We examined the association between abnormal chloremia and ICU and hospital mortality. To further refine findings and integrate them into the ongoing discussion on the detrimental effects of chloride-rich solutions, the impact of strong ion difference (SID) on the same end points was assessed" Van Regenmortel (2016).

Abstract:

Background: Abnormal chloride levels are commonly observed in critically ill patients, but their clinical relevance remains a matter of debate. We examined the association between abnormal chloremia and ICU and hospital mortality. To further refine findings and integrate them into the ongoing discussion on the detrimental effects of chloride-rich solutions, the impact of strong ion difference (SID) on the same end points was assessed.

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Methods: Retrospective cohort study in an academic tertiary intensive care unit on 8830 adult patients who stayed at least 24 h in the ICU was carried out. Patients admitted after elective cardiac surgery were treated as a separate subgroup (n = 2350). Analyses were performed using multivariable logistic regression. All statistical models were extensively

adjusted for confounders, including comorbidity, admission diagnosis, other electrolytes and acid–base parameters.

Results: Severe hyperchloremia (>110 mmol/L), but not low (SID) was significantly associated with increased mortality in the ICU (odds ratio vs. normochloremia 1.81; 95 % CI 1.32–2.50; $p < 0.001$) and the hospital (odds ratio 1.49; 95 % CI 1.14–1.96; $p = 0.003$). Hyperchloremia and low (SID) were encountered in the majority of patients admitted after cardiac surgery (in 86.9 and 47.2 %, respectively), but were not negatively associated with mortality.

Conclusions: In the ICU, hyperchloremia at admission was associated with negative outcome. On the other hand, decreased strong ion difference did not have an impact on mortality, precluding a simple extrapolation of these findings to the ongoing discussion on the detrimental effects of chloride-rich solutions. This notion is fueled by the finding that hyperchloremia after cardiac surgery, frequently encountered and probably fluid-induced, did not seem to be deleterious.

Full Text

Reference:

Van Regenmortel, N., Verbrugghe, W., Van den Wyngaert, T. and Jorens, P.G. (2016) Impact of chloride and strong ion difference on ICU and hospital mortality in a mixed intensive care population. Annals of Intensive Care. 6(91). DOI: 10.1186/s13613-016-0193-x©

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