Cardiac resynchronization therapy in primary prevention patients: do we need to shock?

Authors:
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Topic(s):
Cardiac Resynchronization Therapy

Citation:
Introduction: Cardiac resynchronization therapy (CRT) is an effective treatment for systolic heart failure (HF). After resynchronization, the recovery in cardiac function makes the benefit of an additional implantable cardioverter-defibrillator (ICD) for primary prevention unclear – hence, the decision to add an ICD (CRT-D) frequently relies in patient age and co-morbidities severity. The aim of our study was to evaluate the decision impact of implanting a CRT-D or a CRT-pacemaker (CRT-P) in cardiovascular (CV) and non-CV death and in a composed outcome (MACE) of CV death or sustained ventricular tachycardia (VT) / fibrillation (VF) occurrence.

Methods: We analyzed retrospectively 115 consecutive patients referred to CRT between 2007 and 2016. The decision to implant CRT-D or CRT-P was based on clinical judgment. During a mean follow-up time of 57.8±33.1 months, all patients were evaluated with device interrogation and transthoracic echo every 6 months. To compare survival, a Kaplan-Meier curve with log rank test was performed. In order to identify MACE predictors, we used a Cox-regression survival analysis including all baseline clinical, echo and electrocardiographic data.

Results: With a mean age at implant of 65.4±9.8 years and 86.1% (n=99) males, a CRT-D was implanted in 78 (67.2%) patients. CRT-P patients were older (72.9±6.3 vs. 62.1±9.0 years, p<0.01), had more chronic pulmonary (29.7% vs. 13.4%, p=0.03) and renal disease (35.1% vs. 18.3%, p=0.04). The rate of ischemic cardiomyopathy was similar (CRT-P 23.3% vs. CRT-D 32.4%, p=0.37), as was the responder rate (increase in 25% baseline LVEF: CRT-P 72.7% vs. CRT-D 65.8%, p=0.52). MACE occurred in 25 patients (21.7%), with 11 CV deaths and 16 VT/VF. Kaplan-Meier analysis showed that CRT-P patients had higher non-CV mortality with no differences in CV mortality (figure). On multivariate analysis, CRT-P (p=0.24) was not a MACE independent predictor (table).

Conclusion: In our study, the decision to implant a CRT-P on selected patients - older with more comorbidities - did not have an impact on CV death. Atrial fibrillation, ischemic cardiomyopathy and higher New York Heart Association (NYHA) class may aid on the decision to implant a CRT-D.

<table>
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<tr>
<th></th>
<th>OR</th>
<th>95CI</th>
<th>p-value</th>
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<tbody>
<tr>
<td>Atrial fibrillation</td>
<td>3.28</td>
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Abstract: P1531
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Log rank test: p=0.04
- CRT-P survival mean: 118.50 ± 9.8 months
- CRT-D survival mean 128.43 ± 4.5 months

Log rank test: p=0.44
- CRT-P survival mean: 121.67 ± 9.5 months
- CRT-D survival mean 124.08 ± 4.6 months