Impact of Chronic Kidney Disease Stages on Predicting Long-Term Response to Cardiac Resynchronization Therapy

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Background: Renal dysfunction was shown to influence the mortality and morbidity in patients with severe heart failure. However the assessment of cardiac resynchronization therapy with defibrillator (CRT-D) implantation for patients with chronic kidney disease (CKD) has not been firmly established. The purpose of this study was to assess whether CKD stages before CRT-D could predict the clinical response to CRT-D.

Methods: We studied consecutive 73 advanced HF patients who underwent CRT-D in our hospital (67±10 years, New York Heart Association (NYHA) class 3.3±0.7, left ventricular ejection fraction (LVEF) 28.2±8.4%, QRS duration 164±29 ms, 49 males). The end point was all-cause mortality or HF-related hospitalization.

Results: During a mean follow-up of 1452±156 days, 19 deaths (26%) and 24 HF hospitalization (32%) were observed. Baseline CKD stages were not related to NYHA class and LVEF, but related to the higher risk of reaching the composite the end point. Cox multivariated analysis showed higher CKD stage was an independent positive predictor of the end point (HR: 1.59, 95%CI: 1.037-2.439, P=0.033). Conclusions: Baseline CKD stages independently predicted long-term mortality and HF hospitalization. Renal dysfunction may be one of the risk factors for nonresponse to CRT-D.

Keywords: CRT, CKD