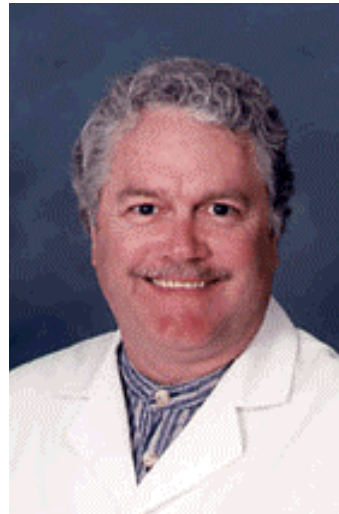


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Introduction

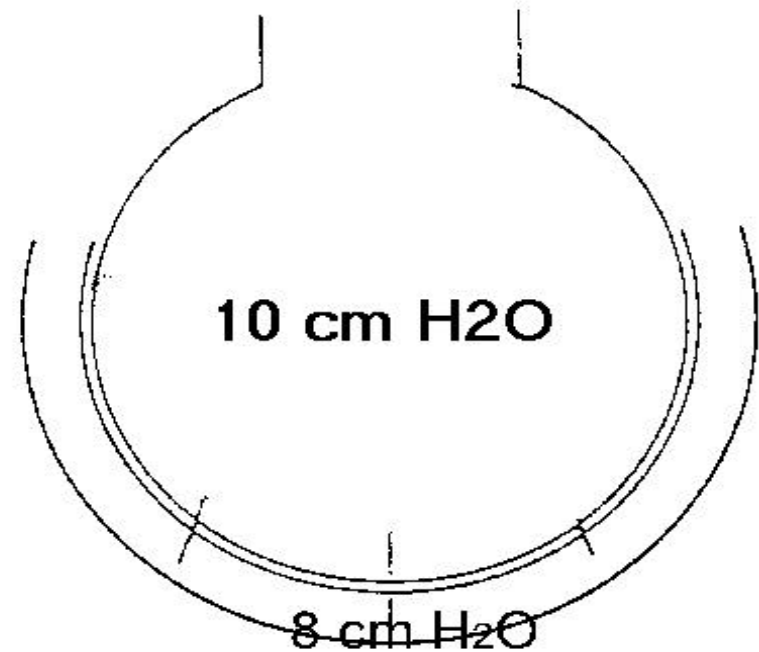
- CPAP is a non-invasive procedure that is easily applied and can be easily discontinued without untoward patient discomfort.
- CPAP is an established therapeutic modality, recently introduced into the prehospital setting.
- In the primary phase CPAP application in cardiogenic pulmonary edema, thus far, appears to be beneficial to patient outcome.

Key Points of CPAP

- CPAP has been successfully demonstrated as an effective adjunct in the management of pulmonary edema secondary to congestive heart failure.
- CPAP may prove to be a viable alternative in many patients previously requiring endotracheal intubation by prehospital personnel.

CPAP Mechanism

- Increases pressure within airway.
- Airways at risk for collapse from excess fluid are stented open.
- Gas exchange is maintained
- Increased work of breathing is minimized



Prehospital Indications

- Congestive Heart Failure
- Pulmonary Edema associated with volume overload (renal insufficiency, iatrogenic volume overload, liver disease , etc)
- Near Drowning

Absolute Contraindications

- Respiratory Arrest
- Agonal Respirations
- Unconscious
- Shock associated with cardiac insufficiency
- Pneumothorax
- Facial Anomalies e.g. burns, fractures, etc.
- Facial trauma

Relative Contraindications

- Decreased L.O.C.
- COPD
- Asthma
- Claustrophobia
- Patient Intolerance to equipment (e.g. mask)
- Tracheostomy (If lacking the adaptor)

Hazards

- Gastric Distention (19 cm H₂O pressure)
- Corneal Drying
- Hypotension
- Pneumothorax

Important Points

- Pulmonary edema patients, properly selected, quickly improve with CPAP in a matter of minutes.
 - CPAP is to CHF like D50 is to insulin shock.
- Visual inspection of chestwall movement reveals improved respiratory excursion.

Important Points (Continued)

- COPD and Asthmatic patients **do not** respond predictably to CPAP.
 - They have a higher risk of complications such as pneumothorax, and thus should not be treated in the field with CPAP



Summary

- CPAP provides an adjunct between oxygen by NRB and endotracheal intubation.
- Reduces length of hospital admission.
- Reduces trauma of intubation
- Reduces costs

Study Introduction

- IRB approval through UTMB.
- 6 hours didactic instruction
 - Recognize CHF
 - Differentiate CHF, COPD, Asthma & Bronchitis.
- 2 hours clinical training.
- Instruction on assessment most important reason for success.

Data Summary

1996 – 1997

September – May

- Total Intubations 22
- Hospital Stay Days 14.8
- ICU Admission 100%

Data Summary

1997 – 1998

September – May

- CPAP 50
- Total Intubations 8
(15%)
 - Primary Intubations 4
(8%)
 - CPAP Failures 4
(8%)

Data Comparison

1996 – 1997

1997 – 1998

Intubated

22

8

CPAP

0

50

Hospital Stay

14.8

8

ICU Admission

100%

48%

CPAP vs. Intubation

- CPAP
 - Non-invasive
 - Easily discontinued
 - Easily adjusted
 - Use by EMT-B
 - Does not require sedation
 - Comfortable
- Intubation
 - Invasive
 - Usually don't extubate in field
 - Potential for infection
 - Requires highly trained personnel
 - Can require sedation
 - Traumatic