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Use of the eGlycemic Management System by Glytec Provides Safe and Effective Glucose Control for Cardiac Surgery Patients Managed on Intravenous Insulin Therapy

Joseph Aloï, MD; Paul Chidester, MD; Amy B. Henderson, RN, BSN;
Raymie S. McFarland, PT, BS; Robby Booth, BS;
Melanie Mabrey, DNP, ACNP-BC, BC-ADM, FAANP

Wake Forest Medical Center
Winston Salem, North Carolina, USA
jaloï@wakehealth.edu

Objective:

For patients undergoing cardiovascular (CV) surgery and receiving intravenous (IV) insulin infusions, clinicians are challenged with achieving CMS measures that have changed over time. This study was intended to evaluate the efficacy and safety using Glucommander (GM) to achieve different measurement timelines.

Method:

A total of 1804 patients undergoing CV surgery were evaluated. Glucose control was analyzed over time on Glucommander IV (GM IV) and Subcutaneous (GM SubQ) insulin therapy. Qualifying patients were started on GM IV insulin and transitioned to GM SubQ (179 patients) if ongoing therapy was deemed necessary. The efficacy and safety of IV and SubQ was evaluated by end anesthesia time intervals: (1) blood glucose (BG) average at 12–24 h and 12–72 h; (2) percentage of BG readings in target <180 mg/dl; (3) hypoglycemic events <40 mg/dl and <70 mg/dl; (4) average BG for subgroup who received meals during IV treatment.

Results:

Blood glucose average for patients was 114 mg/dl at 12–24 h and 120 mg/dl for 12–72 h. Percentage of readings in target <180 mg/dl was 98.6% for 12–24 h and 95.1% from 12–72 h. Hypoglycemia defined as <40 mg/dl or <70 mg/dl was 0.0% and 1.03%, respectively, for hours 12–24; whereas hypoglycemia was 0.01% and 0.6%, respectively, for the broader time range of 12–72 h. A total of 1010 meals containing carbohydrates were recorded on GM IV with an average meal BG of 122.7 mg/dl.

Conclusion:

Patients using GM IV and SubQ achieved BG values within the prescribed target range regardless of measurement time frame, with a very low incidence of hypoglycemia. These results suggest that GM IV and SubQ can safely maintain glucoses targets with very minimal risk of hypoglycemia for CV surgery patients, even for those who also need calorie intake.