

Effect of single ventricular premature contractions on long-term clinical outcome in patients after cardiac resynchronization therapy implantation

RICHARD MASSZI, WALTER SCHWERTNER
ANNAMARIAKOSZTIN, BELAMERKELY

Background: Data on the effect of single premature ventricular contractions (PVCs) on clinical and echocardiographic response after cardiac resynchronization therapy (CRT) implantation is scarce.

Aims: To assess the predictive value of PVCs for echocardiographic response and mid- and long-term all-cause mortality.

Methods: In our prospective, single-center study, 125 symptomatic heart failure (HF) patients (NYHA II-IVa) with reduced left ventricular ejection fraction ($EF \leq 35\%$) and wide QRS ($\geq 120\text{ms}$) underwent CRT implantation and were followed for 4 years. The primary endpoint was all-cause mortality at 2 and 4 years, the secondary endpoint was echocardiographic reverse remodelling assessed by $\geq 15\%$ improvement in EF, left ventricular end-systolic volume (ESV) or left atrial volume (LAV) after 6 months. The number of PVCs were assessed by device interrogation at 1 month after CRT implantation.

Results: During the 4 years of follow up time 22 (33%) patients died and reached the primary endpoint from those 67 patients who attended 1 month follow up, and number of PVCs could be assessed, which median value was 11401. Altogether 9 patients (26%) died in the lower and 13 (38%) in the higher PVC groups. Patients with higher number of PVCs showed a higher risk of early all-cause mortality (HR 0.44, 95%CI 0.17-1.00; $p=0.04$), however when long term mortality was investigated, only a trend was found (HR 0.55; 95%CI 0.24-1.30; $p=0.11$). When secondary endpoints were investigated, patients with less PVCs than the median had a 4.8 times higher odds for developing LAV reverse remodelling 6 months after CRT implantation.

Conclusions: In patients underwent CRT implantation, greater amount of PVCs are associated with higher early but not long-term all-cause mortality and predicts atrial remodeling. Our results are pointing at the importance of PVCs as a response marker and warrant further investigations.