ABSTRACT

Background: The combination of heart failure and renal impairment often defined as cardiorenal syndrome (CRS) has an important prognostic implication among patients with heart failure. It is currently recognized as an independent predictor of morbidity and mortality among the population of patients with heart failure.

Objectives: The main aim of this study was to determine the prevalence, predictors and outcomes of CRS among patients admitted with HF in medical wards of Aminu Kano Teaching Hospital, Kano, Nigeria.

Methods: The study was cross-sectional in design. Patients aged 18 years and above who satisfied the inclusion criteria were consecutively recruited over a period of 11 months. Detailed history and physical examination as well as relevant baseline blood chemistry, full blood count, urinalysis, eGFR, electrocardiography, echocardiography and renal ultrasound scan were carried out. Urinary protein creatinine ratio was determined in those with proteinuria. Serum creatinine, urea and electrolytes were measured at presentation and repeated once during heart failure therapy. Heart failure and CRS were defined and classified using appropriate criteria. Data analysis was done using univariate and multivariate analyses.

Results: Of the 170 patients studied, 100 (58.8%) were females and 70 (41.2%) were males. Mean age of patients was 49.6 ± 18.74 years. One hundred and twenty four (72.9%) patients had CRS, with 54%, 28% and 18% of them having mild, moderate and severe form of CRS respectively. Patients in NYHA class IV HF symptoms were more than 2 times at risk of developing CRS (95% CI=1.008-4.526, RR=2.135, P= 0.048), while those older than 40 years had more than 3 times risk of having CRS (95% CI=1.797-8.582, RR= 3.927, P=0.001). Patients with CRS had significantly higher mortality rate compared to those without the syndrome (25% vs13% P= 0.031). There was no significant difference in the duration of hospital stay
between patients with and those without CRS (17.86±13.11 vs. 15.85±13.46 P= 0.378). Serum creatinine of ≥170µmol/L and serum urea of >20mmol/L were the identified predictors of mortality (95% CI, 1.098-6.243 RR= 2.618, p= 0.030 and 95% CI, 1.106-6.757, RR= 2.734 and p=0.029 respectively).

**Conclusion**: In conclusion cardio-renal syndrome was frequent in the study heart failure population and was associated with increased mortality. Advanced NYHA class HF symptoms and older age group were the identified predictors of CRS, while high SCr and high serum urea predicted mortality in these patients. CRS assessment is recommended for all patients with HF and studies on its long term outcomes are required.