

1. Tight Glucose Control May Increase Mortality in Critically Ill Patients

Ninety-day mortality was 14% higher in hyperglycemic patients in general intensive-care units (ICUs) who received insulin to meet intensive vs. conventional blood glucose targets, in a large, multinational trial [1]. Findings from the **Normoglycemia in Intensive Care Evaluation—Survival Using Glucose Algorithm Regulation** (NICE-SUGAR) study are published in the March 26, 2009, issue of the *New England Journal of Medicine*.

The study showed that "intensively lowering blood glucose to a target of 81 to 108 mg/dL does not benefit critically ill patients and may well increase their risk of dying. There is no benefit to be gained beyond a target of less than 180 mg/dL.

Cardiovascular failure was seen in 57% of patients at study entry, and cardiovascular causes accounted for most of the increased mortality in the intensive-glucose-control group. This raises the possibility that intensive glucose control has adverse effects on the cardiovascular system.

To test the hypothesis that intensive blood glucose control lowers 90-day mortality, the researchers randomized 6104 patients to intensive glucose control with a target of 81 to 108 mg/dL or conventional glucose control with a target of 180 mg/dL or less.

Average blood glucose was 115 mg/dL with intensive control and 144 mg/dL with conventional control. Among patients who received intensive vs. conventional blood glucose control, 90-day mortality was higher (27.5% vs 24.9%; odds ratio 1.14; $p=0.02$), as was severe hypoglycemia (6.8% vs. 0.5%). Length of stay in the ICU or hospital, time spent on mechanical ventilation, and need for dialysis were similar in the two groups.

Sources

1. The NICE-SUGAR Study Investigators. Intensive versus conventional glucose control in critically ill patients. *N Engl J Med*. 2009;360:1283-1297.