**PERIOPERATIVE “SWEET” SUCCESS**

**Inpatient Diabetes Program Glycemic Team**

**Moses Cone Pre-admission Testing Staff**

**BACKGROUND**

- Literature shows that perioperative patients with diabetes, with adequate glycemic control have decreased complications such as hypoglycemia, hyperglycemia, ketoadvance, and other infections. It also helps maintain fluid and electrolyte balance.
- Inconsistent practices were observed in patients with diabetes in pre-admission testing (PAT), pre-operatively, intraoperatively and post-operatively therefore standardized blood glucose management was necessary.

**Standardization of Care**

- “Guidelines for Diabetes Management” were created based on a literature review and expert consensus by endocrinologists, anesthesiologists, and clinical nurse specialists which included:
  - Goals of Perioperative Diabetes Management
    - Avoidance of hypoglycemia and hyperglycemia
    - Prevention of ketoacidosis
    - Maintenance of fluid and electrolyte balance
    - Goal glucose reading between 140-200 mg/dl
  - “Diabetes Medication Adjustment Guidelines Prior to Procedure and Surgery” were also created for standardized medication adjustments/instructions prior to surgery.
  - Collaborative meetings were held with anesthesiologists, PAT nurses, and the Inpatient Diabetes Program to decide how these guidelines would be initiated.
  - It was decided that a Pilot would be initiated on the MC campus with 4 PAT nurses to test the process and determine the volume of diabetes patients and “current state” of glycemic control.

**“Current Practice” Prior to Pilot**

- HgbA1C inconsistently available prior to surgery
- Blood sugars not available during PAT appointment
- There was no distinction between Type 1 and Type 2 diabetes regarding medication management prior to surgery
- Practice of insulin pump management prior to and during surgery was inconsistent
- Lack of patient education regarding diabetes management prior to surgery

**Methods:**

**Phase 1 Pilot (63 patients)**

- A1C ordered on all patients with diabetes.
- Capillary blood glucose (CBG) was checked on all patients at PAT appointment.
- CBG’s were evaluated on day of surgery.

**Phase 2 Pilot (60 patients)**

- Pilot group of 4 PAT nurses were trained on “Diabetes Medication Adjustment Guidelines” and how to review with patient’s at PAT appointment.
- Phase 2 of Pilot was planned during a 3 week time period which included: A1C, CBG at PAT appointment, Assessment of type of diabetes, and when to alert PA (CBG>250 mg/dl)
- RN’s reviewed patient written instructions and informed patients of “Pre-surgery insulin doses” and diabetes medications based on guidelines.

**Results**

- Out of 257 patients 24.5% had diabetes
- 83% of surgery cancellations (6) or no documented surgery was unnecessarily cancelled (19)
- 11.30% had capillary blood glucose within the goal range of 71-180 mg/dl
- 9.50% of patients had a1c ordered and done.
- 80% of patients had a1c ordered and done.
- 28.30% had capillary blood glucose within the goal range of 71-180 mg/dl
- 0.30% had blood sugars not available during PAT appointment.
- 50.00% of patients had blood sugars not available during PAT appointment.
- 20.00% had capillary blood glucose within the goal range of 71-180 mg/dl

**Conclusions**

- Phase 1 Pilot (63 pts.) versus Phase 2 pilot (60 pts.)
  - Phase 1 Pilot: 10 patients excluded - surgery cancellation (6) or no documented CBG day of surgery (4)
  - Phase 2 Pilot: 2 patients excluded- surgery cancellation
  - Phase 2 of the Pilot showed an improvement in patient’s blood sugars the day of surgery with 94% being within goal of (71-180 mg/dl)
  - There was one hypoglycemic event in the Phase 2 Pilot group on the day of surgery, however insulin doses were decreased the day prior to surgery (prior to pilot insulin doses were not reduced the day before surgery)
  - RN’s did state that they observed increased time needed to review “How to Manage your Diabetes Before and After Surgery” therefore prompting further discussion with leadership regarding appointment lengths.
  - Overall the intervention proved successful and blood glucose levels the day of surgery improved
  - Further, A1C results allow MD’s and RN’s to better assess the patients glycemic control prior to surgery and identify patients who need further follow-up with PCP and diabetes education after surgery

**Implications and Next Steps**

- Revise patient instructions and train PACU RN’s regarding “Management of Blood Sugars” after surgery
- Move pilot forms/assessment to EPIC environment to improve process
- Consider increasing appointment times in PAT for patients with diabetes
- Broaden scope of project to include other campuses within the health system
- Consider interview of patients to assess their perception of process

**REFERENCES**


University of Washington Medical Center, 2007 “How to Manage your Diabetes Before and After Surgery”