Comparison of Computer-Guided Versus Standard Hypoglycemia Protocol for the Treatment of Hypoglycemic Events

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Abstract

Hypoglycemia during hospitalization is associated with poor patient outcomes, increased costs and increased mortality. This study was performed to investigate the efficacy of Glucommander (GM) (Glytec®), a computer-based algorithm versus a physician managed insulin regime with a standard hypoglycemia protocol in the frequency and treatment of hypoglycemic events in patients admitted to a general medical surgical unit.

We performed a retrospective study at a 649-bed regional community teaching medical center in Columbia, South Carolina. It involved 228 patients admitted to the medical surgical unit with a diagnosis of diabetes treated with either GM (n = 148) or standard protocol (n = 76). GM utilizes evidence-based multivariate algorithms to provide care teams with patient specific insulin and glucose dosing recommendations in the event of hypoglycemia. Outcomes of interest were number of hypoglycemic events, time to treatment and time to glucose recheck.

Number of hypoglycemic events over a 31-day period pre, during and post GM implementation equaled 82, 42 and 43 respectively. Mean time (minutes) to treatment pre, during and post GM implementation equaled 10.10, 8.41 and 12.16 respectively. Mean time (minutes) to glucose recheck pre, during and post GM implementation equaled 35.21, 32.62 and 27.70 respectively.

Treatment with GM was associated with less hypoglycemic events (2016:2017, 82 vs 42 events, P = 0.01154: 2016:2018, 82 vs 43 events, P = 0.029075). GM did not have a significant effect on time to treatment (P = 0.5823). GM also did not have a significant effect on time to glucose recheck (P = 0.5781).