

 Open access • Journal Article • DOI:10.1097/00003643-201006121-00855

Poly-urethane cuffed ET tube prevents tracheo-bronchial infections after cardiac surgery in long-term ventilated patients — [Source link](#)

Rik Nieuwenhuizen, Jan Poelaert

Published on: 01 Jun 2010 - European Journal of Anaesthesiology (Ovid Technologies (Wolters Kluwer Health))

Related papers:

- [Tracheo-bronchial suction catheters.](#)
- [A prospective study of tracheal injury complicating tracheostomy with a cuffed tube](#)
- [Treatment of post intubation and cuffed tube tracheal stenosis with T-tube tracheal stent.](#)

Share this paper:    

View more about this paper here: <https://typeset.io/papers/poly-urethane-cuffed-et-tube-prevents-tracheo-bronchial-1egs0wyld9>

Abstracts and Programme

EUROANAESTHESIA 2010

The European Anaesthesiology Congress

Helsinki, Finland,
12-15 June 2010

Results and Discussion: Content and layout were standardised. A Minimal Acceptable Content (MAC) was agreed taking into account DAS(1) and ASA(2) recommendations. Local preferences were also given consideration(3). To make identification of the Rescue Trolley easier, unique blue coloured trolleys were purchased. Equipment was allocated to each of the 5 drawers in a logical manner. For example, items likely to be used at the same time were stored together. External labelling was used to identify drawer contents. Within each drawer, individual items were labelled or highlighted to make identification quicker and easier. Fluorescent yellow or black marker pen was used to highlight sizes, particularly where this information was difficult to find. The importance of not obscuring manufacturer's printed information is emphasised. Laryngoscope handles were labelled to identify blade types. Following this process, the effects were audited for ease of use and user satisfaction and minor adjustments made. An inventory of existing equipment was compiled, missing equipment purchased and inappropriate equipment discarded. Procedures to check content were revised to include use of photographs and checklists.

Conclusion(s): Standardising rescue airway trolley content within and across hospitals in Glasgow is described. This may improve ease of use and reduce system vulnerabilities in airway management.

References:

- 1 www.das.uk.com/equipment(accessed 13/12/2009).
- 2 ASA. Anesthesiology 2003;98:1269-77 3.Smart N et al. EJA 2007;24(39):195.

19AP8-2

Endotracheal flexo-metallic tube insertion using different techniques in anesthetized patients: A prospective, observational study

A. Romera, M. Ontañón, A. Alonso, E. Barrio, A. Garrido

Department of Anaesthesiology, Hospital Universitario Gregorio Marañón, Madrid, Spain

Background and Goal of Study: A prospective-observational study design was used to evaluate different techniques of oral intubation with a flexo-metallic tube. Correct placement of flexo-metallic tubes is often difficult. Many anesthesiologists chose to add alternative airway devices, such as introducers, despite evidence of increased tissue trauma during placement. This study aims to compare characteristics and outcomes of the different intubation techniques using this kind of tube in our hospital.

Materials and Methods: 564 flexo-metallic tube intubations were analyzed during a series of neuro- and oromaxillofacial surgical interventions. Following the anesthesiologist's criteria either direct attempt, single-used introducer or Frova single-use tracheal tube introducer were used. Number of intubation attempts, glottic grades, patient difficult airway predictors (DAP), use of external laryngeal manipulation, duration of insertion procedure and any other complications were documented. Self-reported reasons for failed attempts by performing intubators were also noted.

Results and Discussion: In 496 patients out of 564, initial oral intubation was performed with a flexo-metallic tube and no additional device. Out of the 428 intubations that were successful on first attempt, 16 met the criteria for DAP, but only 4 actually had a Cormack Grade higher than III. 68 required a second attempt, 24 of which were intubated with the single-use introducer and 44 with the Frova single-use tracheal tube introducer, with success rates of 100% in both groups. In the single-use introducer group, 4 patients had DAP and 8 presented Cormack Grade equal or higher than III. Out of the 44 patients intubated with Frova introducer, 8 had DAP and 28 presented Cormack Grade equal or higher than III. Intubation with single-used introducer was done in 68 of 564 patients. 16 of which had DAP, but all had low glottic grades. No complications were reported.

Conclusion(s): Orotracheal intubation with flexo-metallic tubes in patients with easy airways does not seem to be more difficult than with standard tubes, therefore no additional devices should be used. In cases where airways are expected or known to be difficult, success rate may be increased with single-used introducers or Frova tracheal tube introducers. The two devices can likely be used interchangeably, and although further research is needed, the current tendencies include use of atraumatic guides instead of the classic one.

