BUDAPEST CRT Upgrade trial

CRT upgrade in HF with RV pacing

**Conclusion**

Upgrade to cardiac resynchronisation therapy with a defibrillator (CRT-D) reduces morbidity and mortality and improves left ventricular reverse remodelling in select patients with heart failure and reduced ejection fraction (HFrEF) and intermittent or permanent right ventricular (RV) pacing.

**Impact on clinical practice**

HFrEF patients with a pacemaker or ICD should be strictly followed in clinical practice and in those with intermittent or permanent RV pacing, a CRT upgrade should be performed immediately without deferring the procedure to a later date (e.g. battery replacement).

**Study objectives**

BUDAPEST CRT Upgrade was the first trial to compare the efficacy and safety of a CRT upgrade, compared to ICD alone, in HFrEF patients with a pacemaker or ICD and intermittent or permanent RV pacing.

**Study population**

HFrEF patients
- with ejection fraction ≤35%
- had received a pacemaker or ICD >6 months previously
- had HF symptoms
- had a wide paced QRS complex
- had a high burden of RV pacing
- treated with guideline-directed medical therapy

Patients were excluded if they were eligible for CRT according to current guidelines.

**Who and what?**

- **Study population**
  - CRT-D upgrade ICD
  - Median follow-up: 12.4 months
  - 7 countries
  - 17 sites
  - 360 patients randomised 3:2

**Primary endpoint**

Composite of HF hospitalisation, all-cause mortality, or <15% reduction of left ventricular end-systolic volume

- Rate%
  - CRT-D upgrade: 32.4%
  - ICD: 78.9%
  - Adjusted odds ratio 0.11
  - 95% CI 0.06–0.19; p<0.001

**Secondary endpoint**

Composite of HF hospitalisation and all-cause mortality reduced with

- Adjusted hazard ratio 0.28
  - 95% CI 0.17–0.46; p<0.001

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