




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 $\leq 35\%$
- 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

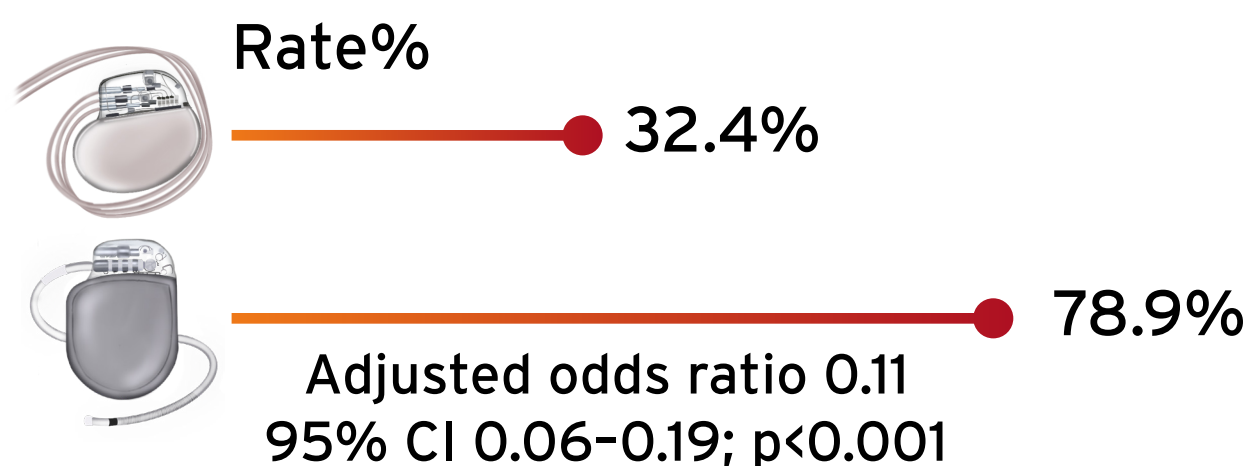
Where?

 7 countries

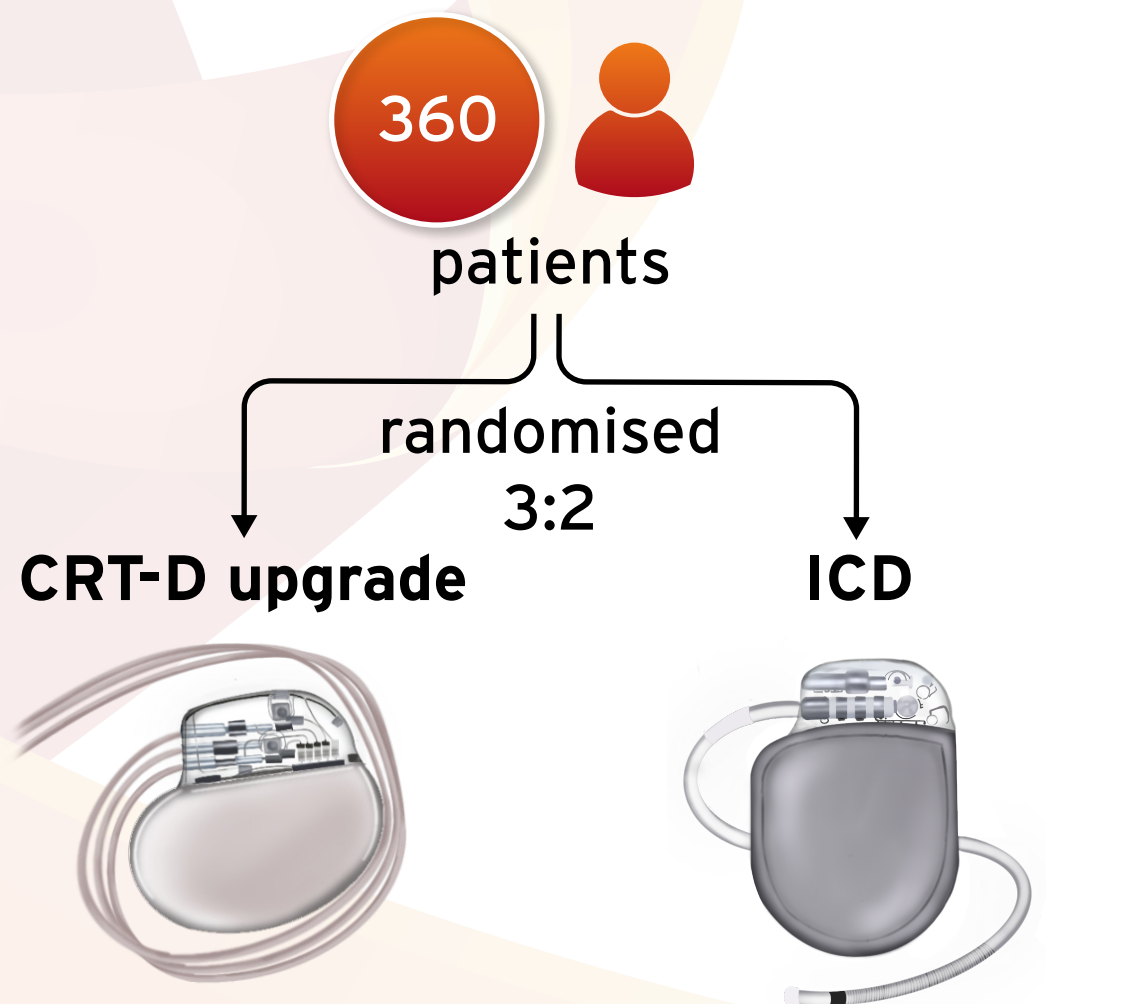
 17 sites

Primary endpoint

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



Who and what?



 Median follow-up 12.4 months

Secondary endpoint

Composite of HF hospitalisation and all-cause mortality reduced with

