of patients implanted in our University Hospital for 16 years (January 1994 and June 2010). We collected data before implantation (age, PR duration, left ventricle ejection fraction), during follow-up (treatments) and incidence of complete AV blocks. We excluded patients with less than one year of follow-up, patients in atrial fibrillation, and previously implanted patients for hight degree AV blocks.
**Results:** 789 patients received a CRT-P. Our study population included 349 patients. The mean age at implantation was 67.3±9.5 years, 66.8±9.6 years in patients who will present AV block, 67.3±9.5 years in patients without AV block. The mean follow-up was 39±22 months. 9 patients (2.5%, 0.77%/year) presented a complete AV block. Mean LVEF was 23.8±6.5% in the general population, 25.3±7.3% in AV block group, 23.8±6.5% in no-AV block group. PR length before implantation was 212±5.8 ms in the population, 270±82 ms in AV block group, and 211±57 in no-AV block group. No significant difference exists in the 2 groups, including medical treatments.
**Conclsusion:** Contrary to all expectations, incidence of complete AV blocks in this specific population is very low, in spite of major underlying conduction troubles. No predictive factor has been identified, even if pre-implantation AV durations seem greater in AV-block patients. These findings could make us suspect a positive effect of CRT, due to well established inverse remodelling. This could be due to a decrease in stretch effect on conductions pathways.

## P3203 | BEDSIDE
### Worldwide geographic differences of patients selected for cardiac resynchronization therapy

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**Background and objective:** The guideline recommendations for Cardiac Resynchronization Therapy (CRT) are based on trials that were conducted predominantly in North America and Western Europe. We investigate if patients currently implanted with CRT devices in other regions have comparable characteristics.
**Methods:** Data were obtained from PANORAMA, a long term, prospective observational study of 8522 patients from 34 countries across 6 geographical regions (Latin America, South Africa, India, Middle East, Eastern Europe, Western Europe), implanted with a cardiac rhythm management device between 2005 and 2011. This analysis is based on the 1355 patients who were implanted with a CRT device.
**Results:** All baseline characteristics showed significant differences between the regions.
**Conclusions:** Populations of CRT patients differed significantly in different geographic regions. The influence of such differences on the outcome of CRT patients must be investigated in the future.

## P3204 | BEDSIDE
### CRT-P or CRT-D? Which parameters can help in selection?

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**Background:** According to current guidelines CRT-D (cardiac resynchronization therapy with implantable cardioverter defibrillator) is preferred over CRT-P (cardiac resynchronization therapy without implantable cardioverter defibrillator) in patients with chronic systolic heart failure (HF-REF) with NYHA II-III and LVEF (left ventricular ejection fraction) $\leq$ 35%. However, a certain proportion of patients becomes asymptomatic and/or their LVEF increases above 35% some months after biventricular pacemaker (BiV PM) implantation, and in such cases the indication of ICD no longer exists.
**Aim:** To quantify the proportion of patients with HF-REF whose LVEF increases above 35% six months after CRT, and to determine parameters, which can predict the lack of such improvement of LVEF.
**Patients and methods:** 188 pts (82.4% men, mean age: 60.8±11.6 years, ischemic etiology: 38.4%, mean LVEF: 27.8±6.3%, mean NYHA: 2.51±0.87) with CRT (99 pts – CRT-D, 89 pts – CRT-P) followed at our heart failure clinic were included in the study. Baseline (before CRT application) clinical, echocardiographic, ECG and laboratory parameters were analyzed by logistic regression method to assess their power to predict whether LVEF remains below 35%, 6 months after initiation of CRT.
**Results:** At the time of implantation of BiV PM, according to the indication, every pt had LVEF lower than 35%. Six months after BiV PM implantation 36.8% of patients had LVEF higher than 35%, so they had no indication for ICD at that time. Among investigated parameters left ventricular end-systolic diameter above 55mm (OR: 8.13; CI: 2.19-30.10; $p<0.01$), systolic blood pressure lower than 110 mmHg (OR: 5.49; CI: 1.31-23.02; $p<0.05$), ischemic etiology (OR: 3.81; CI: 1.06-13.70; $p<0.05$), and estimated pulmonary artery systolic pressure higher than 35 mmHg (OR: 3.58; CI: 1.03-12.41; $p<0.05$) proved to be independent predictors of the lack of an LVEF improvement above 35%. During 6 months after BiV PM implantation no patient died, and appropriate ICD shock was observed only in one patient with CRT-D.
**Conclusions:** Six months after BiV PM implantation LVEF increases above 35% in more than one-third of patients, as a consequence of the beneficial effects of CRT. In these patients CRT-P implantation would have been enough instead of CRT-D application. Parameters which can predict the lack of LVEF improvement above 35% may play a role in the prediction of non-responderity to CRT as well as in the appropriate selection of CRT-P and CRT-D candidates.

