DEVICE THERAPY

Adding CRT to ICD improves outcomes in patients with NYHA class II and III heart failure

A study by the RAFT investigators has shown that adding cardiac-resynchronization therapy (CRT) to implantable cardioverter–defibrillator (ICD) therapy improves survival in patients with mild to moderate heart failure. Previous trials that demonstrate the benefits of CRT have been performed in patients with NYHA class III and IV heart failure or in less-sick patients. "For patients with a wide QRS and low left ventricular ejection fraction (LVEF) who were to be implanted with an ICD, the question remained whether CRT would reduce mortality and heart-failure-related hospitalization over and above that provided by ICD and optimal medical therapy," says lead investigator Anthony Tang.

> "...adding CRT to ICD therapy improves survival in patients with mild to moderate heart failure..."

The investigators randomly assigned 1,798 patients with a reduced LVEF and wide QRS to receive an ICD or an ICD with CRT. Initially, patients with NYHA class II or III symptoms of heart failure were enrolled in the study, but the protocol was later revised to only include patients in the NYHA class II. Patients were monitored at 1 month after device implantation and then every 6 months for at least 18 months until the end of the trial. Follow-up time was 40 months for all patients. The primary outcome of death from any cause or heart failure leading to hospitalization occurred in 40.3% of the ICD group compared with 33.2% of the ICD and CRT group. The time to the occurrence of the primary outcome was significantly prolonged in the ICD–CRT group (hazard ratio 0.75, 95% CI 0.64–0.87 $P<0.001$). Secondary outcomes included death from any cause at any time during the study, death from any cardiovascular cause, and hospitalization for heart failure. Fewer patients in the ICD–CRT group were hospitalized for heart failure than in the ICD group (19.5% versus 26.1%, respectively), although the number of device-related hospitalizations was higher in the ICD–CRT group (20% versus 12.2%). Also, more adverse events were seen in the ICD–CRT group compared with the ICD group (118 versus 61, respectively), and although these events did not have substantial long-term consequences, they could prolong hospitalization. In a prespecified analysis, the effects of treatment on 11 subgroups was carried out. The only significant interaction between treatment and subgroup was an intrinsic QRS duration of ≥150 ms.

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Jeroen Bax from the Leiden University Medical Center, who was not involved in RAFT, acknowledges the importance of this study. "So based on RAFT, it suggests in line with MADIT-CRT, that CRT may be useful in less-sick patients (NYHA class II)," he says. Tang and colleagues will now analyze the health economic data to determine if CRT is cost-effective in this population. "We will also determine if CRT is beneficial in patients with permanent atrial fibrillation," states Tang.

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