COMBITUBE NEWS: EMERGENCY MEDICINE

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EMT’s rated Combitube (Tyco-Healthcare, Pleasanton, CA) best (Table 1, overall performance, adequacy of airway patency/ventilation) while no funding by Tyco (see acknowledgment, p 9). Success rate of insertion and ventilation higher with Combitube than with LMA, despite some of the EMT’s were trained in the OR with LMA (page 3, first paragraph). Mean \( \text{PaO}_2 \) and mean exhaled volume highest with Combitube (Table 4) confirming previous studies. No aspiration with the Combitube in autopsies (Table 5).

Combitube most successful in CPR with respect to insertion when compared to LMA (Table 2), and with respect to adequacy of ventilation (Table 3) as well as to insertion and ventilation when compared to LMA and EGTA (Table 4).

Lefrancois DP, Dufour DG. Use of the esophageal tracheal combitube by basic emergency medical technicians. Resuscitation 2002;52:77-83
Prehospital placement was successful in 725 (95.4%) of the 760 patients where it was attempted and ventilation was successful in 695 (91.4%). An autopsy was done in 133 patients; no esophageal lesions or injury to the airway was found.

18-month prospective field study: EMT-Ds used Combitube. Twenty-two EMT-D provider agencies, involving approximately 500 EMT-Ds, were included as study participants. Combitube insertions were attempted in 195 prehospital patients in cardiorespiratory arrest, with an overall successful intubation rate (defined as the ability to successfully ventilate) of 79%. Identical success rates for medical and trauma patients were noted. The device was placed in the esophagus 91% of the time.

Biostein PA, et al.: Failed rapid sequence intubation in trauma patients: Esophageal tracheal Combitube is a useful adjunct. J Trauma 1998; 44:534-537
10 patients: Combitube worked well in all cases after insertion by flight nurses when rapid sequence intubation failed: 7 had mandible fractures; 4 traumatic brain injury; 2 facial fractures; of 10 patients: 4 were discharged home, 3 transferred to inpatient rehabilitation.

Of 114 enrolled adult patients with head injuries, 96 (84.2%) underwent successful rapid sequence endotracheal intubation, and 17 (14.9%) underwent Combitube intubation, with only 1 (0.9%) airway failure. No unrecognized esophageal intubations. At the trauma center, median oxygen saturation was 99%, mean arrival \( \text{PO}_2 \) was 307 mm Hg, \( \text{PCO}_2 \) 35.8 mm Hg.

A total of 426 patients were enrolled in the trial, with 420 meeting inclusion criteria for this analysis. Orotracheal intubation was successful in 355 (84.5%) of 420; Combitube insertion was successful in 58 (95.1%) of 61 attempts, with no reported complications.

A complete overview of the role of the Combitube as a rescue airway

860 Combitubes insertions, success rate 89.4%.
COMBITUBE NEWS: ANESTHESIA

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The upper balloon of the Combitube 37 F SA needs to be filled with 40 to 85 ml only. MINIMAL LEAKAGE TECHNIQUE ! There is a high safety against aspiration.

This study investigated the effectiveness of the Combitube in elective surgery during both mechanical and spontaneous ventilation in 200 patients. In 97%, it was possible to maintain oxygenation, ventilation, and respiratory mechanics, as well as hemodynamic stability.

100 hundred pts. were intubated with either Combitube (n=49) or ETT (n=51). Oesophageal placement of Combitube was successful at the first attempt [16 (3) s]. Peak airway pressures were 25 (5) cm H₂O. Airtight seal was obtained using 55 (13) ml (oropharyngeal balloon) + 10 (1) ml (oesophageal cuff). The Combitube 37 Fr is a suitable airway during laparoscopy.

The Combitube seals as well as the endotracheal airway as evaluated at the patient's mouth and at the anesthesiologist's breathing zone. Combitube minimizes the risk of aspiration.

Lipp M.: Clinical evaluation of the Combitube. 18th Annual Meeting of Eur. Academy of Anaesthesiology, 29.8 – 1.9.1996, Copenhagen, Denmark, p 43
50 pts. intubated with Combitube within 12-23 sec, always oesophageal. 3 times, Combitube had to be withdrawn for 1-2 cm because of obstruction of the glottic opening by the oropharyngeal balloon.

A big hole replacing the two anterior proximal holes allows bronchoscopic evaluation as well as tube replacement.

The Combitube is easy to use, as can be shown in this case, in which the instructions were carefully read just prior to first use.

Physicians rated Combitube best with regard to effectivity and easiness to learn.

31 non-anaesthesia house officers ventilated a bench model simulating an intubated respiratory arrest pat. with facemask, LMA, + combitube. Gastric inflation was zero with combitube. Paediatric self inflating bag may be an option to reduce the risk of gastric inflation with the LMA.

Hagberg C, Vartazarian TN, Chelkly JE, Ovassapian A. The incidence of gastrooesophageal reflux and tracheal aspiration detected with pH electrodes is similar with the LMA and Combitube-a pilot study: Can J Anaesth 2004;51:243-249
In this pilot study, the Combitube appears comparable to the LMA regarding the incidence of gastrooesophageal reflux and tracheal acid aspiration. The Combitube prevented actively tracheal aspiration in episode with of regurgitation.