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2019 Air Medical Transport Conference Scientific Assembly Abstracts

The following pages feature the presentations accepted for the 2019 Air Medical Transport Conference in Atlanta, GA. The presentations are alphabetized by title; otherwise, they appear as provided by the Association of Air Medical Services. Contact AAMS at (703) 836-8732 for more information.

Effect of Suction Assisted Laryngoscopy Airway Decontamination (SALAD) Training on Intubation Quality Metrics

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Introduction: VCU Health Critical Care Transport Network paramedics and nurses staff three rotary-wing aircraft and one ground ambulance that provide scene response and interfacility transports throughout Virginia. Prehospital rapid sequence induction and intubation are among the highest risk procedures employed by these providers, particularly when the airway is massively contaminated with blood or vomit. A quality assurance review of attempted prehospital intubations determined issues with suction to be a key factor in those requiring more than one attempt. A targeted training session introducing Suction Assisted Laryngoscopy and Airway Decontamination (SALAD) was implemented and quality improvement data collected.
Methods: SALAD was introduced during scheduled quarterly training. In attendance were 15 nurses and 10 paramedics for a total of 25 participants. With no prior notice, training or cognitive priming each participant attempted intubation using videolaryngoscopy on a custom high fidelity training mannequin designed to emit 650 ml per minute of simulated vomit into the airway. Following their first attempt, participants were instructed on SALAD technique by an EMS-fellowship trained emergency physician. Participants then had another opportunity to intubate the mannequin using SALAD technique. Data was collected on number of attempts and time to successful intubation before and after training.
Results: Mean time to successful intubation improved from 68.28 seconds to 49.76 seconds (95% confidence interval [CI], -34.976 to -2.064; P = 0.0282). There was a trend toward improvement in mean number of intubation attempts overall from 1.12 per participant to 1.0 (CI, -0.0135 to 0.2535; P = <0.0001). Subgroup analysis, however, found there to be significant improvement for participants whose first attempt time was greater than 91 seconds, from a mean of 127.40 seconds to 53.80 seconds (CI, -116.674 to -30.526; P = 0.043) and 1.6 attempts per participant to 1.0 (CI, -1.165 to -0.0349; P = 0.0400) post intervention.
Conclusion: In a controlled environment, SALAD training improves both first pass success and total time to successful intubation. The greatest improvement was observed in the group with the most difficulty and longest time to intubation prior to the targeted educational intervention. This indicates that the introduction of an effective, standardized suction technique for massively contaminated airways can significantly improve quality metrics for intubation by prehospital providers. Further research is needed to determine skill retention and generalizability to an uncontrolled environment.

The Glucose Connection: Field Hyperglycemia as an Early Predictor of Hypotension in Trauma Patients

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Introduction: Trauma is the fourth leading cause of death overall for all ages and identifying a preemptive surrogate parameter that indicates impending shock would allow for optimization of prehospital care.Stress induced hyperglycemia (SIH) occurs secondary to critical illness or injury. Research indicates that SIH is a predictor of mortality in critically ill patients. Multiple studies have indicated a positive correlation between admission hyperglycemia and hypotension in trauma patients. The purpose of this retrospective chart review study is to evaluate the utility of prehospital point of care glucose as an independent predictor of hypotension in the adult trauma patient.
Methods: The primary study objective was to determine if point of care glucose measurement during prehospital transport is predictive of hypotension (systolic blood pressure < 90 mmHg) prior to arrival at the receiving trauma center. A total of 107 patients met inclusion criteria. The primary analysis was a receiver operating characteristics curve, (ROC curve) for the blood glucose diagnostic for predicting hypotension outcome with 95% confidence for the area under the curve and non-parametric comparison to 0.5. The optimal diagnostic cutoff point was determined using Youden's J and 95% confidence intervals for sensitivity and specificity.
Results: There were a total of 1623 trauma transports for the programs in 2018. Our final sample was 107 trauma patients. There were n=22 (20.6%) who had hypotensive systolic BP values (systolic BP < 90) upon arrival at the receiving facility. The ROC diagnostic determined that glucose >= 220 and had a 2.95 increased relative risk of hypotension if the patient's point of care glucose was >= 220. Patients with a glucose >= 220, the systolic blood pressure decreased an average of 13.5 mm Hg. A glucose < 220 demonstrated an increased systolic blood pressure of 0.26 mmHg.

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