

Basal-On-Board (BOB) Appears to Contribute to Significant Glucose Readings < 70 mg/dl (HYPO) in Hospital Settings

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Goal:

The stress of illness results in increased insulin resistance and exacerbation of hyperglycemia. As insulin sensitivity improves, it is difficult to estimate the required decrease in exogenous insulin to avoid HYPO and excess BOB may place patients at risk. BOB is defined as the difference in the reduced basal dose. This retrospective study was designed to evaluate HYPO that is likely attributable to BOB in hospitalized patients utilizing an electronic glucose management system (eGMS) for dosing.

Methods:

Data from three hospitals utilizing eGMS for basal-bolus insulin dosing were reviewed (3,896 patients) and further stratified based on the decrease in basal dose. Two periods were reviewed: period 1 is the time following a reduction in the dosing model basal insulin until administration of the new, lower basal dose (time at risk of BOB on HYPO) compared to period 2 which is the subsequent 24 hours on the new dosing model.

Results:

After a lowered dosing model, patients who required a greater than 4 unit decrease in basal insulin experienced a significantly higher rate of hypoglycemia in period 1 vs. 2. Without adjustment for BOB, 27% of all HYPO was observed in period 1 related to BOB in the face of a reduction in basal insulin dose responding to down trending glucose values.

Conclusions:

To address the subsequent HYPO following a reduction in basal insulin dose in an environment with reduced insulin requirements such as hospitalization, options include a further, temporary reduction in the bolus dose or carbohydrate supplementation. These adjustments may be difficult to predict, but eGMS algorithms present an opportunity to make dosing adjustments in real-time to help mitigate HYPO.