Methods: Study population included 40 patients (mean age 58±9 years) with non-ischemic dilated cardiomyopathy (EF 25.7±5.4%) and QRS duration of 158±22ms, planned for CRT. Before CRT implantation, CFR was measured noninvasively during hyperemia induced with adenosine. Responders were defined by decrease in end-systolic volume (ESV) ≥15%. Follow-up echocardiography were obtained after 6 months. Patients were followed for MACE occurrence for 1 year.
Results: At baseline, was no significant difference in left ventricular ejection fraction (LVEF), QRS duration, 6 min walk test distance and coronary flow velocity at rest between responder (n=26) vs. non-responder group (n=14, p=ns). Before CRT implantation, responders compared with non-responders, showed a greater increase in coronary flow velocity during hyperemia, and consequently higher CFR: 2.41±0.60 vs. 1.61±0.45 (p=0.001). During one year 4 patients died, all in the group with CFR<2. By Kaplan-Meier analysis, it was shown that patients having CFR>2 had a significantly higher survival rate (P =0.018). End-diastolic, end-systolic left ventricular diameter and CFR before CRT were predictors of LV functional improvement. By multivariate analysis, only CFR before CRT was independent predictor of left ventricular recovery in the follow-up period (p=0.001).
Conclusion: Our results demonstrate that preserved CFR in patients with dilated cardiomyopathy is predictive of left ventricular improvement after CRT implantation. Moreover, patients with CFR <2 before, have a lower survival rate in the shorter time period after CRT. These results should be confirmed in larger studies.

P811

Mechanical dyssynchrony as a predictor of superresponse in patients with cardiac resynchronisation therapy

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Background: Data from multicenter studies suggest that left bundle brunch block (LBBB) and wide QRS complex are associated with good response to cardiac resynchronisation therapy (CRT). Other studies evaluated echocardiographic parameters of mechanical dyssynchrony (MD) for patient selection to CRT. However, in real clinical practice the usage of these criteria is still debated.
The purpose: to evaluate clinical and morpho-functional features in patients with congestive heart failure (CHF) and superresponse (SR) to CRT, to find predictors of SR.
Methods: The study enrolled 79 patients (88.9% men, 11.1% women, mean age 53.7 ± 9.1 years, 55.3% with ischemic cardiomyopathy) with II-IV NYHA functional class. Patients were examined at baseline and in dynamics (mean follow-up period was 10.6 ± 3.7 months). According to dynamics of left ventricular (LV) end-systolic volume (ESV) patients were divided into two groups: I gr. (n = 19) with decrease of LV ESV ≥ 30% (superresponders) and II gr. (n=60) - decrease of LV ESV < 30% (non-superresponders).
Results: At baseline groups didn't differ in main clinical characteristics, including the presence of left bundle brunch block (LBBB). The width of QRS complex was higher in superresponders (162.3 ± 42.8 ms in the I group vs 139.8 ± 35.0 ms in the II group; p = 0.046), Parameters of MD were higher in superresponders: LV pre-ejection period (PEP) (159.2 ± 34.9 ms vs 135.9 ± 35.6 ms; p = 0.020), interventricular mechanical delay (IVMD) (73.0 [46; 108] ms vs 42.5 [18; 70] ms; p = 0.005) and intraventriclular delay (IVD) assessed by tissue Doppler imaging (TDI) (110.0 [35; 153] ms vs 60.0 [29; 100] ms, p = 0.034). In both groups there was a statistically significant improvement in echocardiographic parameters. In dynamics patients with SR had significantly lower LV ESV (103.0 ± 32.8 ml vs 155.4 ± 51.5 ml; p < 0.001), the LV end-diastolic volume (184.2 ± 38.3 ml vs 233.8 ± 60.5 ml; p = 0.002) and the higher LV ejection fraction (45.4 ± 7.2% and 34.8 ± 6.2%; p < 0.001). The mean changes of IVMD (40.5 [15.3; 62] msec vs 17.0 [0; 45] ms; p = 0.041) and IVMD by TDI (62.0 [20; 105] msec vs 30.0 [0; 75] ms; p = 0.021) were also significantly higher in the group of superresponders. According to the logistic regression IVMD (OR 1.019, 95% CI 1.004 - 1.035; p = 0.014) had an independent association with SR. According to the ROC analysis the sensitivity and specificity of this model in the prediction of SR in patients with CRT were 68.4% and 63.3% respectively with the cut of value of IVMD 58.5 ms (AUC = 0.716; p = 0.005).
Conclusion: in patients with CHF more severe MD is associated with SR to CRT. LBBB was not associated with CRT SR. Probably the value of IVMD can be used as an independent predictor of SR to CRT in patients with CHF.

P812

Should we use cardiac resyncronization theraphy-pacemaker more frequently?

