Intermediate Intensity Glucose Control after Cardiac Surgery

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Background: Tight glucose control has become a major therapeutic goal in the ICU after cardiac surgery. It has been associated, however, with high risk of hypoglycemia. We developed and introduce in the clinical practice the new intermediate intensity glucose control protocol. Our primary objective was evaluation efficacy and safety of this protocol. Our second objective was identify risk factors for developing moderate (blood glucose < 70 mg/dl) or severe hypoglycemia (blood glucose < 40 mg/dl) after cardiac surgery and influence hypoglycemia on mortality.
Methods: A study population include of 1089 consecutive patients undergoing cardiac surgery between 1.09 2010 to 31.08 2011. Intravenous insulin drip was targeted to achieve intensive care unit (ICU) glucose levels between 80 and 150 mg/dl. Average and median glucose level, standard deviation, and hypoglycemic episodes were recorded and analyzed, together with outcomes.
Results: 793 patients (72.8%) had average postoperative glucose level 80-150 mg/dl, 236 patients (21.7%) had moderate hyperglycemia 151-180 mg/dl and 60 patients (5.5%) had severe hyperglycemia more than 180 mg/dl. At least one episode of moderate hypoglycemia less than 70 mg/dl occurred in 91 patients (8.2%) and no episodes of severe hypoglycemia (< 40 mg/dl). Total hospital mortality was 2.6% (28 patients). Risk factor for hypoglycemia was high logistic and standard EuroSCORE.
Conclusions: In our study hypoglycemia was not associated with increased mortality. It seems that intermediate intensity glucose control protocol is safe and effective.