Stress-induced hyperglycemia, not diabetic hyperglycemia, is associated with higher mortality in trauma.

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Stress-induced hyperglycemia, not diabetic hyperglycemia, is associated with higher mortality in trauma.

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**Abstract**

**OBJECTIVES:** To identify all trauma patients with diabetes and compare diabetic hyperglycemia (DH) patients with those with stress-induced hyperglycemia (SIH).

**BACKGROUND:** SIH has been shown to result in worse outcomes after trauma. The presence of diabetes mellitus (DM) or occult DM within the cohort confounded previous studies. We identified 2 distinct populations of trauma patients with SIH or DH to determine the impact of hyperglycemia on these 2 groups.

**METHODS:** Admission glycosylated hemoglobin (HbA1c), glucose levels, and comorbidity data were collected over a 2-year period. DM was determined by patient history or admission HbA1c 6.5% or more. SIH was determined by absence of DM and admission glucose 200 mg/dL or more. Cox proportional hazards models [adjusted for age, sex, injury mechanism, and injury severity score] were used to calculate risk ratios (RRs) and associated 95% confidence intervals (CIs) for outcomes of interest.

**RESULTS:** During the study period, 6852 trauma patients were evaluated, and 5117 had available glucose, HbA1c, and comorbidity data. Patients with SIH had an over twofold increase in mortality risk (RR 2.41, 95% CI 1.81-3.23), and patients with DH had a nonsignificant, near-50% increase in mortality risk (RR 1.47, 95% CI 0.92-2.36). Risk of pneumonia was similarly higher for both the
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DH (RR 1.49, 95% CI 1.03-2.17) and the SIH (RR 1.44, 95% CI 1.08-1.93).

**CONCLUSIONS:** DM is common in patients with hyperglycemia after trauma. As opposed to DH, SIH is associated with higher mortality after trauma. Further research is warranted to identify mechanisms causing hyperglycemia and subsequent worse outcomes after trauma.

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