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SYMPOSIUM

Reducing Glycemic Variability in Intensive Care Unit Patients: A New Therapeutic Target?

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Abstract

Acute hyperglycemia is common in critically ill patients. Strict control of blood glucose (BG) concentration has been considered important because hyperglycemia is associated independently with increased intensive care unit mortality. After intensive insulin therapy was reported to reduce mortality in selected surgical critically ill patients, lowering of BG levels was recommended as a means of improving patient outcomes. However, a large multicenter multination study has found that intensive insulin therapy *increased* mortality significantly. A difference in variability of BG control may be one possible explanation why the effect of intensive insulin therapy varied from beneficial to harmful. Several studies have confirmed significant associations between variability of BG levels and patient outcomes. Decreasing the variability of the BG concentration may be an important dimension of glucose management. If reducing swings in the BG concentration is a major biologic mechanism behind the putative benefits of glucose control, it may not be necessary to pursue lower glucose levels with their attendant risk of hypoglycemia.

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Abbreviations: (BG) blood glucose, (ICU) intensive care unit, (IIT) intensive insulin therapy, (NICE-SUGAR) Normoglycemia in Intensive Care Evaluation—Survival Using Glucose Algorithm Regulation, (SD) standard deviation, (VISEP) Efficacy of Volume Substitution and Insulin Therapy in Severe Sepsis

Keywords: critical illness, glucose, glycemia, insulin, variability

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