Table S1. Data gathered in the RM registry on a yearly basis

General contents of the transmissions	Details
Ventricular tachyarrhythmias	-VT -VF -nsVT
Appropriate interventions, with regard to: -efficacy of the first therapy -efficacy of the therapy overall	-ATP -HV
Inappropriate interventions, with regard to specific cause of inappropriate therapy	-AF/AFL/SVT/external interference/lead dysfunction etc.
Device preset parameters	-VT/VF detection and therapy zones -Types of therapy per zone
Hardware issues	-Lead dysfunction (changes in impedance /threshold)
Supraventricular tachyarrhythmias	-AF, including maximal and mean ventricular response to AF -SVT -AFL
Pacing-related transmissions	- Low % of biventricular pacing in CRT devices

Abbreviations: AF – Atrial fibrillation; AFL – Atrial flutter; ATP – Antitachycardia pacing; CRT-Cardiac resynchronization therapy; HV – High-voltage therapy; nsVT – non-sustained ventricular tachycardia; RM – Remote monitoring; SVT – Supraventricular tachycardia; VF – Ventricular fibrillation; VT – Ventricular tachycardia

Table S2. Comparison of patients based on the normality of right ventricular diameter (among patients with available RV diameter at implantation)

Demographics at baseline	Overall population (N=335)	RVD >42 mm (N=93)	RVD ⩽ 42 mm (N=242)	P value
Female, n (%)	60 (17.9%)	12 (12.9%)	48 (19.8%)	0.14
Age at implantation, years, median; (Q1-Q3)	64 (57-71)	65 (57-74)	64 (57-71)	0.48
Indication for implantation				
Ischemic cardiomyopathy, n (%)	201 (60.0%)	61 (65.6%)	140 (57.9%)	0.20
Non-ischemic cardiomyopathy, n (%)	134 (40.0%)	32 (34.4%)	102 (42.1%)	
Secondary prevention of sudden cardiac death, n (%)	74 (22.1%)	26 (28.0%)	48 (19.8%)	0.11
Arterial hypertension, n (%)	174 (51.9%)	51 (54.8%)	123 (50.8%)	0.51
Atrial fibrillation, n (%)	119 (35.5%)	41 (44.1%)	78 (32.2%)	0.04
Diabetes, n (%)	127 (37.9%)	45 (48.4%)	82 (33.9%)	**0.01**
NYHA classification[#]				
I, n (%)	25 (8.5%)	5 (5.4%)	20 (8.3%)	**0.03**
II, n (%)	89 (27.4%)	34 (36.6%)	55 (22.7%)	
III, n (%)	152 (46.8%)	52 (55.9%)	100 (41.3%)	
IV, n (%)	28 (6.6%)	13 (14.0%)	15 (6.2%)	
GFR ≤60 ml/min/1.73 m^2, n (%)	97 (29.0%)	32 (34.4%)	65 (26.9%)	0.17
LVEF, %, median (Q1-Q3)	25 (20-29)	24 (18-29)	25 (20-28)	0.68
LVEDD, mm, median (Q1-Q3)	66 (61-73)	67 (62-73)	66 (61-73)	0.53
TAPSE, mm, median (Q1-Q3)	18 (15-20)	16 (14-20)	18 (16-20)	<0.001
RVSP, mmHg median (Q1-Q3)	36 (30-47)	40 (35-50)	35 (27-45)	0.004
Mitral regurgitation (≥ moderate), n (%)	163 (48.7%)	49 (52.7%)	114 (47.1%)	0.36
Tricuspid regurgitation (≥ moderate), n (%)	93 (27.8%)	32 (34.8%)	61 (25.2%)	0.08
BMI, kg/m2, median (Q1-Q3)	27.6 (24.7-31.1)	28.9 (25.9-32.4)	27.5 (24.3-30.5)	0.04
LBBB at baseline, n (%)	138 (41.2%)	45 (51.6%)	93 (38.4%)	0.10

| IVCD at baseline, n (%) | 95 (28.3%) | 27 (29.0%) | 68 (28.1%) | 0.86 |

Data on NYHA class from the moment of implantation were available for 294 patients of the overall cohort

