Management of Hyperglycemia in Non-Critically Ill Patients with Diabetes Mellitus on A Medical Ward at A Community-Based Teaching Hospital

Kemar Barrett MD[1], Hassan Alkhatatneh MD[1], Anesha White MD[1], Namratha Pallipamu MD[1], Mary O'Connor MSN RN CDCES[2], Yelena Galumyan MD[1], Viet Nguyen MD[1], Dipal Patel MD FACP FASN[1]

[1]Department of Internal Medicine, Englewood Health, NJ; [2]Department of Diabetes Education, Englewood Health, NJ

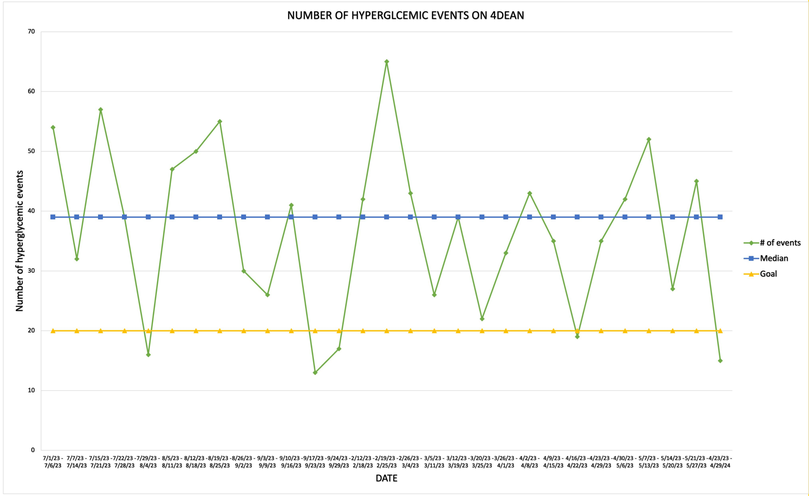
BACKGROUND

- Diabetes Mellitus (DM) affects ~10.5% of the U.S. population.
- Inpatient hyperglycemia is tied to extended hospital stays, increased healthcare costs, higher readmission rates, and elevated morbidity and mortality.
- The Center for Medicare and Medicaid services (CMS) has unveiled two electronic clinical quality measures focused on inpatient glycemic management. These are expected to incentivize hospitals to prioritize glycemic control initiatives.
- This study aimed to reduce hyperglycemic events in diabetic patients [blood glucose (BG) ≥ 200 mg/dL] by 50% over a 3-month duration on a medical unit through a series of interventions.

METHODOLOGY

- A 3-month chart review was conducted.
- Goal to determine the baseline hyperglycemia rates across medical units and identify the unit with the highest rate for the study.
- A pre-intervention survey evaluated medical providers' comfort levels with inpatient insulin regimen adjustments.
- Educational sessions were held with residents and hospitalists on managing inpatient hyperglycemia.
- Reference pocket cards outlining an algorithmic approach to hyperglycemia management were distributed to providers
- A chapter on the topic was added to the MD pocket notebook for interns.
- Bi-weekly reports were collected over a 4-month period, covering BG values ≥ 200 mg/dL, recent HbA1c, anti-hyperglycemic medications, steroid use.
- Hypoglycemic events (BG ≤ 60 mg/dL) and rapid responses for hypoglycemia were tracked as balancing measures

RESULTS



- The pre-intervention survey showed that 37% of physicians were comfortable adjusting drug regimens during admission.
- However, among PGY1 medical residents, 50% were not comfortable and 50% were somewhat comfortable performing these adjustments.
- Our QI team, given these findings, concentrated efforts on the residents.
- The average HbA1c of the patients was 8.01% (SD 0.57)
- Post-intervention, there was a slight reduction in average weekly hyperglycemic events (36.4 vs. 36.7), with a p-value 0.96.
- Hypoglycemic events declined per week in the post-intervention period (1.81 vs. 2.53), with a p-value of 0.39.
- One hypoglycemia rapid response was recorded post-intervention.
- Of note, 25% of patients with hyperglycemic events were on glucocorticoids.
- Major limitations included inadequate Epic staff, which compromised the implementation of best practice alerts (BPAs) on glucose panel modifiers, and the need for more frequent educational sessions due to continuous resident rotations.

CONCLUSION

- Inpatient hyperglycemia poses a significant risk for increased morbidity and mortality.
- Focused interventions can be effective in curbing rates of inpatient hyperglycemia.
- Further strategies are needed to manage hyperglycemia in patients undergoing steroid therapy.
- As our hospital prepares for electronic BPA implementation, we anticipate a smoother journey towards reaching our aim.
- We suggest further research to assess the impact of this QI project on hospital length of stay and cost-effectiveness.

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