Title: Renin-Angiotensin-Aldosterone System Antagonist Withdrawal in Type 1 Cardiorenal Syndrome

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Introduction: Renin-angiotensin-aldosterone system (RAAS) antagonist discontinuation during acute heart failure (AHF) is associated with increased mortality following hospitalization. Although the etiology of type 1 cardiorenal syndrome (CRS) has been linked to renal venous congestion, RAAS antagonist withdrawal (RW) theoretically promotes renal function recovery. RAAS antagonists are dose-reduced or withheld in approximately half of patients with CRS, but the subsequent impact on renal function remains largely uninvestigated. This study tested the hypothesis that RW improves renal function compared to RAAS antagonist continuation (RC) during CRS.

Methods: This was a retrospective, single-center chart review. Patients aged 18-89 years admitted to an urban, academic medical center from April 2018 to August 2019 with AHF and AKI were identified using discharge ICD-10 codes. All patients were treated with a RAAS antagonist before admission. Key exclusion criteria included shock, pregnancy, and end-stage renal disease. The primary endpoint was change in serum creatinine (SCr) from admission through 72 hours. Key secondary endpoints included SCr reduction ≥0.3 mg/dL at 72 hours, 30-day readmissions, and RAAS antagonist prescription at discharge. Data were analyzed utilizing chi-square and Mann-Whitney U tests with SPSS software.

Results: 111 admissions were included in the primary analysis. RAAS antagonist withdrawal occurred in more patients on admission (RW 68 vs RC 43). RW patients presented with a higher BUN (p=0.034), higher SCr (p=0.021), and lower ejection fraction (p=0.04). Median SCr change from admission to 72 hours did not differ between groups (RW -0.1 mg/dL vs RC 0.0 mg/dL, p=0.05). There was no difference in SCr reduction ≥0.3 mg/dL at 72 hours, 30-day readmissions, or RAAS antagonist prescription at discharge.

Conclusions: In patients with type 1 CRS, RW was not associated with improved renal function at 72 hours. A larger sample size is necessary to confirm these results.