways is facilitated when the patient can take slow deep breaths through the mouth. A mask with large side openings is used if a patient cannot cooperate.
 2. Patients who have an inspiratory capacity of 12ml/kg, a FVC of at least 15ml/kg, or a VC of at least 800ml are ideally suited for medicated aerosol therapy.
 3. Pediatric patients are given medicated aerosol therapy utilizing pediatric aerosol mask. (See PICU policy and procedure)

HAZARDS/COMPLICATIONS:

- A. Bronchospasm (hypersensitive airways)
- B. Hyperventilation
- C. Dizziness, tingling of face and fingers, nausea or vomiting.
- D. Tachycardia

PHYSICIAN ORDER:

- A. Specify frequency
- B. Specify FI02. If not stated, all patients receiving supplemental O2 will receive treatments with oxygen.
- C. Specify medication dosages, including the diluent.
- D. Specify other treatments modalities if desired.

PROTOCOL FOR ADMINISTRATION AND FOLLOW UP:

- A. Instruction will be given concerning therapy. Performance, goals and individual patient needs will be evaluated:
- B. Continuous therapies will be monitored on a Q4 hour basis.

EVALUATION OF EFFECTIVENESS:

- A. Improved cough mechanism and removal of secretions.
- B. Improved air movement with a decrease in shortness of breath and bronchospasm.
- C. Improved gas exchange.

EQUIPMENT:

- A. MEDICATED AEROSOL THERAPY
 1. Hand-held nebulizer.
 2. Flow meter (air or oxygen as indicated) or portable compressor.
 3. Medications
 4. Stethoscope

PERSONNEL:

1. RRT 1 AND RRT 2
2. CRTT 1 AND CRTT 2

PROCEDURE:

GENERAL - FOR ALL MEDICATED AEROSOL THERAPIES:

Cardiopulmonary Services
General Procedures
Proc7.1

1. Verify written physician order.
2. Review patient's chart for the following:
 - a. Admitting or most recent updated diagnosis
 - b. Progress notes
 - c. Nursing notes
 - d. Review lab data and x-ray findings
 - e. Respiratory Progress notes:
 1. Time of last therapy
 2. Patient tolerance and performance
 3. Physician assessment
 4. Special needs and considerations
3. Approach and educate patient on the purpose of the procedure.
 - a. Identify self and department
 - b. Identify patient by comparing hospital and billing numbers on the armband to those on the physicians' orders for therapy.
 - c. Educate and inform patient/family on therapy procedure and answer all questions pertinent to therapy.
4. Age appropriate considerations include considering delivering therapy with an aerosol mask for geriatric and pediatric patients that are not able to cooperate with a mouthpiece. Appropriate fitting mask should be used.
5. Wash and dry hands before continuing therapy session. Utilize appropriate personal protective equipment. Universal Precautions are observed.

A. *MEDICATED AEROSOL THERAPY:*

1. Assemble the hand-held nebulizer unit aseptically.
2. Prepare medications as indicated and place in nebulizer cup utilizing aseptic technique.
3. Attach the nebulizer unit to a flowmeter utilizing oxygen as indicated.
4. Position the patient for therapy. Preferably the patient should be sitting comfortably.
5. Instruct the patient to breathe properly:
 - a. Inhale slowly and deeply.
 - b. Pause and hold for approximately three seconds.
 - c. Exhale slowly. These maneuvers allow greater deposition of the aerosol particles.
6. Once the patient is comfortable with the procedure, adjust the flowmeter to 5 lpm - 7 lpm or turn on the compressor.
7. Administer therapy for ten to fifteen minutes, coaching and allowing the patient to rest at intervals.
8. Patients who are artificially ventilated can have intermittent medicated aerosol therapy by attaching a nebulizer unit with a tee-piece in-line to the ventilator circuit. The nebulizer should be placed halfway up (96 cm or 6 corrugated sections) the inspiratory limb. Make sure it is distal to the water trap. Make sure to clear any condensate from the circuit prior to connecting the nebulizer and make sure to position the nebulizer so that it will not collect drainage during the treatment. Remove the nebulizer from the circuit when the treatment is complete.
9. The preferred method for delivery of medicated aerosol therapy to infants and small children that cannot cooperate with a mouthpiece is to attach an aerosol mask to the nebulizer and place on patient's face.
10. Coughing should be encouraged or suctioning performed if secretion mobilization occurs.
11. Therapy should be discontinued if the patient reports any unusual side effects. The nurse and physician must be notified.
12. Monitor:
 - a. Heart rate before, during and after
 - b. Breath sounds before and after
 - c. Cough effectiveness and production
 - d. Respiratory rate before and after
13. Discard PPE. Wash hands after patient contact.
14. Document as per department guidelines.

REFERENCES:

- 1 AARC *Clinical Practice Guidelines*, 1993.
- 2: Burton, Gee, Hodgkin, **Respiratory care**, 1977

Revised: 1988, 1989, 1990 1991, 1992, 1993 1995

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