Infant Nasal CPAP System

Purpose

To standardize the bedside procedure for the application of the Infant Nasal CPAP system in the Infant Special Care Unit.

Audience

Licensed Respiratory Care Practitioners with the understanding of age specific requirements of this patient population.

Scope

Outlines the accepted clinical techniques for the use of nasal CPAP in the neonatal population in the treatment of infants with respiratory distress by increasing the functional residual capacity (FRC), increasing pulmonary compliance, decreasing total airway resistance and decreasing respiratory rate.

Indications

- Respiratory Distress Syndrome (RDS)
- Apnea of Prematurity (AOP)
- Hypoxemia
- CO_2 retention
- Airway Collapse
- Increased work of breathing
- Weaning from mechanical ventilation

Contra-indications

Contraindications to the use of infant nasal CPAP are: upper airway abnormalities, untreated air leaks, cardiovascular instabilities, and untreated diaphragmatic hernias.

Physician's Order

- Order for Nasal CPAP
- CPAP level
- FiO_2

Equipment

- Infant Nasal CPAP unit
- Appropriate size nasal mask or prongs with straps, flow generator, and appropriate hat size
- CPAP circuit
- Fischer Paykel heater
- Humidifier chamber with manual water feed set

Procedure

Equipment Assembly:

Step	Action
1	Connect air and oxygen lines to 50 psi wall source.
2	Place humidifier chamber with manual water feed set in the Fischer Paykel heater.

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Procedure Continued

Equipment Assembly: Continued

Step	Action
3	Connect Infant CPAP circuit to the humidifier chamber.
4	Place the prepackaged flow generator in line with the patient circuit.
5	Make sure the ON/OFF switch is off, and then plug the electrical cord into a three-prong outlet.
6	Place appropriate sized mask or nasal prongs in the flow generator. Turn unit on and set flow on unit to 8 l/m. Occlude the CPAP prongs or mask and ensure that the CPAP level measures 5 cmH_2O.

Patient Set-up Procedure:

Step	Action
1	Verify physician order, patient identification and check chart for contraindications.
2	Explain set-up to family members present. Stress the importance of patient compliance for successful treatment and the reasons for utilizing this modality.
3	Observe and record the following parameters prior to placing nasal mask or prongs on patient: Heart rate, Respiratory rate, Breath sounds, Oximeter saturations, and breathing pattern.
4	Place the appropriate sized hat on patient's head with tie straps located in the center of the forehead. Position the hat so that it is placed below the ears and at the level of the patient's eyebrows. Ensure that the patient's ears are not folded over.
5	Place the mask or prongs on the baby and secure the generator ties through the holes in the bonnet starting with the holes closest to the ear and threading the ties forward. Secure the generator lines to the top of the hat. If using the prongs **DO NOT** tie the corrugated exhalation tubing in with the generator lines. This is to be done **ONLY** when using the mask. Ensure that

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Procedure Continued

Patient Set-up Procedure Continued:

5 (cont.)	there are no air leaks at any point around the mask seal, especially the bridge of the nose. **Note: an air leak at the bridge of the nose will allow a high flow of gas to be directed towards the eyes with the potential of abrasive conjunctivitis.**
6	Make sure that the prongs or mask are not excessively tight. A seal can be created without undue pressure on the babies face.
7	Increase the flow to achieve the level of CPAP ordered by the physician and set the FiO_2 as ordered by the physician.
8	Monitor heart rate, respiratory rate, breathing pattern, ABGs, pulse oximetry, saturations, level of consciousness and patient compliance.
9	Document clinical affects and record final settings in EPIC, per RCS Policies # 7.1.1 and # 7.1.2.

Adverse Reactions

If any of the following conditions are observed reevaluation of the treatment, modality must be performed.

- Increase in heart rate >20 breaths per minute above baseline
- Increase in respiratory rate >20 breaths per minute above baseline
- Marked increase in agitation of patient
- Marked decrease in level of consciousness
- Increase in $PaCO_2$ >15mmHg above baseline

Infection Control

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

References

Sensormedics Infant Flow System Operator's Manual

AARC Clinical Practice Guidelines; Application of Continuous Positive Pressure to Neonates via Nasal Prongs or Nasopharyngeal Tube, Respiratory Care; 1992; 37: 882-886

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