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The impact of fluid balances in the first 48 hours on mortality in the critically ill patients (Article)

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Abstract

Introduction: There has been increasing evidence of detrimental effects of cumulative positive fluid balance in critically ill patients. The postulated mechanism of harm is the development of interstitial oedema, with resultant increase morbidity and mortality. We aim to assess the impact of positive fluid balance within the first 48 hours on mortality in our local ICU population. Methods: This was a secondary analysis of a single centre, prospective observational study. All ICU patients more than 18 years were screened for inclusion in the study. Admission of less than 48 hours, post-elective surgery and ICU readmission were excluded. Cumulative fluid balance either as volume or percentage of body weight from admission was calculated over 6, 24 and 48 hour period from ICU admission. Results: A total of 143 patients were recruited, of these 33 died. There were higher cumulative fluid balances at 6, 24 and 48 hours in non-survivors compared to survivors. However, after adjusted for severity of illness, APACHE II Score, they were not predictive of mortality. Sensitivity analysis on sub-cohort of patients with acute kidney injury (AKI) showed only an actual 48-hour cumulative fluid balance was independently predictive of mortality (1.21 (1.03 to 1.42)). Conclusions: Cumulative fluid balance was not independently predictive of mortality in a heterogenous group of critically ill patients. However, in subcohort of patients with AKI, a 48-hour cumulative fluid balance was independently predictive of mortality. An additional tile is thus added to the mosaic of findings on the impact of fluid balance in a hetergenous group of critically ill patients, and in sub-cohort of AKI patients.

Author keywords

Acute kidney injury; Fluid balance; Intensive Care Unit; Mortality

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