A Comparison of Glycemic Outcomes for Two Computerized Insulin Infusion Algorithms in CV Surgery Patients

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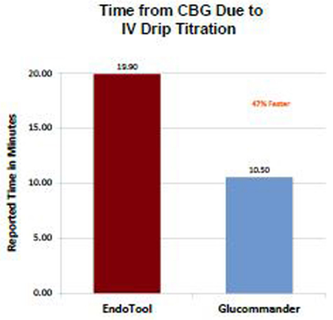
BACKGROUND

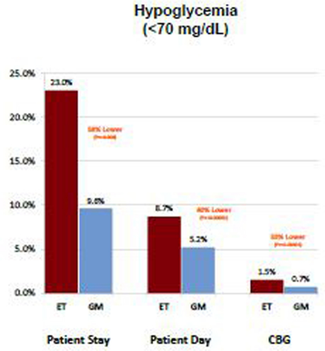
Hyperglycemia in patients undergoing cardiovascular (CV) surgery is an independent risk factor for increased morbidity and mortality. Studies have shown that optimal glycemic management can reduce surgical complications. There are ongoing questions as to which glycemic targets and protocols are best, and little research has been done comparing efficacy and safety for computerized insulin infusion algorithms.

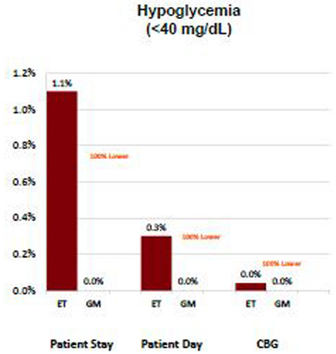
METHODS

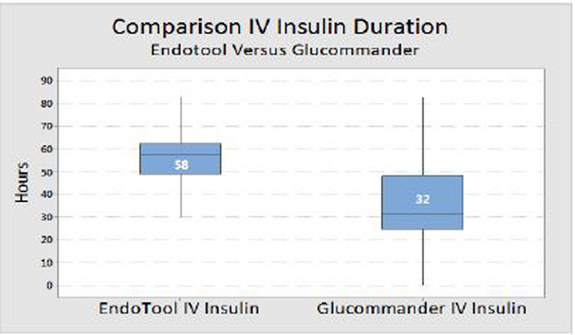
A retrospective evaluation was conducted comparing two computerized insulin infusion algorithms in postoperative CV surgery patients at a 723 bed hospital. The first 1755 patients used EndoTool IV (ET) and the last 219 patients used Glucommander TM IV (GM). Capillary blood glucose (CBG) target was adjusted from <120 with ET to <140 with GM. An observer in the unit completed a time motion analysis.

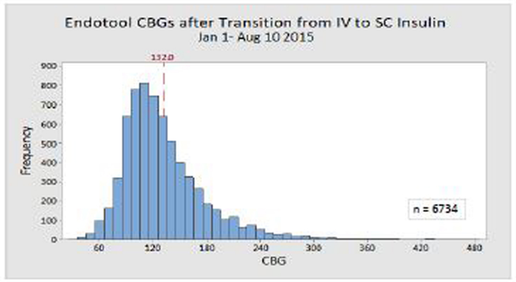
RESULTS

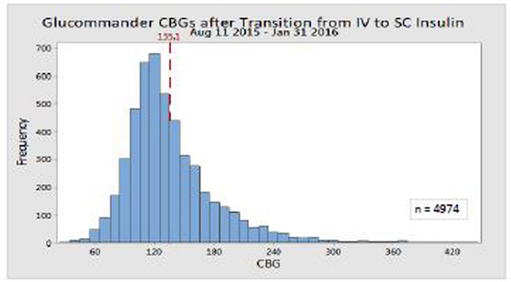


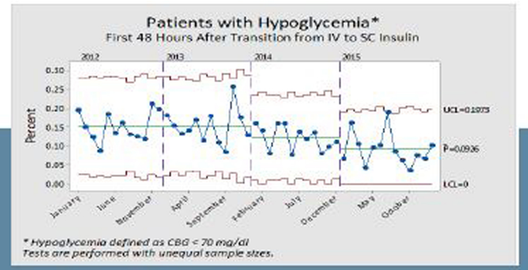


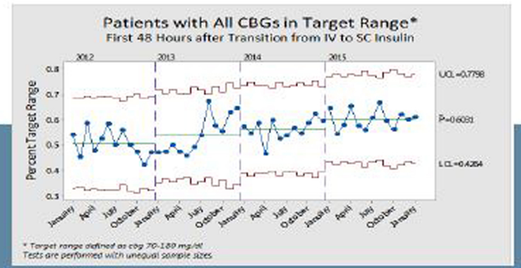












CONCLUSION

- GM was more effective and safer than ET.
- Hyperglycemia BG > 180 mg/dL was significantly reduced with GM compared with ET 6% vs 3.9% (p=<0.00001).
- There were no severe hypoglycemia <40 mg/dL events with GM and there was a significant decrease in hypoglycemia <70 mg/dL with GM compared with ET.
- Nursing time from CBG due to IV insulin titration was reduced by 47% (from 19.9 minutes to 10.5 minutes) with GM compared with ET.

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MISSION HEALTH