Table S3. Long-term events according to RVD

Event	Overall population (N=335)	RVD >42 mm (N=93)	RVD ≤ 42 mm (N=242)	*P value*
Appropriate therapy, n (%)	111 (33.1%)	32 (34.4%)	79 (32.6%)	0.75
Inappropriate therapy, n (%)	37 (11.0%)	10 (10.8%)	27 (11.6%)	0.91
Appropriate ATP, n (%)	83 (24.8%)	27 (29.0%)	56 (23.1%)	0.26
Appropriate shock, n (%)	75 (22.4%)	21 (22.6%)	54 (22.3%)	0.95
Inappropriate ATP, n (%)	24 (7.2%)	6 (6.5%)	18 (7.4%)	0.75
Inappropriate shock, n (%)	17 (5.1%)	5 (5.4%)	12 (5.0%)	0.88
Death, n (%)	117 (34.9%)	34 (36.6%)	87 (34.3%)	0.91
Low biventricular pacing % alert, n (%)	131 (39.1%)	33 (35.4%)	98 (40.5%)	0.40

Table S4. Variables included in the multivariable analysis

Variables included as categorical values	Variables included as continuous values with units
Sex (male/female)	Age, years
NYHA Class (I-IV)	BMI, kg/m2
Hypertension (yes/no)	LVEDD, mm
Prior stroke (yes/no)	LVEF, %
Peripheral artery disease (yes/no)	RVSP, mmHg
Anaemia (yes/no)	TAPSE, mm
Diabetes (yes/no)	RVD, mm
Chronic kidney disease (yes/no)	
Atrial fibrillation (yes/no)	
Mitral regurgitation ≥moderate (yes/no)	
Tricuspid regurgitation ≥ moderate (yes/no)	
Prevention of sudden cardiac death (primary/secondary)	
LBBB (yes/no)	
Heart failure aetiology (ischemic/non-ischemic)	

Abbreviations: BMI – Body mass index; LBBB – Left bundle branch block; LVEDD – Left ventricular end-diastolic diameter; LVEF – Left ventricular ejection fraction; NYHA – New York Heart Association; RVD – Right ventricular diameter; RVSP – Right ventricular systolic pressure; TAPSE – Tricuspid annular plane systolic excursion;

Table S5. Univariable analysis results for predictors of all-cause mortality in the long-term follow-up

Independent predictors of all-cause mortality	Hazard Ratio	95% Confidence Interval Lower and Upper Index		p
Age, per year	1.006	0.990	1.023	0.46
BMI, per unit	0.964	0.922	1.007	0.10
LVEDD, per mm	1.033	1.013	1.054	0.001
LVEF, per %	0.936	0.905	0.968	<0.001
RVSP, per mmHg	1.024	1.011	1.037	<0.001
TAPSE, per mm	0.944	0.902	0.989	0.02
RVD, per mm	1.035	1.010	1.061	0.006
Male sex	1.300	0.776	2.178	0.33
NYHA class II vs I	0.896	0.384	2.088	0.80
NYHA class III vs I	1.347	0.614	2.959	0.46
NYHA class IV vs I	2.239	0.904	5.549	0.08
NYHA class III or IV	1.596	1.039	2.450	0.03
Arterial hypertension	0.851	0.588	1.230	0.39
Prior Stroke	0.845	0.371	1.923	0.69
Peripheral arterial disease	1.196	0.167	8.572	0.86
Anaemia	1.640	1.093	2.460	0.02
Diabetes	1.143	0.784	1.666	0.49
Chronic kidney disease	2.483	1.714	3.597	<0.001
Atrial fibrillation	1.192	0.816	1.739	0.36
Ischemic cardiomyopathy	1.056	0.724	1.542	0.78
Secondary prevention of sudden cardiac death	1.439	0.952	2.176	0.08
Mitral regurgitation ≥moderate	1.523	1.050	2.210	0.03
Tricuspid regurgitation ≥moderate	1.200	0.803	1.794	0.38
LBBB	0.670	0.433	1.037	0.07

Abbreviations: BMI – Body mass index; LBBB – Left bundle branch block; LVEDD – Left ventricular end-diastolic diameter; LVEF – Left ventricular ejection fraction; NYHA – New York Heart Association; RVD – Right ventricular diameter; RVSP – Right ventricular systolic pressure; TAPSE – Tricuspid annular plane systolic excursion

Table S6. Univariable analysis results for predictors of appropriate CRT-D therapies in the long-term follow-up

