POSTER 221

Safety and Efficacy of the Esophageal Obturator Airway: A Meta-Analysis and Review

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Purposes: The purposes of this investigation were to determine the safety and efficacy of the esophageal obturator airway/esophageal gastric tube airway (EOA).
Methods: Meta-analysis was applied to published reports comparing the EOA to endotracheal tube intubation (ETT). Reports of serious injury caused by the EOA were summarized. A computerized literature search (Grateful Med, version 5.05) of the MEDLARS database was performed on current and backfiles through 1966. No language restriction was applied. Articles providing raw data comparing the EOA to ETT in humans were included in the meta-analysis; patients were grouped according to whether they were pulseless or had return of spontaneous circulation (ROSC). All reports of complications also were reviewed. Data were compared using two-tailed Student's *t*-test for paired data, and the exact binomial test, with alpha set at 0.05.
Results: Fifty-nine articles were reviewed, with four included in the meta-analysis; results are summarize below. In patients attaining ROSC, pH, pO_2, and pCO_2 vvere improved significantly with ETT, while pO_2 was not significantly different. In pulseless patients, pH, pCO_2, and pO_2 all were significantly improved with ETT following EOA ventilation. Thirty-one cases of esophageal perforation have been published, with a mean tear length of 6.4 cm, and mortality rate of 84%. This is significantly higher than the established mortality rate for esophageal perforation (24%) ($p = .000001$).

	pH (units)	pCO_2 (mmHg)	pO_2 (mmHg)
ROSC (n = 31)			
EOA	7.25	50.93	171.98
ETT	7.35	41.26	201.12
p-value	.0042	.014	.226
Pulseless (n = 61)			
EOA	7.12	77.44	80.72
ETT	7.29	53.81	166.46
p-value	.00001	.00001	.00001

Conclusion: With the exception of oxygenation in patients with ROSC, the EOA is not equivalent to ETT. When injury is caused by the EOA, it most commonly is fatal. By current AHA standards, the EOA is classified as II-B. This study suggests it should be classified as III.

POSTER 222

The Accuracy of a Portable Glucose Measuring Device for Prehospital Glucose Measurement

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Purpose: Empiric administration of glucose to patients with an alteration of consciousness may be harmful. Paramedics have been unable to predict hypoglycemia clinically, and measurement techniques (reagent strips) used currently are unreliable. The purpose of this study was to determine the prehospital accuracy of a glucose measuring device (GMD) as compared to hospital laboratory equipment.
Methods: This was a prospective, observational cross-sectional, consecutive patient trial with data collected between November 1991 and April 1992. All patients falling under the altered response protocol in an urban EMS system with 60,000 transports yearly were eligible for inclusion. Paramedics utilized a glucose measuring device (Extratech, Medisense Inc.) at the time of field intravenous (IV) line placement and blood draw, with a tube given to the hospital. If IV access was unavailable, a finger-stick determination was made and compared with the hospital level. Information on predictive signs and symptoms of hypoglycemia (tachycardia, diaphoresis, history, etc.) also was obtained.
Results: The device was utilized on 203 patients, with hospital data available on 136. Major sources of incomplete data included no hospital glucose determination (26), no hospital record of patient (21), patient refusing transport (9) and hospital closure (8). The two sets of values were compared utilizing the Pearson product-moment correlation coefficient, with a resulting value of 0.878 ($p < .0001$). In detecting hypoglycemia (< 80 mg/dl), the GMD had a sensitivity of 93%, a specificity of 94.3%, a positive predictive value of 93% and a negative predictive value of 99%. The two missed hypoglycemics had hospital levels in the 70 mg/dl range. There were no instances of device failure or operator problems. Average rise in level was 100 mg/dl for 1 amp D50 and 78.8 mg/dl for 1 mg glucagon. No signs or symptom complex allowed for reliable identification of hypoglycemia.
Conclusion: Compared to hospital lab values, the GMD provides an accurate measurement of glucose for prehospital providers.