



European CRT Survey II

- Electronic Case Report Form -



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Demographics

Month/Year of CRT
implantation

MM.YYYY

Age

years

[Calculator](#)

When the user clicks on "Calculator", the EDC system will open a javascript-based calculator where the user can enter the month/year of the birth and the system will calculate the age of the patient on the user's computer. The calculation takes place only on the user's computer, only the age will be stored in the database on the server.

Gender

☐ Male

☐ Female

Elective admission

☐ No

☐ Yes

Referral from another
centre

☐ No

☐ Yes

Is the patient currently
enrolled in a clinical trial

☐ No

☐ Yes

Primary HF aetiology

Primary HF aetiology

☐ Ischaemic

☐ Non-ischaemic

☐ Other

Past history and major comorbidity

Myocardial infarction

☐ No

☐ Yes

Prior Revascularization
(PCI/CABG)

☐ No

☐ Yes

Hypertension

☐ No

☐ Yes

Atrial fibrillation

☐ No

☐ Yes

Valvular heart disease

☐ No

☐ Yes

Obstructive lung disease

☐ No

☐ Yes

Diabetes

☐ No

☐ Yes

Anemia

☐ No

☐ Yes

Chronic kidney disease
(eGFR < 60)

☐ No

☐ Yes

Estimated glomerular
filtration rate

HF hospitalization
during past year

☐ No

☐ Yes

Previous device
implantation

☐ No

☐ Yes

Pre-implant clinical evaluation

NYHA class

☐ I

☐ II

☐ III

☐ IV

Body-Mass-Index

kg/cm²

[Calculator](#)

When the user clicks on "Calculator", the EDC system will open a javascript-based calculator where the user can enter the height and weight of the patient and the system will calculate the body-mass-index on the user's computer. The calculation takes place only on the user's computer, only the final result will be stored in the database on the server.

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Blood Pressure Systolic/Diastolic	/ mmHg
Laboratory measurements (most recent)	
NT-proBNP	pg/ml pmol/l
BNP	pg/ml pmol/l
Hb Haemoglobin	g/dl
Serum Creatinine	mg/dl µmol/l
☐ Remaining laboratory values unavailable	
Pre-implant ECG	
Heart rate	bpm
Atrial rhythm	☐ Sinus ☐ Atrial fibrillation ☐ Atrial paced ☐ Other
PR interval	ms
AV block II/III	☐ No ☐ Yes
Intrinsic QRS duration	ms
Pacemaker dependant	☐ No ☐ Yes
QRS morphology	☐ Normal ☐ Left bundle branch block (LBBB) ☐ Indeterminate ☐ Right bundle branch block (RBBB)
AV node ablation (if "Atrial fibrillation")	☐ No ☐ Performed ☐ Planned

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Clinical indication for CRT

- Clinical indication for CRT**
- ☐ Heart failure with wide QRS
 - ☐ Heart failure or left ventricular (LV) dysfunction and an indication for an ICD
 - ☐ Pacemaker indication and expected right ventricular (RV) pacing dependence
 - ☐ Evidence of mechanical dyssynchrony
 - ☐ Other

Preimplant imaging used to determine CRT indication

Echo ☐ No ☐ Yes

Cardiac MRI ☐ No ☐ Yes

CT scan ☐ No ☐ Yes

Scintigraphy ☐ No ☐ Yes

Did scar evaluation influence LV lead placement? ☐ No ☐ Yes

LVEF % **(by any method)**
Left ventricular ejection fraction

Method used to determine LVEF

- ☐ LV-Angio
- ☐ Echo
- ☐ MRI
- ☐ Scintigraphy

Echo Data (if available)

LVEF %

LVEDD mm
LV enddiastolic dimension

Mitral regurgitation ☐ None ☐ Mild ☐ Moderate ☐ Severe

Aortic stenosis ☐ None ☐ Mild ☐ Moderate ☐ Severe

Valve surgery/procedure ☐ No ☐ Yes

☐ Remaining echo data unavailable

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The following part of the CRF will be repeated multiple times for each implantation attempt:

CRT-Implantation Procedure

Number of days from admission to this implantation attempt

days

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Successful attempt

☐ No

☐ Yes

Complication

- ☐ Death
- ☐ Bleeding
- ☐ Pneumothorax
- ☐ Haemothorax
- ☐ Coronary sinus dissection
- ☐ Pericardial tamponade
- ☐ Other

Only for the successful attempt, the following information has to be provided:

Successful attempt

Type of device:

☐ CRT-P

☐ CRT-D

Operator

- ☐ Electrophysiologist
- ☐ HF physician
- ☐ Invasive Cardiologist
- ☐ Surgeon
- ☐ Other

Location of procedure

- ☐ Cathlab
- ☐ Dedicated electrophysiology lab
- ☐ Device implantation lab
- ☐ Operating theatre
- ☐ Other

Duration

min

Fluoroscopy time

min

Prophylactic antibiotics

☐ No

☐ Yes

Test shock

☐ No

☐ Yes

Which lead was implanted first

☐ RV

☐ LV

RV lead placement

☐ Apex

☐ Septum

☐ RVOT

LV lead placement successful

☐ No

☐ Yes

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If LV lead placement is unsuccessful what was main reason?

