

>0=3) (mean age 73±7 years; 63 males) underwent to biventricular pacing. Patients were divided in 2 Groups: LBBB (49 pts; mean age 71±8; 39 males) and PILBBB (29 pts; mean age 75±6; 24 males). Clinical, echocardiographic and ECG data were collected at baseline and post implant: mean follow-up (fu): 11±7 months.

**Results:** CRT induced a significative decrease of the NYHA class in both groups (Group LBBB: 3.4±0.5 at baseline vs 2.1±0.8 in the fu; p<0.01) (Group PILBBB: 3.4±0.5 at baseline vs 2.1±0.7 at fu; p<0.01). An improvement of the quality of life (QOL), as confirmed by the decrease of the Minnesota QOL questionnaire, was observed in both groups too (Group LBBB: 60±24 at baseline vs 45±28 at fu; p<0) (Group PILBBB: 71±25 at baseline vs 43±21 at fu; p=0.03). The left ventricular ejection fraction (EF) was significantly increased in the two groups (Group LBBB 0.27±0.06 at baseline vs 0.34±0.09 at fu; p<0.01) (Group PILBBB 0.24±0.07 at baseline vs 0.34±0.09 at fu; p<0.01). In both groups we observed a significative reduction of the QRS duration (Group LBBB 178±27 ms at baseline vs 149±25 ms at fu; p<0.01) (Group PILBBB 193±27 ms at baseline vs 144±23 ms at fu; p<0.01). All the differences between the 2 groups, both at baseline and during the follow-up, were not statistically significant.

**Conclusions:** patients with advanced HF and mechanical dyssynchrony secondary to PILBBB show similar improvement in symptoms and cardiac performance compared to pts with LBBB. Our study suggests that pts with PILBBB and severe HF are to be considered as good candidates to upgrading to biventricular pacing.

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#### In patients with dilated cardiomyopathy and ventricular dyssynchrony, upgrading to cardiac resynchronization is beneficial as de novo implant

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The effect of upgrading to CRT in heart failure (HF) pts chronically paced at right ventricle (RV) for standard PM/ICD indication has been recently evaluated. We reviewed 91 pts (68±10 yrs, 57 de novo CRT and 34 upgraded to CRT). Inclusion criteria: left ventricular (LV) end-diastolic diameter >55 mm, LV ejection fraction (EF) <40%, intrinsic QRS ≥130 ms and paced QRS duration ≥200, and ACC/AHA class I-II ICD indication (32 pts had a CRT/ICD). Forty-six were ischemic, and 18 had a permanent atrial fibrillation. Drugs: 67 pts received beta-blocking agents, 67 amiodarone, 87 ACE-inhibitors, 63 spironolactone, 89 diuretics. Global baseline and post-CRT 3-months follow-up evaluation included: NYHA Class (3.1±0.6 vs 2.3±0.6; p<0.001), mitral regurgitation severity (1.9±0.8 vs 1.5±0.7; p<0.001), interventricular mechanical delay (D Ao-PI) (61.5±25 vs 20±18 ms; p<0.001), D to systolic peak at basal interventricular septum and left lateral wall (D IVS-LLW) (86±56 vs 5±29 ms; p<0.001), pulmonary artery pressure (43±11 vs 37±7 mmHg; p<0.001), angioscintigraphic LV (19.5±9 vs 24±10%; p<0.001) and RV EF (30.5±14 vs 34±14%; p<0.001), and number of HF hospitalizations 6 months before and after CRT (1.1±0.5 vs 0.2±0.4; p<0.001). Over a follow-up of 24±20 months, there were 19 deaths (13 HF, 6 non-cardiac) and 39 re-hospitalizations (34 HF, 2 arrhythmic, 3 non-cardiac). When comparing de novo and upgraded to CRT pts, baseline and post-CRT variables were similar.

#### Results:

	De novo CRT	Upgraded to CRT	P (ANOVA/X2)
Baseline QRS (ms)	175±29	214±31	<0.001
Post-CRT QRS (ms)	167±25	174±27	ns
Baseline D Ao-PI (ms)	59±26	67±24	ns
Post-CRT D Ao-PI (ms)	18±19	20±12	ns
Baseline D IVS-LLW (ms)	75±55	95±42	ns
Post-CRT D IVS-LLW (ms)	14±40	1±22	ns
HF deaths (pts)	7/57	6/34	ns
HF re-hospitalizations (pts)	21/57	13/34	ns

**Conclusion:** in patients conventionally paced at right ventricle with very prolonged paced QRS duration, clinical and hemodynamic effects of upgrading to CRT are beneficial and similar as de novo CRT implant.

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#### Biventricular or right ventricular permanent pacing after atrioventricular nodal ablation in patients with advanced heart failure and chronic atrial fibrillation

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In patents with chronic atrial fibrillation that is refractory to drug therapy, radio-frequency ablation of atrioventricular node (RFAVN) and implantation of a permanent pacemaker are an established approach to the management of these patients. In this conditions biventricular pacing (BVP) make to coordinate right and left ventricular contractions and can improve cardiac function and enhance functional capacity and the quality of life.

The aim: comparison of functional capacity an echocardiographic variables in patients treated by permanent right ventricular or biventricular pacing after atrioventricular nodal ablation in patients with advanced heart failure and chronic atrial fibrillation and fast ventricular rate despite optimized medical treatment.

**Methods:** 53 patients (41 male, 61±13 years, II-IV NYHA Class). The transvenous BVP were implanted in 25 patients (QRS =164±30ms) and right ventricular pacing (RVP) in 28 with QRS = 148 ± 25 ms. The mean ventricular rate was 114±18/min in BVP and 123±26/min (range 86-146) at rest in RVP group. After 30 days RFAVN were performed in all patients. During 10 median months follow up (range 3-32) 1 patients died. Left ventricular ejection fraction increased from 34±6 to 41±8% (p=0,03) in BVP group and from 38±7 to 41±9% (NS) in RVP group. Left ventricular diastolic diameter decreases from 71±5mm to 63±6mm (p=0,001) in BVP and from 65±6mm to 58±6mm (p=0,01). NYHA class decreases from 3,1±0,5 to 2,4±0,3 (p=0,01) in BVP and from 2,8±0,4 to 2,1±0,4 (p=0,01) in RVP group. Determination immunoassay of plasma NT pro BNP level decreased from 1486±311pg/ml to 711±237 pg/ml (p=0,001) in BVP and from 1136±291pg/ml to 936±311pg/ml (p=0,002)in RVP group. Hospitalizations decreased by 83% in both groups.

**Conclusions:** We conclude that BVP and RVP improve the LV function, exercise tolerance and the symptoms of CHF in patients with permanent AF and fast ventricular rate. It seems that BVP is superior to RVP but it needs a longer follow up.

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#### Upgrading from right conventional ventricular pacing to biventricular pacing: hemodynamic benefits and technical issues

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**Background:** biventricular pacing (BVP) is an effective alternative therapy in patients (pts) with advanced heart failure (HF) and spontaneous ventricular dyssynchrony. Few studies have, at present, assessed the benefits of BVP pacing in pts with preexisting pacemakers and chronic systolic HF.

Aim of our study was to evaluate functional and hemodynamic benefits induced by the upgrade from conventional to BVP and to assess the possible more relevant technical issues in HF pts previously paced at right ventricle.

**Methods and results:** from 1999, 54 pts have been successfully implanted with biventricular devices (PM or ICD). In other 6 pts (5