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**IMPLANTABLE CARDIOVERTER DEFIBRILLATOR THERAPY OR CARDIAC RESYNCHRONISATION THERAPY WITH DEFIBRILLATION IN PATIENTS WITH LEFT VENTRICULAR DYSFUNCTION: A COST-IMPACT STUDY**F Umar, R J Taylor, A Vakharia, H Marshall, F L Leyva *University Hospital Birmingham*

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**Background** Increasing evidence from clinical outcomes studies suggest that cardiac resynchronisation therapy with defibrillation (CRT-D) is superior to implantable cardioverter defibrillator (ICD) therapy alone in patients with left ventricular dysfunction.

**Methods** We undertook a retrospective analysis of all ICD and CRT-D implants from April 2006 to July 2012. Cost data was obtained on an individual patient basis, derived from financial records of transactions between payers and the provider.

**Results** A total of 921 patients (aged  $63 \pm 14$  years (mean  $\pm$  SD), 49 (91%) male) underwent device implantation: 486 (53%) de novo CRT-D; 381 (41%) single/dual chamber ICD; and, 54 (6%) upgrade from ICD to CRT-D. In the upgrades from ICD to CRT-D, the median time from ICD to CRT-D implantation was 3.2 years. From the time prior to ICD implantation to prior to CRT-D, the LVEF decreased from  $30 \pm 9.4\%$  to  $22 \pm 8.7\%$  ( $p < 0.001$ ), the QRS duration increased from  $133 \pm 34.9$  ms to  $158 \pm 29.3$  ms ( $p = 0.0003$ ) and all patients had progressed to NYHA class III. In this upgrade group, the initial ICD implantation cost £846 864 (34 electives: £511 904; 20 non-electives: £334 960) and the upgrade to CRT-D cost £1 330 614 (44 electives: £1 046 364; 10 non-electives: £284 250), totalling £2 177 478 in implantation costs alone over a median of 3.2 years. If these 54 patients had a CRT-D at the initial implant, it would have cost £1 377 054 (34 electives: £808 554; 20 non-electives: £568 500). Therefore, this approach would have saved £800 424 in implantation costs alone.

**Conclusions** This study indicates that upgrading from ICD to CRT-D is costly. Our findings suggest that implantation of CRT-D in patients with known left ventricular dysfunction may be more cost-effective.