**A03. COST-EFFECTIVENESS AND LONG-TERM OUTCOME OF CARDIAC RESYNCHRONIZATION THERAPY**

**A03-1 LONG-TERM CLINICAL OUTCOME AND DEVICE PERFORMANCE OF BIVENTRICULAR PACING. A SINGLE CENTER EVALUATION FROM THREE-YEAR FOLLOW-UP OF CONSECUTIVE HEART FAILURE PATIENTS**

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**Background:** Controlled short-term (6-months) trials have demonstrated significant clinical improvements by biventricular pacing (BIV) in patients with moderate to severe heart failure (HFr) and conduction abnormalities. Little is known about the long-term clinical outcome and device performance of BIV.

**Methods:** Forty consecutive pts (age 65±10 y, female n=22, atrial fibrillation n=18) with drug refractory NYHA III-IV HFr (inclusion age = 20, LVEF = 51±10 mm, EF = 23±9%) and wide QRS complexes (173±25 ms) were selected for biventricular pacing (Biv). From month 6 on, the distribution was 69.0% SSS (18 Pat) and 27.3% Complete Heart Block (CHB). 197 patients showed AA (3515 files) and 131 had atrial high rate episodes (350 files). The mean AF-Burden remained constant within the first 6 months (1.1±1 day/Pat). The ventricular frequency (in bpm) during AA was respectively <120: 75.3%, 120-160:22.7%, >160:2.0%. The atrial high rate monitor showed an increase of the mean duration per high rate event from 6 to 11 days between month 1 to 6. Within month 1, 93.0% of these high rate events were in the SSS group (30 Pat) and 4.8% in the CHB group (13 Pat). From month 6 on, the distribution was 65.0% SSS (18 Pat) and 0.7% CHB (8 Pat). In the SSS and CHB groups, the proportion of the atrial high rate episodes duration was respectively 43.9% and 48.7% at month 1 and 44.6 and 5.0% at month 6.

**Conclusion:** Today new automated and programmable AA diagnostic functions deliver useful information for optimizing patient antiarrhythmic therapy and therefore improving quality of life. These new functions are an important and complementary tool for hybrid therapy including pacemaker therapy and medication.

**A03-2 COST-EFFECTIVENESS ANALYSIS OF BIVENTRICULAR PACING**

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Biventricular pacing has a well-known positive effect on clinical status of patients affected by severe congestive heart failure refractory to medical therapy. From October 1998 to December 2002, 123 pts underwent a biventricular device in our Centre. 67 of these patients actually have at least 1 year of follow-up, 53 out of these 67 were on β-blockers before implant and remained on the same dosage of the drug after the implant. We have considered the year before implant the number of hospitalisations and the total days of hospital stay; in the year after implant we have considered: number of hospitalisations, days of hospital stay, outpatient visits, death. We have also calculated the amount of money refunded by the National Health Service in the year before the implant for: implant procedure and outpatients visit. We have determined how many events were saved after device implant, calculating them as: hospitalisations before implant – (hospitalisation + deaths after implant).

**Conclusion:** In the year before implant there were 79 hospitalisations; in the year following implant there were 51 hospitalisations for heart failure and 4 deaths: this means 44 events saved. The sum of money refunded were: 459841 € for hospitalisations and 274586 € for outpatients, for a total of 487296€. Thus, to save an hard event (death or hospitalisation for heart failure) costed in our experience 11074 €.

Furthermore, all patients enrolled in our study were admitted at least once in hospital for CHF, whilst after implant, only 21 out of 40 pts were re-admitted for CHF, and this could constitute an improved in quality of life of these severely diseased pts.

**A03-3 PREDICTION OF CLINICAL RESPONSE TO CARDIAC RESYNCHRONIZATION THERAPY BY QRS DURATION AND SHORTENING**

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Cardiac resynchronization therapy (CRT) is an alternative treatment for patients with end-stage heart failure. Despite current selection criteria (NYHA III-IV, LVEF <35%, QRS >120 ms with LBBB), one third of patients does not benefit from CRT. The use of QRS duration as selection criterion for CRT has not been evaluated systematically yet and existing data are conflicting. Accordingly, the value of QRS duration at baseline (and reduction in QRS duration after CRT) to predict responders was studied.

**Patients:** Patients were evaluated for NYHA class, quality of life score, 6-minute walk test, at baseline and after 6 months of CRT. QRS duration was measured before, directly after implantation and after 6 months of CRT.

**Results:** 61 patients were included: 45 (74%) patients were classified as responders (improvement of ≥ 1 NYHA class, ≥ 10% improvement in QRS duration after CRT) and 16 (26%) as non-responders. QRS duration at baseline was similar between the 2 groups: 179±30 ms versus 171±25 ms, NS. Directly after implantation, QRS duration was reduced from 179±30 ms to 150±26 ms (P<0.01) in responders; non-responders did not exhibit this reduction (171±32 ms versus 160±26 ms, NS). After 6 months of CRT, a QRS shortening was only observed in responders (from 179±30 ms to 151±25 ms, P<0.01). ROC curve analysis showed that a reduction in QRS duration >10 ms had a high sensitivity (75%) with low specificity (44%); conversely, a >50 ms reduction in QRS duration was highly specific (88%) but not sensitive (18%) to predict response to CRT. No optimal cutoff value could be defined.

**Conclusion:** QRS duration at baseline is not predictive for response to CRT; responders do exhibit a significant reduction in QRS duration after CRT; but individual response varies highly, and does not allow adequate selection of responders.