Evidence-Based Tight Glycemic Control for Post Surgical Patients
Heather L. Bowen, BSN, MHA, MBA
Michael E. DeBakey VA Medical Center
Hamam Alrabaa (Presenter)

Problem
Approximately 50% of postsurgical patients have hyperglycemia. Tighter glycemic control is essential to promote healing and prevent complications for these patients.

Evidence
A systematic literature review was performed to collect current evidence published within the last 5 years on the best practice of glycemic control for postsurgical patients. The randomized controlled trials (RCT) were used as part of the key words in the PubMed search. A total of 16 papers were located.

Strategy
The best outcomes based on the time to the targeted blood glucose (80-110 mg/dl) was achieved by using the computerized algorithms, 7 RCTs published in last 2 years; as compared to the nurse-driven protocols.

Practice Change
The computerized system utilizes an algorithm that gradually lowers blood sugar maintaining the metabolic homeostasis for insulin infusion.

Evaluation
A computer program that regulates the insulin drip based on blood sugar level is superior to other methods of glycemic control.

Results
Time to achieve targeted glucose ranges are 13.6-14.1 hours for physician-driven and 7.4 hours for nurse-driven insulin infusion protocols; and 6.9 hours for the computerized system. The hypoglycemia rate is 0.4% to 0.6% for the computerized system, vs. 1.1%-3.4% for the other protocols. If hypoglycemia occurs, the computer instantly stops administering insulin; with the average time to recover from hypoglycemia was 26 minutes with an alarm to alert the nurse requiring a blood test. The majority of hypoglycemic cases in the nurse-driven protocols were due to nursing errors such as forgetting to decrease the units per hour, the complexity of the protocol, and quick response in rechecking blood sugar levels. Carbohydrate intake commonly offset the glycemic balance for all methods.

Recommendation
The findings reveal that the computerized insulin infusion is safe and efficient with less adverse effects.


