

Implementation of an Electronic Order Set to Improve the Perioperative Management of Patients with Diabetes Mellitus

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Objective:

Multiple studies have demonstrated the benefits of optimizing glycemic control in the perioperative period. Several professional organizations have published guidelines that recommend routine perioperative blood glucose testing and treatment with insulin to target blood glucoses (BG) under 180 mg/dL. However, practical tools to implement these guidelines are lacking. This study aims to implement established guidelines by piloting a novel electronic order set to optimize perioperative glycemic control in the adult, non-pregnant patient with diabetes mellitus (DM) in a community hospital setting.

Method:

A novel electronic order set and workflow was developed and piloted for adult patients with known DM undergoing inpatient surgery. 6-month baseline and 6-week pilot data were obtained including frequency of perioperative BG monitoring, glycemic control, frequency of hypoglycemia and use of insulin for hyperglycemia.

Result:

At baseline, the frequency of BG monitoring was 85% pre-op, 33% intra-op, 21% PACU and 94% in the 24-hours after surgery. During the pilot, the frequency of BG monitoring increased to 95% pre-op, 59% intra-op, 48% PACU and 98% in the 24-hours after surgery. Fast-acting insulin was administered more frequently for hyperglycemia at all phases of care, including 78% in pre-op compared to 44% at baseline. Mean BG decreased in all phases of care including in pre-op from 160mg/dL to 140mg/dL and in the 24-hours after PACU from 173 mg/dL to 157mg/dL without significant increases in hypoglycemia. Severe hyperglycemia rates in the 24-hours after surgery decreased from 10.1% to 4.7%.

Conclusion:

Implementation of a novel electronic perioperative diabetes management order set and workflow significantly improved the BG monitoring and glycemic control in patients with known DM undergoing inpatient surgery in a community hospital setting.