Does Glycemic Control Using eGMS Reduce Readmission Rates for Hospitalized Patients Undergoing CABG?

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OBJECTIVE

The CMS Hospital Readmission Reduction (HRR) program added Coronary Artery Bypass Grafting (CABG) to their list of diagnoses that will be measured beginning in October 2016. Hospitals will be penalized for readmission rates above CMS targets. Unrecognized and uncontrolled inpatient hyperglycemia in the CABG population has been shown to lead to increased readmission rates. Reducing hyperglycemia through intensive insulin therapy has shown trends toward reducing the rates of readmissions. This study evaluated the readmission outcomes of patients using an Electronic Glycemic Management System (eGMS) Glucommander (GM) for inpatient insulin management versus insulin managed by Standard Care (SC) in patients undergoing CABG procedures.

METHODS

This retrospective study evaluated 448 patients undergoing CABG procedures who were admitted to a 525-bed teaching hospital over a 32-month timeframe from May 2013 through December 2015. Qualifying patients were on an insulin regimen with a prescribed glucose target of 100-140 and case-matched to either the eGMS IV and SubQ program GM or clinician lead SC. The primary outcome measure was Risk Adjusted Readmission Rates over the 3 years.

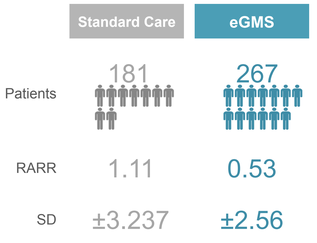
RESULTS

Patients (n=267) treated with eGMS had a Risk Adjusted Readmission rate of 0.53 (M=0.53, SD=2.560) and a readmission rate of 5.24% undergoing a CABG procedure. Patients (n=181) treated with SC had a Risk Adjusted Readmission rate of 1.11 (M=1.11, SD=3.237) and a readmission rate of 12.71% for CABG. eGMS had a significantly lower readmission rate compared to SC (t(376)=2.028, p < 0.043).

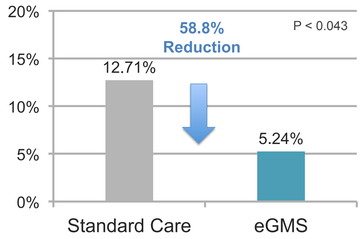
Glucose Results

	eGMS	Standard Care	Stats
Average Admission Blood Glucose	264.3 mg/dL (SD = ±196.4)	234.9 mg/dL (SD = ±140.3)	P < 0.0001
Average Final Blood Glucose	127.9 md/gL (SD = ±62.84)	185.68 mg/dL (SD = ±69.6)	P < 0.0001
Blood Glucose Events Hypoglycemia < 40 mg/dL	0.009%	0.36%	P < 0.0001
Blood Glucose Events Hypoglycemia < 70 mg/dL	0.48%	2.61%	P < 0.0001
Blood Glucose Events In Target Range 70-180 mg/dL	87.7%	58.5%	P < 0.0001
Blood Glucose Events Hypoglycemia >180 mg/dL	11.8%	38.9%	P < 0.0001
% of Patients Hypoglycemia < 40 mg/dL	0.38%	7.26%	P < 0.0001
% of Patients Hypoglycemia < 70 mg/dL	12.56%	28.7%	P < 0.0001

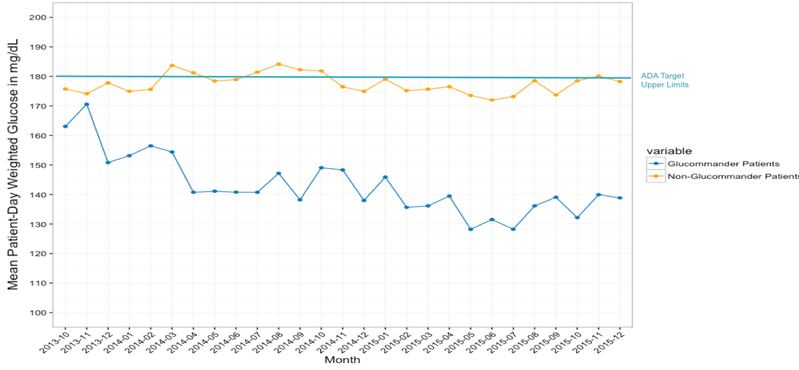
Risk Adjusted Readmission Rates



Readmission Rate Reduction



Monthly Glucose Trends CV ICU



CONCLUSION

There was a significant reduction in readmission rates, admission versus final blood glucose, overall and severe hypoglycemia with eGMS versus standard care. There were no other readmission initiatives occurring during this time period. These results suggest that intensive glycemic management by an eGMS can significantly reduce the rate of readmissions for patients who are in need of insulin management while hospitalized for a CABG procedure compared to patients managed with Standard Care.

AFFILIATIONS

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