



IX Congresso
Novas Fronteiras
em Medicina
Cardiovascular

22 a 24 de Fevereiro 2019

The Village Praia
D'El Rey - Óbidos

RICA^{HF}*team*


DEPARTAMENTO
CORACÃO e VASOS



HOSPITAL DE
SANTAMARIA



Hospital
Pulido Valente



FACULDADE DE
MEDICINA
LISBOA

Heart Failure challenges: when optimal therapy is not an option

Afonso Nunes Ferreira

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2019

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Medicine, Universidade de Lisboa, Portugal**

Clinical Case

RICA^{HF}team

♂, 82 years

Syncope & chest pain while having breakfast



Clinical Case

♂, 82 years

Syncope & chest pain while having breakfast



Medical Service

- ECG

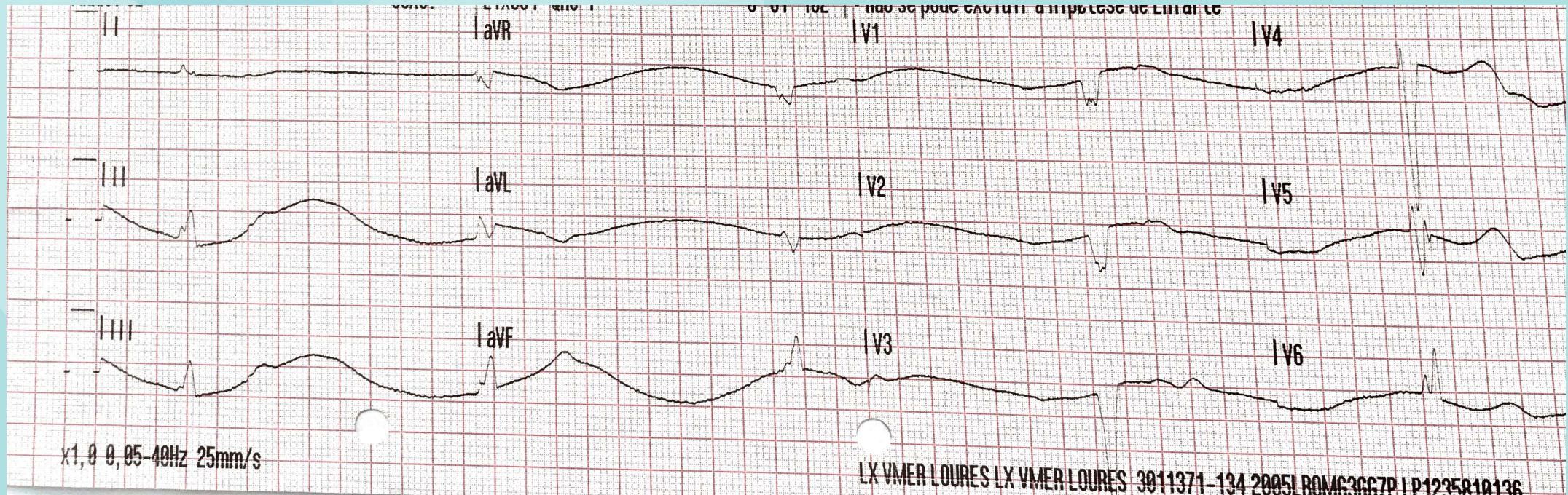


Clinical Case

RICA^{HF}team

♂, 82 years

Syncope & chest pain while having breakfast



HF: when OMT is not an option

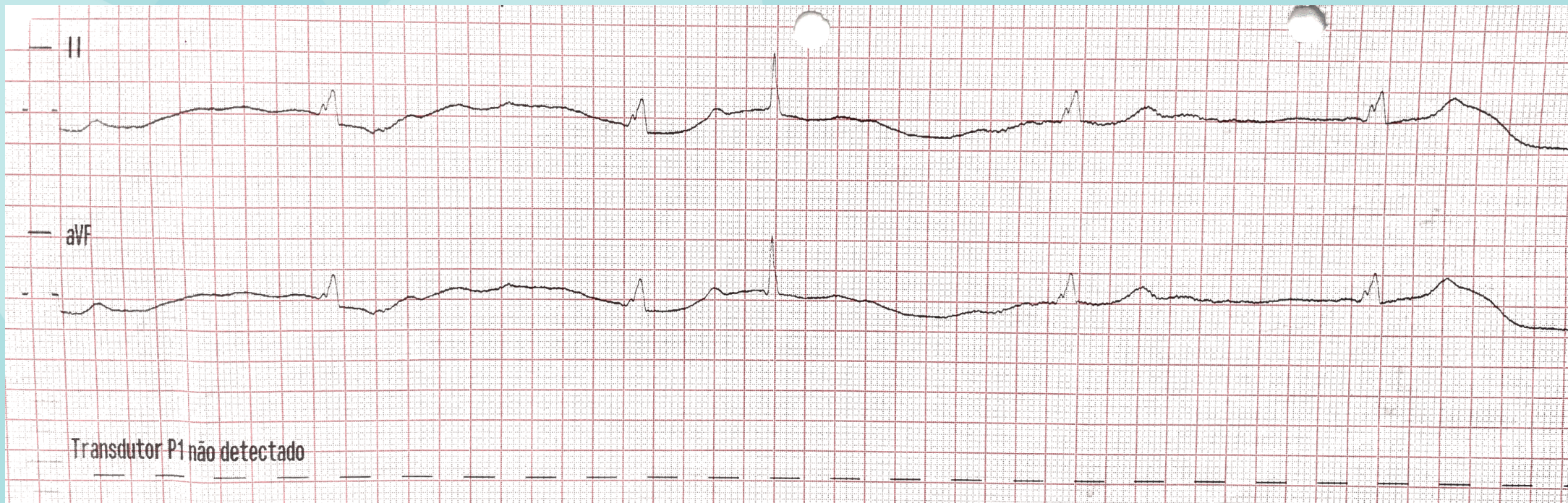
Afonso Nunes Ferreira, Rafael Santos, Cardiology Department, CHULN

Clinical Case

RICA^{HF}team

♂, 82 years

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HF: when OMT is not an option

