

**TITLE:**

RETROSPECTIVE STUDY OF COMPLICATIONS ASSOCIATED WITH THE COMBITUBE®

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**INTRODUCTION:** The Combitube was developed to facilitate management of the airway in emergency situations. It has been included in the ASA difficult airway algorithm<sup>1</sup> and some authors have even suggested its use in anesthesia for elective procedures.<sup>2</sup> Although, serious complications have been reported,<sup>3</sup> few data on their incidence and severity are available, in spite of its widespread use in prehospital care. The objective of this retrospective study was to determine the incidence and the nature of the complications associated to the Combitube in the prehospital setting.

**METHODS:** The primary source of data was the database of the emergency coordination service of the Quebec City region. Data from 2981 patients whose airway was managed with a Combitube by EMTs between 1993 and 2003, and who were admitted in an ER were reviewed. Those who survived at least 12 hr (n=280) were retained for the subsequent analysis. The charts of these patients were then reviewed to identify complications. Complications potentially caused by endotracheal intubation following removal of the Combitube were excluded. Statistical analysis was done with the Student t-test and the Chi square test. Confidence intervals were calculated on proportions.

**RESULTS:** Sixty-seven complications related to the use of the Combitube were identified in 57 of the 280 survivors (20.4%, CI<sub>95%</sub>=15.7-25.1%). Complications were aspiration pneumonitis (n=31), bronchial aspiration (n=16), pneumothorax (n=6), upper airway hemorrhage (n=4), oesophageal laceration (n=3), subcutaneous emphysema (n=2), oesophageal perforation and mediastinitis (n=2), vocal cord injury (n=1), pneumomediastinum (n=1) and tracheal laceration (n=1). Patients who suffered complications were aged  $61.8 \pm 13.6$  yr compared to  $67.6 \pm 13.5$  yr for those without complications ( $p < 0.005$ ). There was no difference in gender distribution between patients with and without complications.

**DISCUSSION:** The complications reported here can be related to the Combitube or to resuscitative manoeuvres during CPR. However at least 16% of those can be directly attributed to the Combitube. We conclude that the use of the Combitube should be limited to CPR situations when no qualified personnel is available for endotracheal intubation.

**REFERENCES:**

1. Anesthesiology 2003; 98: 1269-77
2. Anaesthesia 2003; 58: 722-3
3. Can J Anesth 1998; 45: 76-80