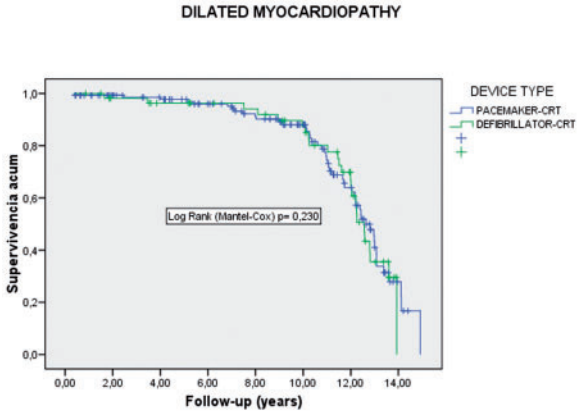
Results: The mean age were similar in both groups. The group of CRT-D had more ischemic cardiomyopathy (58.3% vs 27.2% , p= 0.001), used more antiarrythmics (16.7% vs 8.5%, p=0,023). Atrial fibrillation was similar in boths groups. Hospital admissions were more frequent in the CRT-D group due mainly to heart failure, after left ventricular lead migration and transient ischemic accidents. Deaths were similar in both groups (41% vs 39.6%, p= 0.325) due mainly heart failure, the infection and neoplasms. The CRT-D suffered more transplants significantly. The survival is better in CRT-D group but it is not significantly. In patients with dilated cardiomyopathy, there was an overlap of both curves over the 14 years (Log rank p=0.230).
Conclusion: The CRT-D group had more hospital admissions.
Heart failure was the main motive of hospital admissions and death in both groups.
The ischemic cardiomyopathy, the age and men were factors that predict greater response to the CRT-D.
The CRT-P can be an alternative to dilated cardiomyopathy.

Abstract P813 Table.

Follow-up			
	CRT-P n=202	CRT-D n=143	
Hospitaladmissions	72(35.6%)	66(47.5%)	0.029
Heartfailure	38(52.1%)	36(52.2%)	0.360
Displacedleads	11(15.5%)	6(8.7%)	
Protusionleads	2(2.7%)	0(0%)	
Death	80(39.6%)	57(41%)	0,325
Heartfailure	34(42.5%)	24(42.1%)	0.172
Infection	6(7.5%)	10(17.5%)	
Cancer	10(12.5%)	3(5.3%)	
Suddendeath	0	3(5.3%)	
Septicshock	1(1.3%)	3(5.3%)	
Hemorrahagicshock	3(3.8%)	1(1.8%)	
Cardiogenicshock	1(1.3%)	1(1.8%)	
Intestinalischemia	3(3.8%)	0	
ArrhythmogenicCardiomyopathy	0	1(1.8%)	



Abstract P813 Figure. Survival type device and dilated heart

P814

Are patients with heart failure properly treated at the time of the indication for cardiac device implant?

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Admission: The recent drug treatment for heart failure reduces symptoms and major clinic events such as hospital admission due to acute heart failure decompensation and any cause death. Therefore, at the time for cardiac electronic device implant indication, all the patients regarded as able to implant should be in use of a proper pharmacologic therapy with beta-blockers, renin–angiotensin system inhibitors and aldosterone receptor antagonists.
Purpose: The aim of this study was to evaluate if the optimized pharmacologic therapy has been alredy implemented at the time of cardiac eletronic device implants indication.
Methods: Cohort data from 64 patients admitted in a tertiary cardiac referral centre for cardiac electronic device implant assessment between june and october, 2017. All the data were collected from medical records. Heart failure was defined according the European Society of Cardiology (ESC) guidelines.
Results: The mean of age and heart rate at the assessment meeting was 54.7 years and 71.0 bpm, respectively. Male gender was more frequent (71.9%). The frequency of diabetes was 16.1% and acute kidney disease was 7.9%. Some of the patients have already been submitted to a pacemaker (12,7%) or implantable cardioverter defibrillator (1.6%) implant. The frequency of previous cardiac arrest was 37.7% and family sudden death was 44.3%. Chagas' heart disease (28.1%) and ischemic heart disease (22.8%) was the main etiologies for heart failure. Pharmacologic treatment for heart failure showed that only 31% of the patients was in use of renin–angiotensin system inhibitors in optimal doses and only 5% was in use of beta-blockers in optimal doses. Drug optimization previous to a new assessment was necessary for 71.9% of the patients. Optimizations ocurred mainly for renin–angiotensin system inhibitors (55.9%), beta-blockers (82.9%) and for triple therapy (renin–angiotensin system inhibitors, beta-blockers and aldosterone antagonists simultaneously).
Conclusion: At the time for cardiac electronic device implant indication, most of the patients are not under optimal drug therapy for heart failure.

