

Evaluation of an Intervention to Increase Utilization of a Subcutaneous Basal-Bolus Insulin Protocol (#78)

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Background

- Scheduled subcutaneous basal-bolus insulin regimens are preferred for non-critically ill inpatients.
- Basal-bolus insulin protocols are advocated by: American Diabetes Association
- American Association of Clinical Endocrinologists
- Society of Hospital Medicine • DCH has had a subcutaneous basal-bolus
- insulin protocol since 2009.
- The use of the protocol in July 2011 was zero.

Purpose

To develop educational interventions to increase use of a subcutaneous basal-bolus insulin protocol and evaluate whether the intervention was sufficient to sustain an increased use.

Methodology

Project Design

• Single-center, IRB-approved, retrospective

November 2011

 Educational Intervention: presentations to medical, nursing, and pharmacy staff

December 2011

- First Data Collection Period Immediately after
- educationa interventions

March 2012 Second Data Collection

- Period • To evaluate
- whether the intervention was sufficient to sustain an increased

Inclusion criteria:

- Study group
 - Admitted to one of 4 adult medicine units during December 2011 or March 2012
- Received a dose of basal-bolus insulin in accordance with the basal-bolus protocol
- Comparator group –

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- Admitted to one of 4 adult medicine units during December 2011 or March 2012
- Received a dose of regular insulin in accordance with the DCH Sliding-scale insulin protocol
- Hospitalwide basal-bolus group
 - Any patients who received a dose of basalbolus insulin in accordance with the basalbolus protocol during December or March
- One blood glucose measurement > 180 mg/dL

Intervention

- Presentations to nursing staff
- Types of insulin, administration times, holding doses
- Nursing staff from all shifts on the 4 targeted units
- Presentations to physicians
- Recent studies, dosing, modification
- 2 physician groups primarily admit to the 4 units
 - Family Medicine residents
- Hospitalists
- Presentations to pharmacists
 - General information, dosing, order entry

Results

- Education
- 47 Nurses (67%)
- 45 Physicians (94%)
- Hospitalists
- Family Medicine Residents
- 50 Pharmacists (100%)

Table 1. Number of patients receiving the basal-bolus protocol

	July 2011	December	March
	Baseline	2011	2012
Targeted Units	0	3	2
Hospitalwide	0	6	4

Table 2. Demographics

	Basal-	Sliding-	
	bolus	scale	
	N=10	N=15	
Mean age (year)	48.4	59.2	
Female sex	90%	60%	
Home insulin	80%	27%	
Previous diagnosis of DM	100%	73%	
Oral agents used during admission	30%	33%	
Mean days of therapy	3.3	3	
Reason for admission Complication of DM Infectious disease Cardiovascular	30% 30%	13% 7% 40%	
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Table 3. Glucose mean, median and range

	Total	Sample	Mean glucose	Median glucose (range)
Study group (basal-bolus)	5	5	226	201 (59-559)
Comparator group (sliding-scale)	354	15	167	157 (61-382)
Hospitalwide total basal- bolus	10	10	219	200 (59-559)

Graph 1. Hypoglycemic events per patient day







Adherence to the protocol -

- Basal-bolus protocol patients, n=10
- 143 total scheduled doses
- 15 (10%) inappropriately held doses
- 14/15 (93%) were by nurses who did not attend educational sessions

These authors have nothing to disclose concerning possible financial or personal relationships with commercial entities (or their competitors) that may be referenced in this poster.

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Conclusion

 Use of the basal-bolus protocol increased from baseline

• Use decreased 3 months after the education intervention, but remained above baseline Basal-bolus group compared to sliding-scale group

Higher mean glucose

• Fewer episodes of hypoglycemia

Most (93%) inappropriately held doses were by nurses who did not attend the educational sessions

100% of patients outside of the four targeted units started on the basal-bolus protocol were started by the targeted physician groups

Discussion

Patients prescribed the basal-bolus protocol were more likely to be diabetic, on home insulin prior to admission, and to be admitted for a complication or diabetes or an infectious disease.

 These differences may explain the higher mean and median glucose in the basal-bolus groups. Efforts are underway for hospitalwide physician and nursing education.

Disclosure

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