Hospitalization Costs, Resource Utilization, and Clinical Outcome in Patients Undergoing CABG

Receiving Intensive versus Conservative Glucose Control

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Background

It is estimated that 50-90% of patients undergoing coronary artery bypass (CABG) develop hyperglycemia during the hospital course and this can be associated with longer hospital stay, greater perioperative morbidity and mortality.

The GLUCO-CABG trial reported that intensive control (IC) targeting a BG of 100-140 mg/dl in the ICU vs conservative control (CC) targeting BG of 141-180 mg/dl did not significantly reduce a composite of hospital complications including wound infection, pneumonia, acute respiratory or renal failure, major cardiovascular events, bacteremia and death (42% vs 52%, p=0.08) in hyperglycemic patients undergoing CABG surgery. The financial impact of this intervention, however, is unknown.

Methods

Data collected: hospital stay (days), Laboratory, pharmacy, radiology, consult service and ICU utilization.

Primary outcome: Difference in hospitalization costs and resource utilization among patients in the GLUCO-CABG trial treated with an insulin drip to keep BG levels 140-180 mg/dl vs 141-180 mg/dl.

Secondary outcomes: difference in health care resource utilization: laboratory, pharmacy, radiology, consult service and ICU utilization.

Results

The GLUCO-CABG trial included 302 ICU patients with and without DM that underwent CABG & were randomized to: Intensive control (IC) BG 100-140 mg/dl, OR conservative control (CC) BG 141-180 mg/dl.

91% of patients were treated with a continuous insulin infusion guided via a computer-guided algorithm (Glucometer) and 288 of 302 patients were included in this cost analysis (IC n=144, CC n=144). 14 patients excluded due to unavailable financial data or admission to Grady Memorial Hospital.

Study Aim

To determine differences in hospitalization costs and resource utilization among patients in the GLUCO-CABG trial treated with an insulin drip to keep BG levels 140-180 mg/dl vs 141-180 mg/dl.

Outcomes

Patient Characteristics

Resource Utilization (instances)

Resource Costs (USD)

Glycemic Control

Hospitalization Outcomes and Costs

Limitations

Intensive glucose control compared to conservative control in ICU patients that have undergone CABG procedures is associated with fewer complications and this in turn results in:

• Lower resource utilization
• Reduced hospitalization costs
• Median cost savings of $2,699 per patient

Conclusions

This study was supported by the American Diabetes Association, Glytec and Sanofi (NCT01792830)

Intensive BG control resulted in a median cost saving of $2,699 (95% CI: $557-7,670); Resource data expressed as median (IQR)

Summary

• Small number of subjects, n=288
• Cost of hypoglycemia treatment was not reported due to the inability to extract this charge data.

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