

Abstract Type : Poster

Abstract Submission No. : PO-1219

Dysnatremia is associated with acute kidney injury and long-term mortality after coronary artery bypass grafting

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Objectives:

Dysnatremia is a critical issue because of its relationship with several morbidities and mortality. However, its relationship with acute kidney injury (AKI) and long term mortality in patients undergoing coronary artery bypass surgery (CABG) remains unresolved.

Methods:

A total of 3,018 patients undergoing CABG between 2003 and 2015 years were retrospectively reviewed. Patients were categorized by the serum sodium levels such as normonatremia (135–145 mmol/L), hyponatremia (<135 mmol/L), and hypernatremia (>145 mmol/L). The odds ratios (ORs) for AKI and hazard ratios (HRs) for all-cause mortality were calculated after adjustment of multiple covariates.

Results: Postoperative AKI occurred in 799 patients (26.5%). Patients with hypernatremia had a higher risk of AKI than normonatremic patients (adjusted HR, 2.01 [1.24–3.24]; $P = 0.004$). During the median period of 6 years (maximum 13 years), 787 patients (26.1%) died. Patients with hyponatremia were at an elevated risk of mortality compared with normonatremic patients (adjusted HR, 1.49 [1.16–1.92]; $P = 0.002$). These relationships were not dependent on other electrolyte levels.

Conclusions: Preoperative dysnatremia is a predictor of postoperative AKI and long-term mortality after CABG. Accordingly, serum sodium levels should be monitored in the patients undergoing CABG.