

Tight Glycemic Control in Non-Critically Ill Patients

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Problem: Blood glucose control in non-critically ill patients is inconsistent.

Evidence: Hyperglycemia is associated with an increased length of stay, cardiovascular insult, and delay in infection resolution among other adverse events. There is a shortage of evidence evaluating subcutaneous tight glycemic control algorithms and their rate of hypoglycemia.

Strategy: This study examined the effect of sliding scale insulin (SS) versus a subcutaneous tight glycemic control (TC) protocol on blood sugars (BS) of patients that were not critically ill. The target BS range was 80-150 mg/dL.

Practice Change: IRB-approved, retrospective analysis was done on SS patients from March through May of 2006 and TC patients from October through December of 2006 all of whom were on the respective regimens for a minimum of three days. SS patients that received oral hypoglycemics or any insulin other than regular or insulin aspart were excluded. TC patients that received oral hypoglycemics or any insulin other than insulin glargine with regular or insulin aspart were excluded.

Evaluation: Demographics, co-morbidities, and BS were examined.

Results: Sixty-nine SS patients and seventy TC patients met criteria. Demographics, percentage of diabetic patients, co-morbidities, and length of therapy were statistically similar. The mean BS was 168.6 mg/dL in SS patients and 162.1 mg/dL for TC patients ($p=0.004$). For SS patients, 0.6% of the BS were 0-60 versus 1.7% for TCI. A BS of 61-79 mg/dL was achieved in 1.6% of SS and 5.4% of TCI BS. In the SS group, 41.6% of the BS were in the target range of 80-150 mg/dL versus 45.4% of the BS in the TCI group ($p<0.0001$). Hyperglycemia (BS >150) was found in 56.3% of the SS BS versus 47.5% of the TCI BS ($p<0.0001$).

Recommendations: The TC algorithm for non-ICU patients was more effective and just as safe as SS.

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