## P3205 | BEDSIDE
### Implantation of cardiac resynchronisation therapy with defibrillation more cost effective than implantable cardioverter defibrillator therapy alone in patients with left ventricular dysfunction

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**Purpose:** 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:** A retrospective analysis of all ICD and CRT-D implants from April 2006 to July 2012 from a single tertiary referral centre was undertaken. Cost data was obtained on an individual patient basis, derived from records of transactions between payers and providers.
**Results:** A total of 921 patients (aged 63±14 yrs [mean ± SD]) underwent device implantation: 486 (53%) de novo CRT-D; 381 (41%) single/dual chamber ICD; and 54 (6%) upgrade from ICD to CRT-D. Amongst the latter, the median time to upgrade to CRT-D implantation was 3.2 yrs. From the time of assessment prior to ICD implantation to the assessment prior to CRT-D implantation, the left ventricular ejection fraction decreased from 30±9.4% to 22±8.7% ($p<0.001$), the QRS duration increased from 133±34.9ms to 158±29.3ms ($p = 0.0003$) and all patients had progressed to NYHA class III. In this upgrade group, the initial ICD implantation cost €1,016,236 (34 electives: €614,284; 20 non-electives: €401,952) and the upgrade to CRT-D cost €1,596,736 (44 electives: €1,255,636; 10 non-electives: €341,100), totalling €2,612,972 in implantation costs alone over a median of 3.2 yrs. If these 54 patients had a CRT-D at the initial implant, it would have cost €1,652,464 (34 electives: €970,264; 20 non-electives: €682,200). Therefore, this approach would have saved €960,508 in implantation costs alone.
**Conclusion:** 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.

**Abstract P3203** – Table 1

| | Total Subjects n=1355 | Eastern Europe n=402 | India n=105 | Latin America n=104 | Middle East n=277 | South Africa n=384 | Western Europe n=83 | p-value |
|---|---|---|---|---|---|---|---|---|
| Women | 27% | 17% | 46% | 25% | 28% | 31% | 30% | <0.0001 |
| Age, years; Mean ± SD | 62±13 | 58±12 | 58±11 | 63±12 | 63±13 | 63±12 | 73±8 | <0.0001 |
| NYHA I–II | 23% | 11% | 11% | 27% | 40% | 26% | 26% | <0.0001 |
| LVEF | 28±11 | 28±8 | 23±8 | 23±8 | 25±9 | 34±16 | 30±7 | <0.0001 |
| QRS duration | 136±37 | 152±33 | 158±27 | 151±38 | 138±24 | 111±37 | 150±28 | <0.0001 |
| LBBB | 52% | 66% | 76% | 43% | 63% | 25% | 52% | <0.0001 |
| ICM | 38% | 41% | 25% | 25% | 51% | 25% | 48% | <0.0001 |
| Atrial fibrillation | 26% | 35% | 5% | 14% | 18% | 31% | 29% | <0.0001 |
| Hypertension | 55% | 58% | 23% | 53% | 66% | 53% | 51% | <0.0001 |
| Diabetes | 30% | 18% | 38% | 23% | 62% | 19% | 32% | <0.0001 |
| BMI | 28±6 | 29±5 | 25±4 | 26±5 | 30±7 | 29±6 | 27±6 | <0.0001 |
| Smoking history | 41% | 52% | 15% | 35% | 47% | 33% | 44% | <0.0001 |
| CRT-P | 50% | 48% | 70% | 21% | 15% | 85% | 30% | <0.0001 |
| Replacement | 18% | 8% | 13% | 22% | 27% | 18% | 34% | <0.0001 |