- ☐ Coronary sinus not identified
- ☐ Extracardiac stimulation
- ☐ No suitable coronary vein
- ☐ Complication
- ☐ Other

If LV lead placement is unsuccessful, was the patient referred to another center?

- ☐ No
- ☐ Yes

LV lead type

- ☐ unipolar
- ☐ bipolar
- ☐ multipolar

Was a coronary venogram performed

- ☐ No
- ☐ Yes

Was dilatation of coronary vein performed

- ☐ No
- ☐ Yes

Was phrenic nerve stimulation tested

- ☐ No
- ☐ Yes

LV Lead Position Evaluation

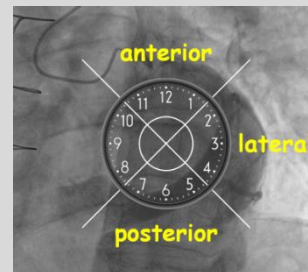
LV lead position evaluation

- ☐ No
- ☐ Yes, biplane x-ray projection
- ☐ Yes, monoplane (LAO)
- ☐ Yes, monoplane (RAO)

Please indicate the approximate position of the electrode(s) actually used for LV pacing (e.g. in multipolar leads) using the schematic views provided.

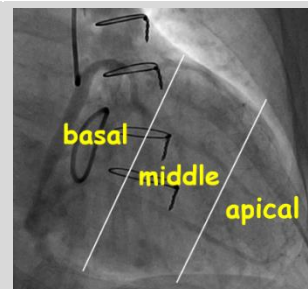
LAO site evaluation (clock-face evaluation)

- ☐ Anterior (h 11-01)
- ☐ Lateral (h 02-04)
- ☐ Posterior (h 05-06)



RAO site evaluation

- ☐ Basal
- ☐ Middle
- ☐ Apical



Was LV position optimized?

- ☐ No
- ☐ Yes

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Peri-procedural complications

Peri-procedural complications

☐ None

- ☐ Death
- ☐ Bleeding
- ☐ Pneumothorax
- ☐ Haemothorax
- ☐ Coronary sinus dissection
- ☐ Pericardial tamponade
- ☐ Other

Post-implant ECG

Paced QRS duration

ms

Device programming

Was AV programming performed prior to discharge

☐ No

☐ Yes

Was VV programming performed prior to discharge

☐ No

☐ Yes

Was Device-based software for AV or VV optimization used

☐ No

☐ Yes

If "Yes", was it

☐ Automatic

☐ Manual

Discharge status and major adverse events

Discharge status

☐ Alive

☐ Dead

Total length of hospital stay

Number of days from admission to discharge or death

days

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Adverse clinical events during index hospitalisation following implantation

☐ None

- ☐ MI
- ☐ Stroke
- ☐ Infection
- ☐ Worsening HF
- ☐ Worsening renal function
- ☐ Arrhythmias
- ☐ Other

Was there a complication that necessitated an intervention

☐ None

- ☐ Phrenic nerve stimulation
- ☐ Lead dislocation or displacement
- ☐ Lead malfunction
- ☐ Infection
- ☐ Other

Drug therapy at discharge

(For deceased patients please enter last known drug therapy.)

Loop diuretic

☐ No

☐ Yes

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ACE inhibitor/ARB	☐ No	☐ Yes
MRA (aldosterone antagonist)	☐ No	☐ Yes
Betablocker	☐ No	☐ Yes
Ivabradine	☐ No	☐ Yes
Digoxin	☐ No	☐ Yes
Calcium channel blocker	☐ No	☐ Yes
Amiodarone	☐ No	☐ Yes
Other anti-arrhythmic agent	☐ No	☐ Yes
Oral anticoagulant	☐ No	☐ Warfarin (Coumadin) ☐ Dabigatran ☐ Rivaroxaban ☐ Apixaban ☐ Edoxaban
Anti-platelet agent	☐ No	☐ Aspirin ☐ Clopidogrel ☐ Ticagrelor ☐ Prasugrel
☐ Remaining drug therapy information unavailable		
Follow-Up		
Where is follow-up planned	☐ Implanting centre ☐ Other hospital ☐ Cardiologist in private practice ☐ Primary care physician ☐ CRT/pacemaker clinic ☐ Heart failure management clinic ☐ Other	
Device remote monitoring		
Will the device be monitored by telemetry?	☐ No	☐ Yes