

## **The Roles of Device therapy in the Treatment of Heart Failure**

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Sudden cardiac death (SCD) and pumping failure are the two major causes of death in patients with heart failure. Cardiac implantable cardioverter defibrillators (ICD) is indicated for the treatment of SCD and cardiac resynchronization therapy (CRT) represent an important component of heart failure therapy to improve the cardiac contractility. Primary prophylactic ICD implantation is indicated in patients with a left ventricular ejection fraction of  $\leq 35\%$ , clinical stages NYHA II-IV and a life expectancy  $> 1$  year. The recent advanced techs improve the inappropriate shock, MRI compatible device, and subcutaneous ICD. CRT requires optimal programming to prevent ventricular dyssynchronization. The CRT is indicated in patients with a left bundle branch block and wide QRS duration. The recent advanced techs includes automatic optimization, image guided implantation and quadripolar LV leads. The combination of CRT with a pacemaker or defibrillator must be decided on an individual basis. Device therapy in heart failure should always include remote monitoring to detect events early and to implement treatment accordingly. Stimulation for modulation of cardiac contractility and the autonomous nervous system are currently being clinically tested but they are still under investigation. The optimal utilization of device therapy improves the course of heart failure and prevents cardiac decompensation and fatalities.