19AP8-3

Poly-urethane cuffed ET tube prevents tracheo-bronchial infections after cardiac surgery in long-term ventilated patients

R. Nieuwenhuizen, J. Poelaert

Department of Anaesthesiology, UZ Brussel, Brussel, Belgium

Background and Goal of Study: Tracheo-bronchial and pulmonary infections (TBPI) due to microaspiration are a major cause of prolonged ICU stay after cardiac surgery. Several measures have been proposed to decrease the TBPI

rate. We postulated that polyurethane cuffed (PU) ET tubes could have impact on TBPI frequency and therefore on duration of ventilation.

Materials and Methods: Reviewing data from a previous series [1], we re-analyzed in view of the duration of postoperative ventilation in 135 scheduled, urgent and emergent cardiac surgical patients, randomly intubated after induction of anaesthesia with a PVC ET versus PU ET tube. Investigators were blinded to this randomization. Excluded were patients with infectious endocarditis and those treated preoperatively with antibiotics. Cuff pressure was kept between 20-26 cmH₂O. Postoperative sedation with propofol (0.5 – 2.5 mg.kg.h) was continued until stable haemodynamics, chest tube drainage < 1 ml/kg.h during more than 2 consecutive h, paO₂ > 70 mmHg with FIO₂ <.6, peak inspiratory pressures < 20 cmH₂O and compos mentis. Continuous variables were assessed with ANOVA. Categorical variables were analyzed with a χ^2 -test. Backward logistic regression analysis was performed to elucidate interfering factor for long term ventilation and TBPI, including only variables related to TBPI in univariate analysis (p <.20).

Results and Discussion: Patients with TBPI were ventilated significantly longer without impact on mortality. A multivariate logistic backward regression analysis included age, cuff material, preoperative creatinine, ejection fraction, Euroscore and Tu-score [2]. The table shows cuff type and creatinine were predictors influencing TBPI rate and duration of ventilation.

Multivariable backward stepwise regression analysis

| predictor | regression coefficient | standard error | p value |
|-------------------|------------------------|----------------|---------|
| preop. creatinine | 0.870 | 0.443 | 0.049 |
| cuff material | 2.141 | 0.705 | 0.002 |

Conclusion(s): Use of a PU ET tube during and after cardiac surgery could reduce TBPI rate and could influence duration of ventilation support in the early postoperative phase.

References:

- 1 Poelaert J, Depuydt P, De Wolf A, Van de Velde S, Herck I, Blot S: Polyurethane cuffed endotracheal tubes to prevent early postoperative pneumonia after cardiac surgery: a pilot study. J Thorac Cardiovasc Surg 2008, 135(4):771-776.
- 2 Tu J, Jaglal S, Naylor D: Multicenter validation of a risk index for mortality, intensive care unit stay, and overall hospital length of stay after cardiac surgery. Circulation 1995, 91:677-684.

19AP8-4

Tracheal tube introducers – Efficacy in Africa

H. Wilkins, I. Hodzovic, T. Sheraton, M. Kilinwolo, Jr., N. Goodwin

Department of Anaesthesiology and Intensive Care, Cardiff University, Cardiff, United Kingdom

Background and Goal of Study: The tracheal tube introducer plays an important role in the management of a difficult airway. Low cost and ease of use make them an ideal tool for the anaesthetist working in an environment with limited resources. However, the tracheal tube introducer could be more difficult to place in the trachea when ambient temperature is high[1]. This study investigated the efficacy of the Frova, BreatheSafe and Eschmann introducers in Liberia.

Materials and Methods: Thirty-four anaesthetists (two performed the study twice) in Liberia were recruited for this randomised cross-over study. Ten samples of Frova and BreatheSafe, and four samples of the Eschmann introducer were transported to Liberia. After standardised training, the anaesthetists placed each introducer into the trachea of a manikin set to simulate a difficult airway. Outcomes recorded were: single attempt success rates, time to placement, the peak forces exerted at the tip of the introducer and ease of use using visual analogue score (VAS): 0 mm extremely easy, 100 mm extremely difficult and temperatures in transit and during the trial. Continuous data were analysed using ANOVA, Cochran Q and Friedman tests were used to analyse categorical data.

Results and Discussion: The temperature range was -2.2°C to 70°C in transit and 26.2°C to 32.4°C during the trial.

Evaluation of the three tracheal tube introducers. Values are number (%) and mean (SD). n = 36.

| | Frova | Breathesafe | Eschmann | p-value |
|----------------------|----------|-------------|-----------|----------|
| Success | 32(89%) | 31(86%) | 16(44%) | =0.00001 |
| Time to placement(s) | 12(4) | 11(3) | 14(4) | =0.019 |
| VAS(mm) | 15(7) | 14(9) | 71(24) | <0.001 |
| ΔForce (N)* | 0.6(0.4) | 0.23(0.3) | 0.25(0.2) | =0.08 |

*=peak force before – peak force after trial

Conclusion(s): The Eschmann introducer had a lower success rate, longer time to placement and was perceived to be more difficult to use than the Frova and BreatheSafe introducers. The Eschmann introducer is considered a gold