P815

Left atrial strain predicts cardiovascular events in chronic systolic heart failure patients treated with cardiac resynchronization therapy

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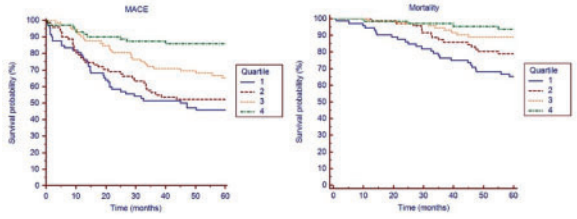
Introduction: Heart failure (HF) is a major cause of death, and it has a poor prognosis despite the significant reduction in mortality achieved in clinical trials. Left atrial (LA) function represents powerful outcome predictor in patients with HF, because closely related to left ventricular diastolic dysfunction. Two-dimensional speckle tracking (2DST) is an echocardiographic tool that enable the quantification of longitudinal myocardial LA deformation dynamics.
The purpose of the present study was to evaluate the usefulness of 2DST analysis of LA function to predict cardiovascular outcomes in outpatients affected by chronic HF with reduced ejection fraction implanted with cardiac resynchronization device (CRT).
Methods: We prospectively enrolled consecutive outpatients with chronic HF and previous CRT implantation. Transthoracic echocardiography was performed at the basal visit: left ventricular volumes, left atrial volumes and peak atrial longitudinal strain (global PALS) were measured. The development of MACE (major adverse cardiovascular events) during follow up was evaluated as a composite endpoint defined as congestive HF + nonfatal myocardial infarction + stroke + cardiovascular mortality.
Results: 146 patients (mean age 67±11, 81% male) met eligibility criteria. Almost all patients presented LA dilation and LA difunction. During a median follow-up of 48±11 months MACE occurred in 61 (42%) patients.
In a multivariable model global PALS [HR: 0.97 (95% CI: 0.94 – 0.99), p =0.04], left ventricular ejection fraction [HR: 0.94 (95% CI: 0.91 – 0.97), p<0.01] and renal function [HR: 0.98 (95% CI: 0.98 – 0.99), p =0.01] were independent predictors of an adverse outcome.
Moreover, during follow-up 33 patients (23%) died for cardiovascular events. It was confirmed that global PALS [HR: 0.96 (95% CI: 0.93 – 0.99), p = 0.02], left ventricular ejection fraction [HR: 0.96 (95% CI: 0.93 – 1.00), p = 0.03] and renal function [HR: 0.98 (95% CI: 0.97– 0.99), p < 0.01] were independent predictors of cardiovascular mortality.
Conclusion: In chronic systolic heart failure population treated with CRT, left atrial longitudinal deformation analysis derived from two-dimensional speckle-tracking echocardiography independently correlates with cardiovascular outcome.



Abstract P815 Figure.

P816

Is the upgrade with respect to de novo cardiac resyncrhonization therapy effective? Long term comparative study

