

Impact of a Tight Glycemic Control Protocol in Critically Ill Patients

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Problem:

Blood glucose control in critically ill patients was inconsistent.

Evidence:

The impact of hyperglycemia in critically ill patients is well documented in the literature. The incidence of infection, sepsis, cardiovascular abnormalities, neuronal injury, and mortality are all greater when hyperglycemia is present. Although the benefits of euglycemia with a tight glycemic control protocol are well-known, it is not known whether these patients are subjected to significant episodes of hypoglycemia.

Strategy:

Baseline data collection revealed mean blood glucose of 161mg/dL. A nurse-driven, tight glycemic protocol was developed to target the blood glucose of 81-110mg/dL and staff education completed. Each patient on the protocol was monitored during treatment to evaluate effectiveness of the protocol and monitor for hypoglycemia.

Practice Change:

All critically ill patients over the age of 18 years were eligible to be placed on the tight glycemic control protocol.

Evaluation:

For six months, every patient entered into the protocol was monitored for demographics, length of stay, starting blood glucose level, time to goal, mean blood glucose level, and episodes of hypoglycemia for up to three days.

Results:

All patients monitored (n=39), except for one, were maintained within the targeted blood glucose range of 81-110 mg/dL. The mean starting blood glucose was 221mg/gL, mean time to goal 10.6 hours, and mean blood glucose 103.6 mg/dL. Episodes of hypoglycemia, defined as blood glucose of <45 mg/dL, was infrequent. Of 1,774 blood glucoses monitored, <1% had hypoglycemia.

Recommendations:

A tight glycemic protocol in the intensive care unit allowed for patients to achieve and maintain euglycemia without subjecting them to significant hypoglycemia. Implementation of an evidence-based protocol that is closely monitored can assist in improved patient outcomes. The authors believe that with proper education, the clinical benefits of euglycemia can be reaped without hypoglycemia being an issue.

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