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A Non-Profit Cooperative to Improve Health Care and Reduce Members' Costs

Presented at the 2009 EMS Today Conference in Baltimore, Maryland

Cardiac arrest after pre-hospital Rapid Sequence Induction

November 2008

Introduction:

MONOC EMS has been performing Rapid Sequence Induction (RSI) since April 2006. The RSI protocol is regulated by the New Jersey Office of Emergency Medical Services and is only performed with On-Line Medical Control.

Hypothesis:

Common comorbidity factors exist in patients who go into cardiac arrest (CA) after undergoing RSI.

Methods:

MONOC EMS has had 513 occasions to use RSI on patients between April 2006 and July 2008. 26 patients (26/513 5.07%) have gone into CA. A retrospective review of these 26 patients was completed. The following data was evaluated and compared to determine common factors of the cardiac arrest: age, sex, past medical history, initial SPO₂, intubation attempts, method of airway control and time to advanced airway placement.

Results:

Of the 26 patients that went into cardiac arrest, 10 had respiratory complaints, 9 were unconscious and 7 had traumatic injuries. After reviewing the data, we eliminated the trauma victims due to the nature of the injuries. We then concentrated on the remaining 19 patients (19/513 3.7%). The medical histories of the unconscious patients were significant for cardiac and respiratory disease. The remaining were significant for respiratory failure. The initial median SPO₂ reading for both groups was 87%. All patients received successful airway control: 11 endotracheal intubations, 7 Combitubes, 1 Oral Pharyngeal Airway. Advanced airways were confirmed patent by both a colorimetric device and capnography.

Conclusions:

Patients over the age of 75, with significant respiratory and cardiac disease that are extremely hypoxic may not be good candidates for the RSI procedure.

A number of factors could affect the findings:

- 1) The patient's existing medical condition could inhibit the patient from being oxygenated sufficiently to perform the procedure.
- 2) The paramedics may not be raising the patient's SPO₂ enough by pre-oxygenation to keep the patient oxygenated during the procedure.
- 3) In the cases where more than one intubation attempt was necessary, the paramedics may not be re-oxygenating patients effectively between intubation attempts.

Further study is necessary to investigate these issues.