Timing of Insulin Administration

Zeena Bacchus BSN, RN

Lehigh Valley Health Network

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Timing of Insulin Administration

Zeena Bacchus, RN, BSN
Background/Significance

- Glucose control affects the recovery process of hospitalized patients.
- Rapid acting insulin administration in a timely manner can help control diabetic patients blood sugars and decrease the length of stay in the hospital.
- Although LVHN has developed protocols and interventions to help with insulin administration, there are still high numbers of patients not receiving insulin in a timely manner.
- Episodes of hypoglycemia occur with significant risks to diabetic patients.
In adult diabetics on PCU requiring timely rapid acting insulin, will multifactorial interventions (educating, communicating, and visual cues) compared to current practice result in fewer hypoglycemic episodes and staff satisfaction?

P: Inpatient adult diabetics  
I: Specific visual cues  
C: Current practice versus new implementation  
O: Fewer hypoglycemic episodes, staff satisfaction
Problem Focused Trigger

On PCU, the diabetic educator relayed that there were various trends in timing and administration of insulin which can cause hypoglycemic reactions.
Evidence

- EBSCO and CINAHL were the search engines utilized
- Keywords used were: rapid acting insulin, rapid acting insulin and timing
- Evidence was reviewed and synthesized from six different research articles and analysis of some patients receiving humalog
- Many research articles admit that timing of administration of rapid acting insulin is problematic. Many articles suggest that increasing communication, standardizing meal deliveries, and decreasing the workload of a RN can play a vital role in helping to improve adequate timing
Evidence

- "Many methods have been applied to improve the timing of insulin administration... including nurse page alerts, equal distribution of diabetic patients among nursing assignments, meal times posted in patient rooms, signs on the doors of patients scheduled to receive insulin, engagement of dietary personnel and patients, and nursing education programs" (Houck, Tirumalasetty & Meadow, 2013).

- "The intervention highlighted the importance of appropriate timing of blood glucose monitoring and insulin administration in relation to mealtimes, mimicking as closely as possible the normal insulin response by the pancreas linked to improved clinical outcomes" (Houck, Tirumalasetty & Meadow, 2013).

- "Lack of communication and training were believed to be the two factors that contributed to errors most frequently" (Golightly, Jones, Hamamura, Stolpman, McDermott, 2006).

- "Nurse workload could affect the ability to carry out and coordinate care in a timely way" (Barbara, F., Barbara, B., & Maureen, A, 2011).
Evidence

▪ “Standardizing food delivery schedules and utilizing scorecards to track on-time meal deliveries to the floor enabled nursing to more accurately administer insulin in coordination with the delivery of meals” (Yamamoto, J. J., & Malatestinic, B., & Lehman, A., & Juneja, R., 2010).

▪ “Increasing communication and restricting the scheduling of inpatient procedures during meal times reduced disruptions to insulin administration” (Yamamoto, J. J., & Malatestinic, B., & Lehman, A., & Juneja, R., 2010).

▪ “Engaging dietary personnel and patients in ensuring timely administration of premeal rapid acting insulin (RAI) with use of a sign indicating the need for insulin administration resulted in significant improvements” (Donihi, A.C., & Abriola, C. & Hall, R. & Korytkowski, M.T., 2010).
Current Practice at LVHN

- Hypoglycemia and Hyperglycemia Clinical Practice Guidelines
- Hypoglycemia Algorithm
- Carb coverage magnets
Implementation

1. Process Indicators and Outcomes
   - POC timing and Insulin ISF administration coverage timing

2. Baseline Data
   - Weekly Point of Care Blood Glucose Detail Report displayed that less than 70% of time BG were within range (70-180)

3. Design (EBP) Guideline(s)/Process
   - Data was collected on the timing of POC and the timing of Insulin coverage to determine if it was given within 30 minutes
Implementation (Cont.)

4. Implemented EBP on Pilot Units
   - Implemented on PCU night shift
   - Communication between technical partner and RN
   - In-service staff on
   - Insulin Administration Policy
   - Pilot study conducted from 04/07-04/14

5. Evaluation (Post data) of Process & Outcomes
   - 62% of patient blood glucose received insulin in a timely manner or did not require coverage

6. Modifications to the Practice Guideline
   - No modifications at this time

7. Network Implementation
   - None at this time
Practice Change

This EBP was done to continue to bring awareness on PCU of timing and administration of rapid acting insulin in order to have tighter glucose control and improve patient’s overall health. The continuation of raising awareness and placing visual cues at each pod as a reminder to RNs will be implemented.
Results

- There were a total of 87 Blood Glucose collected with POC time and Insulin Administration timing:
  - 37.7% did not receive rapid acting insulin within 30 minutes
  - 62% received insulin in a timely manner or did not require coverage

- Next steps:
  - Continue to monitor
Implications for LVHN

- Improve glycemic control by decreasing hypoglycemia
- Improve clinical outcomes and recovery process
- Decrease cost
Strategic Dissemination of Results

- PLAN for DISSEMINATION
Lessons Learned

- It was difficult to spread the work during night shift since many of the staff were float RNs or technical partners.

- RNs were receptive that this is an issue but agreed that high workload demand played a critical factor.

- All RNs that were re-educated knew the timing of rapid acting insulin.
References


Make It Happen

- Questions/Comments:

Contact Information: