Derangements in Blood Glucose Following Initial Resuscitation from In-hospital Cardiac Arrest

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- Cardiac arrest impacts glucose homeostasis
- Studies have shown worse outcomes and mortality are associated with both hyperglycemia and the lowest blood glucose concentration post cardiac arrest
- Understanding blood glucose regulation post cardiac arrest can shape clinical guideline development to improve patient outcomes

Top Ten Things To Know Derangements in Blood Glucose Following Initial Resuscitation from In-hospital Cardiac Arrest

1. The objective of this study was to examine the association between post arrest blood glucose concentrations and outcomes in patients with and without a history of preexisting diabetes.

2. This study reviewed 17,800 adult in-hospital cardiac arrest (IHCA) from the National Registry of Cardiopulmonary Resuscitation (NRCPR) database (January 1, 2005 through February 1, 2007).

3. Hyperglycemia is common in diabetic and non-diabetic patients following in-hospital cardiac arrest

4. A significantly higher proportion of patients with diabetes had maximum glucose values over 240 mg/dL as compared to patients without diabetes.

5. Survival to hospital discharge was higher for non-diabetic patients.

6. Outcomes-based thresholds of hyperglycemia and hypoglycemia varied between diabetic and non-diabetic patients.

7. For diabetic patients survival did not vary when stratified by maximum glucose quantile; however, when stratified by minimum glucose there is a trend towards improved survival within a narrow range between 71-110 mg/dL.

8. For non-diabetic patients, the maximum glucose range between 141-170 mg/dL was used as the reference range of glucose concentration which had the highest survival rates in this group. There also was a non-significant trend towards improved survival odds for minimum glucose values in the 71-110 mg/dL range.

9. Specific risk factors associated with post arrest hyperglycemia included age, race, certain preexisting conditions and immediate causes, first documented pulseless rhythm and use of intra-arrest epinephrine.

10. Additional research is needed to address optimal glucose management during the immediate post cardiac arrest period

What does this mean to your facility?

Post-arrest hyperglycemia is common. Control of blood glucose should minimize hypoglycemia, keeping levels >70 mg/dL, >3.9 mmol/L, especially in non-diabetics.