Outcomes of Patients with CRT and Renal Failure

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Background: There is limited data available about the outcomes of patients with cardiac resynchronization therapy (CRT) and chronic renal failure. The purpose of the study was to assess the outcomes of patients who underwent CRT implantation with or without renal failure.

Methods: A retrospective cohort analysis of 178 consecutive patients that were implanted CRT between January 2005 and January 2008. Two groups were compared: patients with and without chronic renal failure (CRF). The primary outcome was one-year mortality. The secondary end-points were readmission and complication rate after pacemaker implantation.

Results: There were 81 patients in CRF group and 97 patients in non-CRF group with CRT. Patients in CRF group were older (Mean age 70.6±9.3 vs.64.4±12.2 years, P<0.001), were mostly male (87.7% vs 75.3%, P=0.036) and had a significantly higher rates of ischemic cardiomyopathy (80.2% vs 63.9%, P=0.02) and atrial fibrillation (50.6% vs. 33%) compared to non-CRF group. Overall one-year mortality rate in the CRF group was 21% vs.8.2% in non-CRF group, P=0.015. In the multivariate Cox proportional hazards model chronic renal failure was independent predictor of one-year mortality (hazard ratio [HR], 3.6; 95% CI 1.4–9.5) while CRT-D implantation had a protective effect compared to CRT-P (HR 0.3; 95% CI 0.12-0.81). The readmission rate was higher in CRF group (56.8% vs 42.3 %, P=0.023).We did not find statistically significant difference in the rate of complications (4.9% vs 9.3%, P=0.3) between the two groups.

Conclusions: In our study in patients with CRT chronic renal failure was associated with increased one-year mortality and readmission rates and was an independent predictor of one-year mortality while CRT-D implantation had a protective effect.