Reduction of Hypoglycemia in Postoperative Cardiac Surgery Patients on Insulin Infusions

The Problem

Tight glycemic control leads to decreased mortality and morbidity after cardiac surgery. An undesirable outcome of insulin infusion can be hypoglycemia. While maintaining the effectiveness of our insulin protocol, we recognized the importance of improving the safety of this therapy.

Aim/Goal

Our goal was to maintain tight glycemic control while decreasing the incidence of hypoglycemia from 7% to 1%.
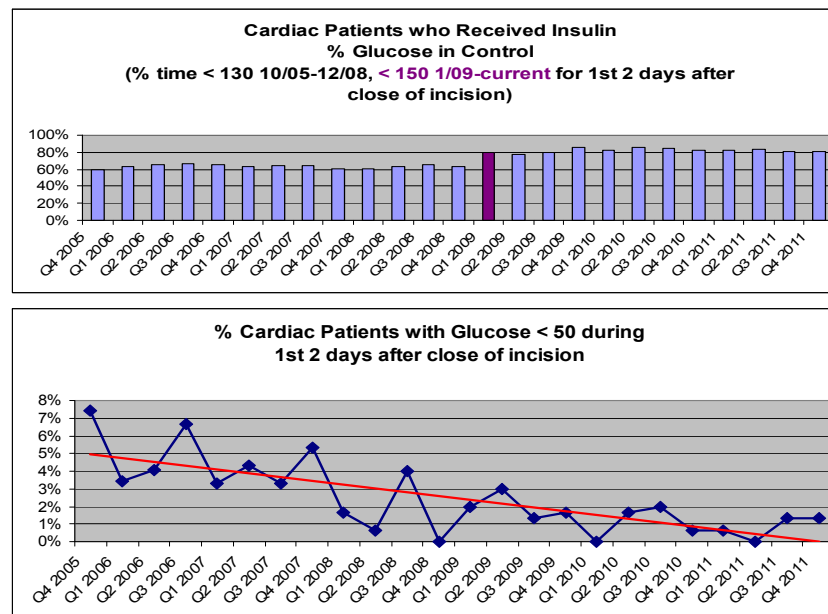
The Team

- Margie Serrano RN MS
- Mark Courtney NP
- Kamal Khabbaz MD
- The entire staff of the CVICU
- Gail Piatkowski BSCS

The Interventions

- Treatment - Raised glucose goal from 80-110 mg/dl to 90-120 mg/dl

- Tool - Redesigned the protocol for easier use, emphasizing how to manage falling glucose

- Measurement - Changed metric in 2009 for efficacy from time under 130 mg/dl to time under 150 mg/dl, recognizing our raised target

- Education – Trained staff about revised protocol

- Feedback loop – Provided monthly feedback to nursing and medical staff, including detailed case review of each instance of hypoglycemia

The Results/Progress to Date……….

Cardiac Patients who Received Insulin
% Glucose in Control
(% time < 130 10/05-12/08, < 150 1/09-current for 1st 2 days after close of incision)

% Cardiac Patients with Glucose < 50 during 1st 2 days after close of incision

Lessons Learned

Monthly, real-time feedback to entire team focuses on preventability of potential harm from hypoglycemia.

CoreValve patients are considered cardiac surgery patients, but are usually managed in the CCU by CCU team, without use of CVICU protocol.

Next Steps/What Should Happen Next:

Continue to monitor results and adjust protocol to data. Consider raising target range to 100-120. Improve guidelines for treatment of hypoglycemia<60 to mirror BIDMC hypoglycemia protocol.

Improve effectiveness and safety of transition from insulin infusion to subcutaneous insulin throughout the postoperative course.

Develop glycemic control protocol for percutaneous CoreValve patients.

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