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Blood glucose concentration does not correlate with organ failure or outcome in trauma patients receiving enteral nutrition

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Purpose: The objective of this study was to evaluate the relationship between 1) blood glucose concentrations and outcomes and 2) blood glucose concentrations and nutrient intake in critically ill trauma patients receiving enteral nutrition (EN).

Methods: This study is a retrospective chart review assessing the blood glucose concentrations in 120 adult trauma patients receiving EN during the first 7 days in the ICU. The relationship between blood glucose concentrations and organ function (renal, pulmonary, cardiovascular, central nervous system), ventilator days, amount of calories received, ICU LOS, hospital LOS, and number of infections was evaluated using linear regression.

Results: Patients had a mean age of 43.6 ± 18.1 years; 73.3% patients were male; and 8.3% of the population had a diagnosis of diabetes mellitus prior to admission. Mean blood glucose concentrations versus various outcomes are summarized in the following tables:

Table 1. Blood glucose vs. organ failure

Outcome	Renal failure	Respiratory failure	Cardiovascular failure	CNS failure
R^2	0.002	0.023	0.001	0.002

R^2 = regression coefficient of determination

Table 2. Blood glucose vs. outcomes

Outcome	Caloric intake	Number of infections	Ventilator days	ICU LOS	Hospital LOS
R^2	0.018	0.022	0.010	0.021	0.006

R^2 = regression coefficient of determination

Conclusions: Blood glucose concentrations were not associated with organ failure, ventilator days, number of infections, ICU LOS, or hospital LOS in critically ill trauma patients receiving EN. In addition, blood glucose concentrations were not affected by the amount of calories administered to trauma patients while in the ICU.