

Endotracheal Tube Cuff Pressure Following Intubation

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Statement of the Problem

The process of endotracheal intubation has had centuries to evolve into a safe practice, but over inflation of the ETT cuff continues to be a cause of irreversible damage to the tracheal mucosa. Proper inflation of the ETT cuff is critical for patient safety. Pressure must be high enough to seal the trachea to prevent aspiration of regurgitated stomach contents and avoid air leaks to the atmosphere, yet low enough to allow adequate perfusion of the tracheal mucosa.



Objectives

This study explored the anesthesia provider's ability to correctly determine ETT cuff pressure using a commonly employed subjective estimation (finger palpation of the ETT pilot balloon) compared to an objective measurement (manometer). The hypothesis was that there would be a difference between the subjective and objective assessments.

Setting

Data was collected in the operating suite.

Methodology

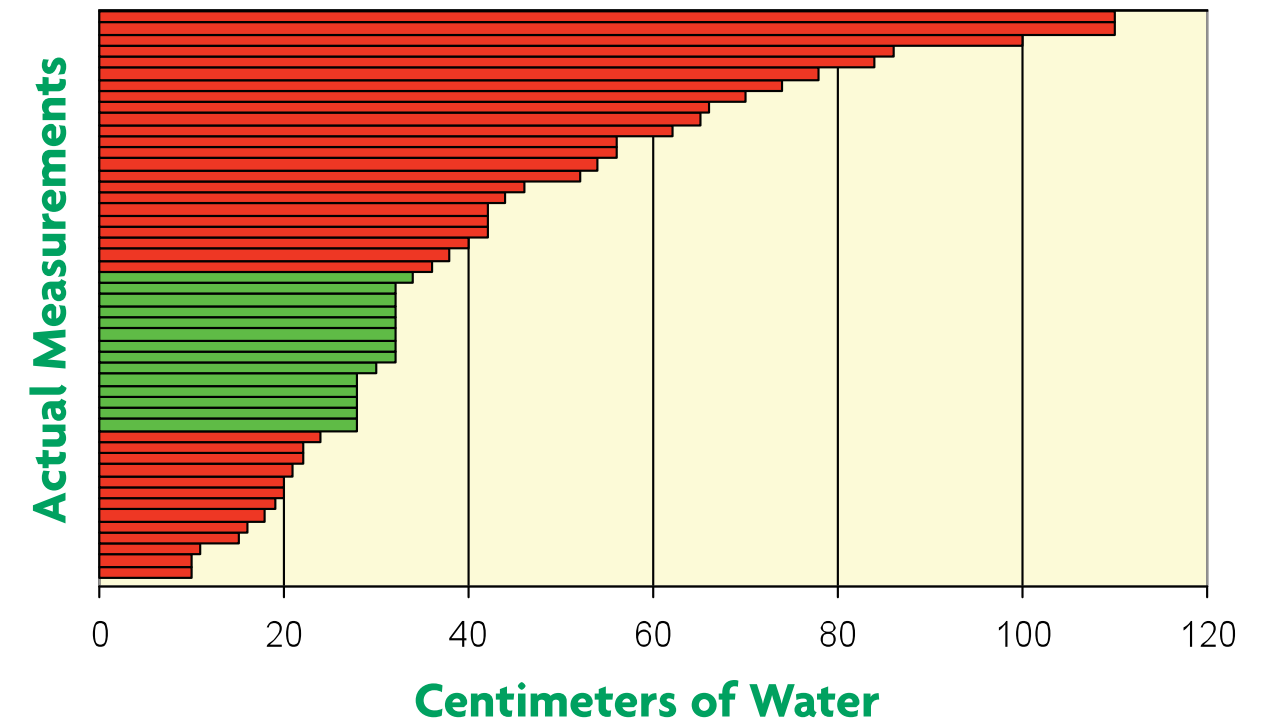
Patients were intubated by a Board Certified anesthesia provider who inflated the ETT cuff to their estimated appropriate pressure by finger palpation of the pilot balloon. A researcher then obtained a quantitative measurement of the actual pressure using a manometer. Data was obtained from fifty patients and the subjective and objective measurements were compared.

Interventions

- **Posey Cufflator™** Tracheal Cuff Inflator and Manometer with a full range of 0 - 120 cm H₂O.
- Foam Trach Ties*
- Secure Ties for Trach Tubes*



Range of ETT Cuff Pressure



72% of the cuff pressures were incorrectly estimated by finger palpation.

Results

Overall, seventy two percent of the cuff pressures were incorrectly estimated by finger palpation (26% too low, 46% too high). Findings confirm that the subjective method of ETT cuff pressure measurement is both a less precise and inconsistent means for determining actual pressure than is quantitative measurement and may compromise patient safety.

Conclusion

Achieving adequate balance between cuff pressure and capillary perfusion pressure is critical in the prevention of tracheal mucosa damage. Maintenance of proper ETT cuff pressure will decrease postoperative complications related to high balloon inflation pressures such as: (1) sore throat/hoarseness, (2) ulceration, (3) tracheal stenosis, and (4) tracheal fistula.

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REFERENCES:

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