Independent predictors of all-cause mortality	Hazard Ratio	95% Confidence Interval Lower and Upper Index		p
Age, per year	0.968	0.954	0.983	<0.001
BMI, per unit	1.027	0.990	1.066	0.15
LVEDD, per mm	1.045	1.025	1.066	<0.001
LVEF, per %	0.967	0.936	0.999	0.044
RVSP, per mmHg	1.009	0.995	1.023	0.20
TAPSE, per mm	1.011	0.968	1.057	0.61
RVD, per mm	1.009	0.984	1.034	0.49
Male sex	1.166	0.711	1.911	0.54
NYHA class II vs I	1.262	0.585	2.722	0.55
NYHA class III vs I	0.974	0.460	2.063	0.94
NYHA class IV vs I	1.061	0.409	2.752	0.90
NYHA class III or IV	0.820	0.551	1.221	0.33
Arterial hypertension	0.988	0.680	1.433	0.95
Prior Stroke	0.704	0.287	1.726	0.44
Peripheral arterial disease	1.940	0.478	7.870	0.35
Anaemia	0.589	0.347	1.000	0.049
Diabetes	0.931	0.633	1.370	0.71
Chronic kidney disease	0.935	0.618	1.417	0.75
Atrial fibrillation	0.833	0.558	1.243	0.37
Ischemic cardiomyopathy	0.759	0.522	1.103	0.15
Secondary prevention of sudden cardiac death	1.051	0.673	1.640	0.83
Mitral regurgitation ≥moderate	1.343	0.925	1.950	0.12
Tricuspid regurgitation ≥moderate	1.360	0.911	2.030	0.13
LBBB	1.087	0.710	1.663	0.70

Abbreviations: BMI – Body mass index; LBBB – Left bundle branch block; LVEDD – Left ventricular end-diastolic diameter; LVEF – Left ventricular ejection fraction; NYHA – New York Heart Association; RVD – Right ventricular diameter; RVSP – Right ventricular systolic pressure; TAPSE – Tricuspid annular plane systolic excursion

Table S7. Univariable analysis results for predictors of inappropriate CRT-D therapies in the long-term follow-up

Independent predictors of all-cause mortality	Hazard Ratio	95% Confidence Interval Lower and Upper Index		p
Age, per year	0.953	0.929	0.977	<0.001
BMI, per unit	0.979	0.905	1.059	0.60
LVEDD, per mm	1.047	1.012	1.083	0.009
LVEF, per %	0.927	0.876	0.981	0.009
RVSP, per mmHg	1.014	0.989	1.040	0.28
TAPSE, per mm	0.989	0.915	1.068	0.77
RVD, per mm	0.986	0.943	1.030	0.52
Male sex	0.660	0.311	1.398	0.28
NYHA class II vs I	0.702	0.220	2.239	0.55
NYHA class III vs I	0.765	0.259	2.260	0.63
NYHA class IV vs I	0.471	0.086	2.571	0.38
NYHA class III or IV	0.937	0.473	1.856	0.85
Arterial hypertension	0.589	0.305	1.135	0.11
Prior Stroke	Had not occurred in patients with inappropriate therapies			
Peripheral arterial disease	3.688	0.504	6.963	0.20
Anaemia	0.436	0.155	1.232	0.11
Diabetes	1.003	0.516	1.949	0.99
Chronic kidney disease	1.103	0.545	2.232	0.78
Atrial fibrillation	1.001	0.510	1.966	0.99
Ischemic cardiomyopathy	0.493	0.257	0.945	0.03
Secondary prevention of sudden cardiac death	0.999	0.457	2.186	0.99
Mitral regurgitation ≥moderate	1.465	0.765	2.809	0.24
Tricuspid regurgitation ≥moderate	1.154	0.570	2.335	0.69
LBBB	1.269	0.563	2.856	0.56

Abbreviations: BMI – Body mass index; LBBB – Left bundle branch block; LVEDD – Left ventricular end-diastolic diameter; LVEF – Left ventricular ejection fraction; NYHA – New York Heart Association; RVD – Right ventricular diameter; RVSP – Right ventricular systolic pressure; TAPSE – Tricuspid annular plane systolic excursion

Table S8. Mechanisms and causes of the first inappropriate ICD therapies in the studied patients

Cause of first inappropriate therapy	Number of patients (total N=37)
Supraventricular tachycardia (n, %)	6 (16.2%)
Atrial fibrillation (n, %)	29 (78.4%)
Atrial flutter (n, %)	1 (2.7%)
T wave oversensing (n, %)	1 (2.7%)