

COMBITUBE NEWS: EMERGENCY MEDICINE

Learn more about the Combitube and get your free slide kit: www.combitube.org

Rumball CJ, MacDonald D: The PTL, Combitube, laryngeal mask, and oral airway: A randomized prehospital comparative study of ventilatory device effectiveness and cost-effectiveness in 470 cases of cardiorespiratory arrest. Prehospital Emergency Care, 1997, 1, 1-10

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 PaO₂ and mean exhaled volume highest with Combitube (Table 4) confirming previous studies. No aspiration with the Combitube in autopsies (Table 5).

Tanigawa K, Shigematsu A: Choice of airway devices for 12,020 cases of nontraumatic cardiac arrest in Japan. Prehospital Emerg Care 1998; 2:96-100

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.

Ochs M, Vilke GM, et al. Successful prehospital airway management by EMT-Ds using the combitube. Prehosp Emerg Care. 2000;4:333-7

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.

Blostein 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.

Ochs M, Davis D, et al.: Paramedic-performed rapid sequence intubation of patients with severe head injuries. Ann Emerg Med 2002; 40:159-167

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 PO₂ was 307 mm Hg, PCO₂ 35.8 mm Hg.

Davis DP, Valentine C, Ochs M, Vilke GM, Hoyt DB. The Combitube as a salvage airway device for paramedic rapid sequence intubation. Ann Emerg Med 2003;42:697-704

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.

Rich JM, Mason AM, Bey TA, Krafft P, Frass M. The critical airway, rescue ventilation, and the combitube: Part I. AANA 2004; 72:17-27 and Part II 114-124

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

Cady CE, Pirrallo RG. The effect of Combitube use on paramedic experience in endotracheal intubation. Am J Emerg Med. 2005;23:868-871

860 Combitubes insertions, success rate 89.4%.

COMBITUBE NEWS: ANESTHESIA

Learn more about the Combitube and get your free slide kit: www.combitube.org

Urtubia RM, Aguila CM, Cumsille MA: Combitube: A study for proper use. Anesthesia Analgesia 2000; 90:958-962

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.

Gaitini LA, Vaida SJ, Mostafa S, Yanovski B, Croitoru M, Capdevila MD, Sabo E, Ben-David B, Benumof J. The Combitube in Elective Surgery: A Report of 200 Cases. Anesthesiology 2001; 94:79-82

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.

Hartmann T, Krenn CG, Zoeggeler A, Hoerauf K, Benumof JL, Krafft P: The oesophageal - tracheal Combitube small adult. An alternative airway for ventilatory support during gynaecological laparoscopy. Anaesthesia 2000; 55:670-675

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.

Hoerauf KH, Hartmann T, Acimovic S, Kopp A, Wiesner G, Gustorff B, Jellinek H, Krafft P: Waste gas exposure to sevoflurane and nitrous oxide during anaesthesia using the oesophageal-tracheal Combitube SA. British Journal of Anaesthesia 2001; 86:124-126

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 esophageal. 3 times, Combitube had to be withdrawn for 1-2 cm because of obstruction of the glottic opening by the oropharyngeal balloon.

Krafft P, et al, Benumof JL: Bronchoscopy via a re-designed Combitube™ in the esophageal position. A clinical evaluation. Anesthesiology, 1997; 86:1041-5

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

Enlund M, et al: The Combitube for failed intubation-instructions for use. Acta Anaesthesiol Scand 2001;45:127-8

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.

Winterhalter M, Brummerloh C, Luttje K, Panning B, Hecker H, Adams HA. Emergency intubation with magill tube, LMA and Combitube in a training-course for emergency care physicians. Anesthesiol Intensivmed Notfallmed Schmerzther. 2002;37:532-6

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

Dörge V, et al. Emergency airway management by non-anaesthesia house officers--a comparison of three strategies. Emerg Med J 2001;18:90-4

31 non-anaesthesia house officers ventilated a bench model simulating an unintubated 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 gastroesophageal 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 gastroesophageal reflux and tracheal acid aspiration. The Combitube prevented actively tracheal aspiration in episode with of regurgitation.