
Abstract:

Objective: Prehospital intravenous (IV) fluid administration is common in trauma patients, although little evidence supports this practice. We hypothesized that trauma patients who received prehospital IV fluids have higher mortality than trauma patients who did not receive IV fluids in the prehospital setting.

Methods: We performed a retrospective cohort study of patients from the National Trauma Data Bank. Multiple logistic regression was used with mortality as the primary outcome measure. We compared patients with versus without prehospital IV fluid administration, using patient demographics, mechanism, physiologic and anatomic injury severity, and other prehospital procedures as covariates. Subset analysis was performed based on mechanism (blunt/penetrating), hypotension, immediate surgery, severe head injury, and injury severity score.

Results: A total of 776,734 patients were studied. Approximately half (49.3%) received prehospital IV. Overall mortality was 4.6%. Unadjusted mortality was significantly higher in patients receiving prehospital IV fluids (4.8% vs. 4.5%, P < 0.001). Multivariable analysis
demonstrated that patients receiving IV fluids were significantly more likely to die (odds ratio [OR] 1.11, 95% confidence interval [CI] 1.05-1.17). The association was identified in nearly all subsets of trauma patients. It is especially marked in patients with penetrating mechanism (OR 1.25, 95% CI 1.08-1.45), hypotension (OR 1.44, 95% CI 1.29-1.59), severe head injury (OR 1.34, 95% CI 1.17-1.54), and patients undergoing immediate surgery (OR 1.35, 95% CI 1.22-1.50).

Conclusions: The harm associated with prehospital IV fluid administration is significant for victims of trauma. The routine use of prehospital IV fluid administration for all trauma patients should be discouraged.

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