

Analysis: Continuous Glucose Monitoring during Intensive Insulin Therapy

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Abstract

Results of the Normoglycemia in Intensive Care Evaluation and Survival Using Glucose Algorithm Regulation (NICE-SUGAR) trial, intensive insulin therapy (IIT), and use of a continuous glucose sensor in intensive care units (ICU) were analyzed. The NICE-SUGAR trial was unable to determine if optimal intensive insulin therapy decreases mortality. Continuous glucose monitoring (CGM) technology has the potential to improve glycemic control with low glucose variability and low incidence of hypoglycemia. Interstitial fluid CGM may not be useful in perioperative and ICU settings. Studies evaluating the accuracy and reliability of CGM devices, based on a whole blood sample in perioperative and ICU settings, are needed. Once a reliable CGM sensor for ICU use is identified, a large, prospective, controlled, multicenter study could determine if optimal IIT with a low or zero incidence of hypoglycemic events improves mortality.

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Abbreviations: (CGM) continuous glucose monitoring, (EGA) error grid analysis, (ICU) intensive care unit, (IIT) intensive insulin therapy, (NICE-SUGAR) Normoglycemia in Intensive Care Evaluation and Survival Using Glucose Algorithm Regulation, (POC) point of care, (SD) standard deviation, (TWGL) time-weighted glucose level

Keywords: continuous glucose sensor, glucose, ICU, intensive insulin therapy, perioperative

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