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Hyponatremia at discharge independently predicts re-hospitalization in adult heart failure patients with congenital heart disease

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Introduction: Hyponatremia is a powerful predictor of adverse outcome in patients with acquired heart disease. However, a little information is available regarding association between hyponatremia and outcome in adult patients with congenital heart disease (ACHD). Therefore we investigated the relationship plasma sodium concentration (Na) and re-hospitalization in heart failure patients with heart failure.

Method: A total 85 ACHD patients who had unexpectedly hospitalized due to cardiovascular events were retrospectively reviewed. Relationship between Na at discharge and cardiac events (death of any cause or unexpected hospitalization related to cardiovascular event after discharge) was evaluated.

Results: The mean age was 28.7 years, 56% were male, 29% had single ventricular physiology and 16% had cyanosis. The mean Na was 138.7 ± 2.5 (mEq/L). The Na was associated with New York Heart Association functional (NYHA) class and use of diuretics. During a mean follow up of 3.3 ± 2.7 years, 51 patients (61%) had cardiac events. Na was significantly lower in ACHD with cardiac events (138.2 ± 0.35 vs. 139.3 ± 0.44 mEq/L, $P = 0.048$). Of the significant predictors of cardiac events on univariate analysis (age, gender, NYHA class, B-type natriuretic peptide, use of diuretics), low Na, as well as NYHA class and use of diuretics, was the independently associated with re-hospitalization due to cardiac events (hazard ratio: 0.89, 95% confidence interval 0.74-0.95, $P = .049$).

Conclusion: Hyponatremia was an independent predictor of re-hospitalization in ACHD patients with heart failure.