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## De novo implantation vs. upgrade cardiac resynchronization therapy: a systematic review and meta-analysis

### Abstract: P5475

#### De novo implantation vs. upgrade cardiac resynchronization therapy: a systematic review and meta-analysis

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**Background:** Patients with conventional pacemakers or implanted defibrillators are often considered for cardiac resynchronization therapy (CRT).

**Aims:** Our aim was to summarize the currently available evidences regarding the clinical benefits of upgrade procedures.

**Methods:** A systematic literature search was performed from studies published between 2006 and 2016 in order to compare the outcome of CRT upgrade vs. de novo implantations. Data on all-cause-mortality and heart failure events were systematically analysed with results on NYHA functional class, QRS narrowing and echocardiographic parameters.

**Results:** A total of 17 reports were analysed comprising 6628 CRT recipients, of whom 4549 patients underwent a de novo and 2079 an upgrade procedure. All-cause mortality was similar after CRT upgrade compared to de novo implantations (RR 1.10, 95% CI 0.99–1.22, p=0.08). The risk of heart failure was higher in the de novo group (RR 1.15, 95% CI 1.04–1.27, p=0.01). There was no significant difference in clinical response after CRT upgrade compared to de novo implantations in terms of improvement in left ventricular ejection fraction, ( $\Delta$ EF de novo -6.85% vs. upgrade -9.35%; p=0.235), NYHA class ( $\Delta$ NYHA de novo -0.74 vs. upgrade -0.70; p=0.737) and QRS narrowing ( $\Delta$ QRS de novo -9.6 ms vs. upgrade -29.5 ms; p=0.485).

**Conclusions:** Our systematic review and meta-analysis of currently available studies reports that CRT upgrade is associated with similar risk for all-cause mortality compared to de novo resynchronisation therapy. Benefits on left ventricular reverse remodelling and functional capacity improved similarly in both groups suggesting that CRT upgrade may be safely and effectively offered to patients in routine practice.