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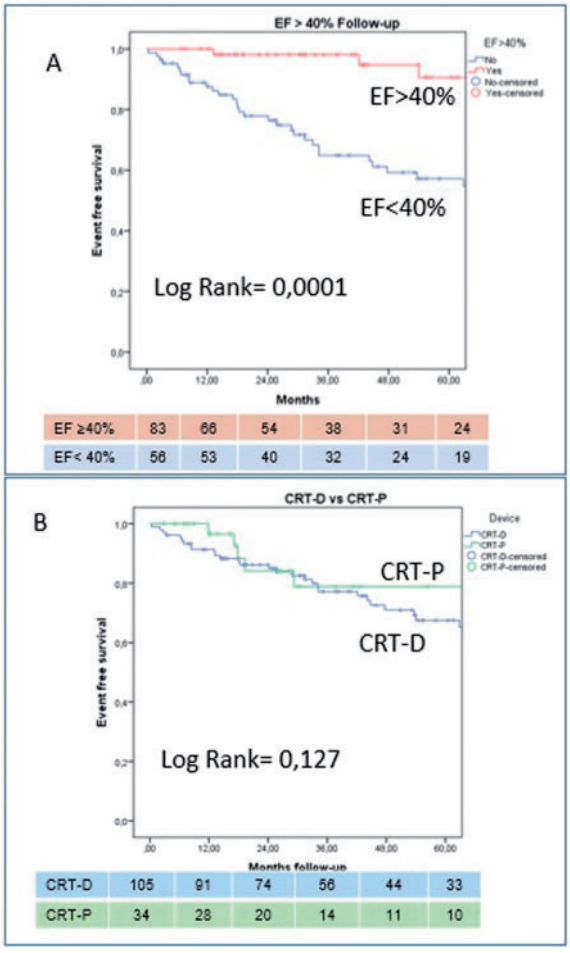
Background: There is no strong scientific evidence to support the benefit of adding a defibrillator to every patient who is candidate for cardiac-resynchronization therapy (CRT) due to heart failure.
Objective: To analyze the clinical characteristics, CRT response and long-term survival in a single center prospective series of primary prevention patients with classic CRT indication, according to the type of the device [CRT with defibrillator capabilities (CRT-D) or CRT-pacemaker (CRT-P)].
Methods: One-hundred thirty-nine consecutive patients were included [67 (p25-75 61-73) years; 74% male; 24.5% ischaemic]. Mean left ventricular ejection fraction (LVEF) was 25±6%. A CRT-D was implanted in 105 (75.5%) and 34 patients received a CRT-P (24.5%). We evaluated the response to CRT in terms of LVEF at >6 months from the implant, and survival during long-term follow-up. Response to CRT and loss of ICD indication was defined as LVEF>40% during follow-up. We analyzed the impact of the type of device (CRT-D vs CRT-P) on CRT response and global long-term mortality.
Results: Patients with CRT-P were older (65 vs 75 years; p=0,003), with worse NYHA class (NYHA>II 47,6% vs 73,5%; p= 0,008) and more comorbidity (Providenza score >3; 37% vs 64,7%; p=0,005). After a median follow-up of 37 (p25-75 18-70) months, 40,3% of patients achieved a LVEF>40% (18% LVEF>50%), without difference between CRT-P and CRT-D groups (p=0,35). There was a 27% rate of death at 28 (p25-75 13-56) months from implant, 63% due to advanced heart failure. There was no difference in global mortality according to the type of device (Log Rank P= 0,21). Patients with LVEF >40% during follow-up presented lower global mortality (Log Rank P=0,001). Achievement of LVEF>40% after CRT was the most powerful independent predictor of mortality in the multivariate analysis (HR 0,22; IC95% 0,1-0,54).
Conclusions: In the present observational study, long-term survival was determined mainly by CRT response, regardless of the type of the device (CRT-P or CRT-D). Thus, CRT-P should be used more frequently in primary prevention patients.



Abstract P812 Figure. Kaplan-Meier survival analysis

P813

Do we need to use cardiac resynchronization therapy pacemaker more? Comparative study to cardiac resyncrhonization therapy defibrillator

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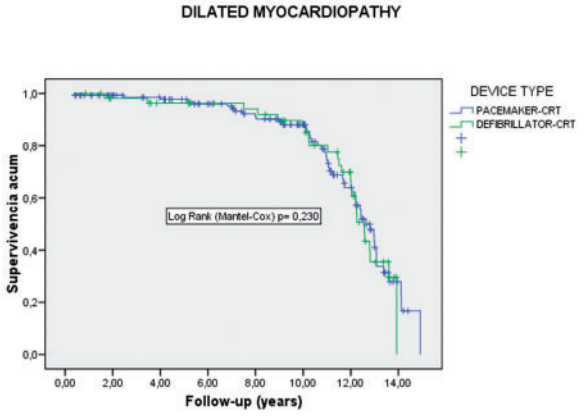
Background: Cardiac resynchronization therapy (CRT) is commonly used to manage heart failure, yet published guidelines do not distinguish between recommendations for pacemakers (CRT-P) and defibrillators (CRT-D). There is currently no strong scientific evidence indicating that a cardiac resyncrhonization therapy implantable cardioverter defibrillator (CRT-D) must be offered to all candidates for CRT.
Purpose: To analyze baseline clinical, echocardiograhic and electrocardiographic characteristics according to the type of device CRT-P vs CRT-D, to evaluate long term survival and examine the factors that predict greater response to the CRT.
Methods: Prospective cohort study from 345 consecutive patients undergoing CRT from 17 May 2012 to 21 December 2016, 202 of whom (58.6%) were CRT-P and 143 (41,4%) were CRT-D.

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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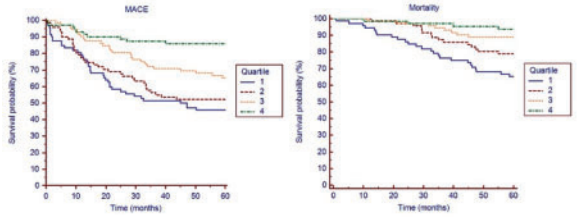
Introduction: Heart failure (HF) is a major cause of death, and it has a poor prognosis despite the significant reduction in mortality achieved in clinical trials. Left atrial (LA) function represents powerful outcome predictor in patients with HF, because closely related to left ventricular diastolic 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.