

Patient Safety Improvements with IV Insulin Compared to Subcutaneous Insulin in the ICU

Marina Rabinovich, PharmD, Alexandria Hall, PharmD, Rita Gayed, PharmD, Katleen Chester, PharmD, Jennifer Crowe, MHA, CPHQ, Jordan Messler, MD

Grady Memorial Hospital
Atlanta, GA, USA
mrabinovich@gmh.edu

Objective:

In the ICU setting, compare the use of continuous insulin infusions to similar patients on long-acting basal subcutaneous insulin, on patient safety-related to hypoglycemia and efficiency outcomes, such as time to target.

Method:

Retrospective comparison of 100 patients on continuous IV insulin via eGlycemic management system, Glucommander, to 100 patients on long-acting insulin. Patients with DKA were excluded, and all patients were >18 years old. Both groups were on therapy for at least 48 hours and grouped according to the initial insulin therapy chosen.

Result:

Patients on continuous IV insulin had significant reductions in hypoglycemia, p-value < 0.05, compared to a similar group on subcutaneous basal insulin. Patients on continuous IV insulin had no reported severe hypoglycemia rates, and rates of < 70 mg/dl based on all blood glucose testing was 0.1%. The patients on subcutaneous basal insulin initially had rates of severe hypoglycemia of 1.5% and < 70 mg/dl of 3.1%. The time to target was 18.6 hours in the subcutaneous group on average, and 7.1 hours in the IV insulin group.

Conclusion:

For the management of critically ill patients with hyperglycemia, continuous IV insulin is preferred to subcutaneous insulin.