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Incidence of Hypokalemia in Patients Presenting to the Emergency Department with Diabetic Ketoacidosis

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cost or lack of trained personnel (35%). 72% of non-users indicated they had no future plans for adoption.

Conclusion: Although considered standard of care by the scientific community, therapeutic hypothermia in cardiac arrest patients remains rarely utilized by most EDs throughout Arizona. Barriers to use include inadequate education regarding the benefits of hypothermia, perceived cost, and lack of training in implementation.

10 EMS Patients Receive More Rapid Care than Ambulatory Patients for Acute Stroke

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Background: It has been demonstrated that the majority of pre-hospital delay occurs from the time of onset of acute stroke (CVA) to the time of the patient's actual decision to seek care. What is less clear is the role of the emergency department (ED) care providers on the pace of the patient's care in the setting of CVA.

Objective: To study the effect of EMS transport on the pace of care of providers in the ED.

Methods: Retrospective chart review of four months of patients with a final ED diagnosis of CVA. Demographic data as well as time to order and time to administration for CT head, aspirin, and neurology consult were examined and compared for patients who presented via EMS vs. those who walked into the ED. Comparisons of the medians (in minutes) were done for each variable examined. We also calculated the odds for CT done in less than one and two hours from arrival.

Results: Forty-three patients received the final diagnosis of CVA during the four-month period. EMS transported 19 of these (44%). EMS patients had a CT ordered more rapidly (52 vs. 108 minutes), and a neurologist called more quickly (90 vs. 469 minutes) than the ambulatory patient. The EMS patients had an OR of receiving a CT of the head within one hour of 3.09 (95%CI: 0.64,15) and an OR = 3.33 (95%CI: 0.86, 13) within two hours. None of the differences were statistically significant for either the ordering of the therapies or their administration.

Conclusion: In this facility, it appeared that there was a trend to treat patients with CVA who presented via EMS more rapidly than those who walked in. It is unclear the effect this had on outcome.

11 Incidence of Hypokalemia in Patients Presenting to the Emergency Department with Diabetic Ketoacidosis

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Background: Hypokalemia is reported to occur in approximately three to four percent of patients with DKA. To prevent complications of severe hypokalemia, the American Diabetes Association (ADA) treatment guidelines recommend ensuring that serum potassium levels are > 3.3 mEq/L prior to initiation of insulin in the treatment of DKA.

Objective: To assess the incidence of hypokalemia in patients presenting to the ED with hyperglycemia with or without DKA.

Methods: This was a multicenter retrospective study at three urban academic EDs with a combined annual adult census of 150,000. Charts of patients who presented to the ED between January and December 2005 with hyperglycemia (defined as serum glucose > 200 mg/dL) or DKA (defined in accordance with ADA guidelines as serum glucose > 250 mg/dL, serum bicarbonate < 18 mEq/L or anion gap > 15, and evidence of ketonemia or ketonuria) were reviewed. Initial lab values on presentation were assessed for the incidence of hypokalemia.

Results: 800 patients (461 with DKA) were diagnosed with hyperglycemia. The mean potassium level was 4.7 mEq/L (range 3.3 to 8.1, SD +/- 0.8). For those patients diagnosed with DKA, the mean potassium level was 4.9 mEq/L (range 3.3 to 7.5, SD +/- 0.8). Only two cases of serum potassium < 3.5 mEq/L (both 3.3) were found in our DKA patients (incidence of 0.4 percent).

Discussion: Our results suggest that the incidence of hypokalemia in ED patients with DKA may be far less than three to four percent. As the demographics of DKA are changing (e.g. increasing numbers of older patients, patients with renal disease, and patients with congestive heart failure), our ability to depend on IV fluids alone as the initial therapy in DKA may be diminishing. Today's DKA patients may be less likely to tolerate large fluid loads and are potentially more prone to hyperkalemia. The benefits of early insulin administration may outweigh the risk of causing severe hypokalemia.

Conclusion: The incidence of hypokalemia among hyperglycemic patients presenting to the ED with or without DKA appears to be less than prior estimates. Further research is needed to better determine the risks and benefits of administering insulin before obtaining serum potassium values.

12 Development of a Model to Compare Emergency Chemical Decontamination Methods

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Background: Many first responders plan to decontaminate people contaminated by hazardous substances by drenching the victims with water before removing their contaminated