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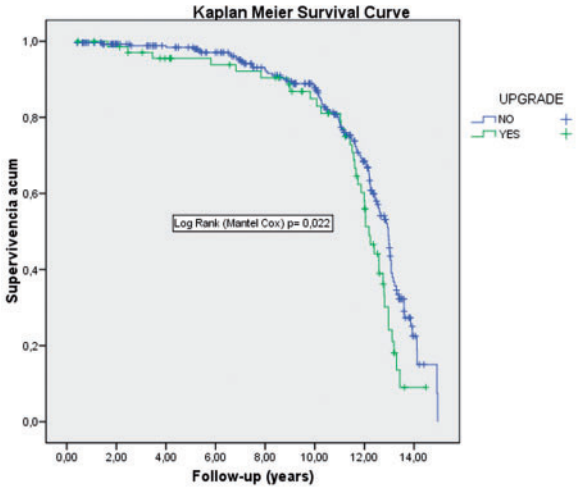
Background: Benefits of cardiac resyncrhonization therapy (CRT) on morbidity and mortality in selected patients are well known. Patients with heart failure already fitted with a conventional pacemaker (MCP) or implantable cardioverter defibrillator (ICD) system are often considered for a CRT upgrade after the new development of CRT criteria. However, there is only weak scientific evidence concerning outcomes after upgrade procedures compared to de novo cardiac resyncrhonization therapy implantations.
Purpose: To analyze baseline clinical, echocardiograhic and electrocardiographic characteristics in patients undergoing CRT upgrade, to compare them to de novo implantations and to evaluate long term survival.
Methods: Prospective cohort study from 345 consecutive patients undergoing CRT from 17 May 2012 to 21 December 2016, 71 of whom (20.5%) were upgrades and 274 (79.5%) were de novo. Mean follow up was 9.17±4.02 years.

Results: The mean age were similar in both groups. There were more MCP-CRT than DAI-CRT, but in the upgrade group 53.3% of patients had DAI-TRC. Upgrade patients suffered more often from atrial fibrillation (AF), non-sustained ventricular tachycardia, diabetes, ischemic cardiomyopathy (50 vs 37.3%, p=0.052), used more antiarrhythmics and digoxin in a statistically significant way. The upgrade group had more endocarditis (11.3 vs 7.5%, p=0.276). All echocardiographic parameters were better after CRT, and more obvious in the novo group. The class functional IV did not improve in the upgrade group. Hospital admissions were more frequent in the upgrade group (51.4 vs 37.6% , p=0.036) due mainly to heart failure. Death was more frequent in the upgrade group 39 (55.7%) vs 98(36.2%) p=0.003. Survival was significantly worse among patients undergoing upgrade procedures compared to de novo CRT implantations. (log rank p=0,022).
Conclusion: The upgrade group had more ICD-CRT, suffered more AF, ischemic cardiomyopathy, diabetes, hospital admissions and death compared to de novo group. Echocardiographic parameters improved significantly in both groups, but more evident in the novo group. Long term survival was less favorable in patients undergoing CRT upgrade compared to de novo implantations.

Abstract P816 Table.

Long term follow up survival

	Upgrade (n=71)	De novo CRT (n=274)	
Hospital admissions	36(51.4%)	102(37.6%)	0.036
Heart failure	22(61.1%)	52(49.1%)	
Death	39(55.7%)	98(36.2%)	0.003
Heart failure	18(46.21%)	40(40.8%)	
Neoplasia	1(2.6%)	12(12.2%)	
Infection	5(31.3%)	11(11.2%)	
Sudden death	1(2.6%)	3(3.1%)	
Cardiac transplant	2(2,9%)	4(1.5%)	0.447



Abstract P816 Figure. Upgrade vs de novo CRT survival

P817

Effects of upgrade versus de novo cardiac resyncrhonization therapy on clinical response. Long term survival follow up from single center

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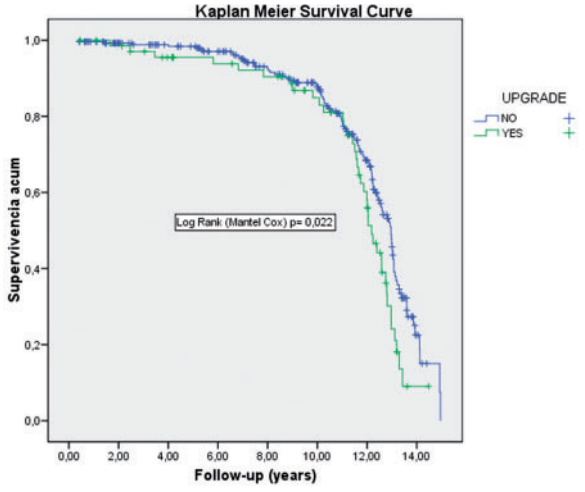
Background: Benefits of cardiac resyncrhonization therapy (CRT) on morbidity and mortality in selected patients are well known. However, there is only weak scientific evidence concerning outcomes after upgrade procedures compared to de novo cardiac resyncrhonization therapy implantations.
Purpose: To analyze baseline clinical, echocardiograhic and electrocardiographic characteristics in patients undergoing CRT upgrade, to compare them to de novo implantations and to evaluate long term survival .
Methods: Prospective cohort study from 345 consecutive patients undergoing CRT from 17 May 2012 to 21 December 2016, 71 of whom (20.5%) were upgrades and 274 (79.5%) were de novo.
Results: All echocardiographic parameters were better after CRT, and more obvious in the novo group. The class functional IV did not improve in the upgrade group. Hospital admissions were more frequent in the upgrade group (51.4 vs 37.6% , p=0.036) due mainly to heart failure. Death was more frequent in the upgrade group 39 (55.7%) vs 98(36.2%) p=0.003. Survival was significantly worse among patients undergoing upgrade procedures compared to de novo CRT implantations.
Conclusion: The upgrade group had more ICD-CRT, suffered more AF, ischemic cardiomyopathy, diabetes, hospital admissions and death compared to de novo group. Echocardiographic parameters improved significantly in both groups, but more evident in the novo group. Long term survival was less favorable in patients undergoing CRT upgrade compared to de novo implantations.

