



Heart Failure and Cardiomyopathies

PERCUTANEOUS RENAL SYMPATHETIC DENERVATION IMPROVES THE CARDIAC FUNCTION AND REDUCES ICD (ELECTRICAL) DISCHARGES IN SEVERE HEART FAILURE PATIENTS WITH NARROW QRS COMPLEXES AND ICD IMPLANTATION

Poster Contributions
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Background: Sympathetic nerve overactivation contributes to the development of heart failure (HF). Percutaneous renal sympathetic denervation (RDN) can effectively reduce sympathetic activity and may be clinically used for the therapy of HF. The present study was designed to determine the effects of RDN on cardiac function and malignant arrhythmia in severe HF patients with narrow QRS complexes and implantable cardioverter defibrillator (ICD) implantation.

Methods: Seven patients (mean age 72 years) with severe HF [ejection fraction (EF) < 35%] with narrow QRS complexes underwent ICD implantation and then received bilateral RDN. The cardiac function, 6-min walk distance, and ICD discharges were observed before and at 6 months after surgery.

Results: No RDN-related complications were observed in all seven patients. During the 6-month follow-up period, the systolic pressure dropped from 132.57 ± 10.98 mmHg to 116.71 ± 11.34 mmHg ($P = 0.021$) and diastolic pressure from 75.14 ± 8.07 mmHg to 67.57 ± 9.47 mmHg ($P = 0.133$). The EF increased from $29.29 \pm 2.14\%$ before RDN to $38.29 \pm 8.67\%$ at 6 months after RDN ($P = 0.021$) on echocardiography, and the 6-min walk distance was significantly extended from 128.14 ± 19.88 m to 434.57 ± 27.17 m ($P < 0.001$). In addition, the brain natriuretic peptide (BNP) level significantly decreased from 1243.25 ± 712.75 pg/L to 384.19 ± 178.00 pg/L ($P = 0.0093$). Moreover, the number of ICD discharges markedly decreased from 29 before RDN to 3 at 6 months after RDN ($P < 0.001$).

Conclusions: RDN can effectively improve cardiac function and exercise tolerance, and reduce ICD discharges, in severe HF patients with narrow QRS complexes and ICD implantation.