

Risk Factors and Clinical Implications of the Development of Ischemic Events in Patients who Receive Cardiac Resynchronization Therapy

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Background:

There are limited data regarding risk factors for the development of ischemic events (IE) among patients with ischemic cardiomyopathy who receive cardiac resynchronization therapy with a defibrillator (CRT-D) and their effect on the efficacy of the device.

Methods:

Multivariate Cox proportional hazards regression modeling was used to identify risk factors for the development of IE (comprising hospitalization for acute coronary syndromes and/or coronary interventions during the trial) among 1045 patients with ischemic cardiomyopathy enrolled in MADIT- CRT. Time dependent analysis was performed to identify the effect of IE on the risk for subsequent heart failure (HF) and death.

Results:

Independent predictors for the development of IE among study patients included prior revascularization (HR 1.67; $p < 0.001$) and a non-left bundle branch (LBBB) pattern on the baseline ECG (HR=1.30; $p = 0.05$), whereas treatment with CRT-D did not reduce the risk for the development of IE compared with ICD-only therapy (HR=0.90; $p = 0.45$). The development of IEs was associated with >2-fold (HR 2.13; $p = 0.01$) increased risk for subsequent HF or death in patients treated with CRT-D (Figure).

Conclusions:

The development of ischemic events following CRT-D implantation is associated with distinctive risk factors and has important prognostic implications.