Abstract P817 Table. Baseline characteristics

	Upgrade (N=71)	De novo TRC N=(274)	p
Age (years)	66.0±9.6	66.7±10.5	0.623
Men /Women	54(76.1%)/17(23.9%)	196(71.5%)/78(28.5%)	0.447
PM-CRT/ICD-CRT	33(46.5%)/38(53.5%)	170(62%)/104(38%)	0.018
Diabetes	25(37.3%)	96(35.6%)	0.788
Ischemia	35(50%)	101(37.3%)	0.052
AF	39(58.2%)	69(27.1%)	0.001
NSVT	17(24.3%)	28(10.8%)	0.004
Shocks	6(8.8%)	2(0.81%)	0.001
Digoxin	13(18.6%)	16(6%)	0.001
Antiarrythmics	13(18.6%)	27(10.5%)	0.051
Endocarditis	5(7.9%)	13(5.1%)	0.387

PM-CRT: Pacemaker-Cardiac resyncrhonization therapy;ICD-CRT: Implantable cardioverter device-Cardiac resyncrhonization therapy;AF: Atrial fibrillation; NSVT: Non- sustained ventricular tachycardia.



Abstract P817 Figure. Upgrade vs de novo CRT survival

P818

Clinical outcomes after upgrading from pacemakers to cardiac resynchronization therapy

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Background: Right ventricular pacing may lead to heart failure (HF). Upgrades from pacemakers to cardiac resynchronization therapy (CRT) were excluded from randomized, controlled trials.
Objectives: To determine the long-term outcomes of upgrading from pacemakers to CRT with (CRT-D) or without (CRT-P) defibrillation in patients with no history of sustained ventricular arrhythmias.
Methods: Clinical events were quantified in relation to the type of implant (de novo or upgrade) and device type at upgrade (CRT-P or CRT-D).
Results: Patients underwent CRT implantation (n = 1,545; 1,314 (85%) de novo implants and 231 (15%) upgrades) over a median follow-up of 4.6 years [interquartile range: 2.4 - 7.0]). In analyses of crude event rates, upgrades had a higher total mortality (adjusted hazard ratio [aHR]: 1.33; 95% confidence interval [CI] 0.10-1.61), a higher total mortality or HF hospitalization (aHR: 1.26; 95% CI 1.05-1.51), but similar mortality or hospitalization for major adverse cardiac events (MACEs, aHR: 1.15; 95% CI 0.96-1.38). No group differences emerged in any of these endpoints after propensity score matching. After inverse probability weighting in upgrades, total mortality (ipwHR: 0.55; 95% CI 0.36-0.73), total mortality or HF hospitalization (ipwHR: 0.56; 95% CI 0.34-0.79) and total mortality or hospitalization for MACEs (ipwHR: 0.61; 95% CI 0.40-0.82) were lower after CRT-D than after CRT-P.
Conclusions: In patients with pacemakers and with no history of sustained ventricular arrhythmias, upgrading to CRT was associated with a similar long-term risk of mortality and morbidity to de novo CRT. After upgrade, CRT-D was superior to CRT-P.