Afonso Nunes Ferreira, Rafael Santos, Cardiology Department, CHULN

Clinical Case

♂, 82 years

Syncope & chest pain while having breakfast



Medical Service

- ECG → sick sinus syndrome + LBBB



- Refractory to medical Tx (atropine 2mg)

Clinical Case

♂, 82 years

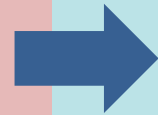
Syncope & chest pain while having breakfast

Medical Service

- ECG → sick sinus syndrome + LBBB



- Refractory to medical Tx (atropine 2mg)



Transcutaneous
pacing system



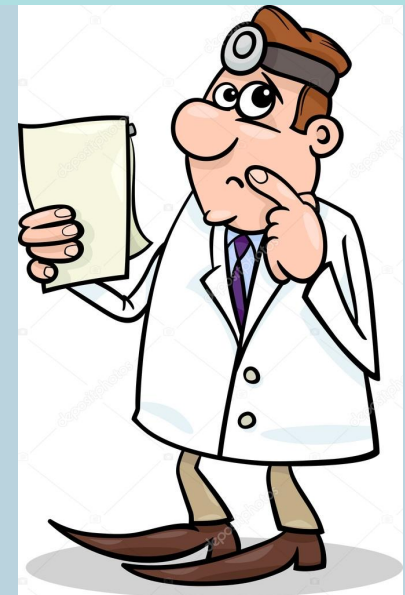
OTI



Clinical Case

Medical history

- Heart Failure with reduced Ejection Fraction
- Ischemic heart disease with unknown coronary anatomy
- Peripheral artery disease
 - Right aorto-femoral bypass
- Cerebrovascular disease
- Chronic kidney disease; anemia
- CV risk factors: Hypertension, dyslipidemia, diabetes
- Medication: Perindopril 4mg, Bisoprolol 2.5mg, spironolactone 25mg, furosemide 40mg, clopidogrel 75mg, rosuvastatin 10mg, metformin 850mg bid, linagliptine 5mg, alopurinol 300mg



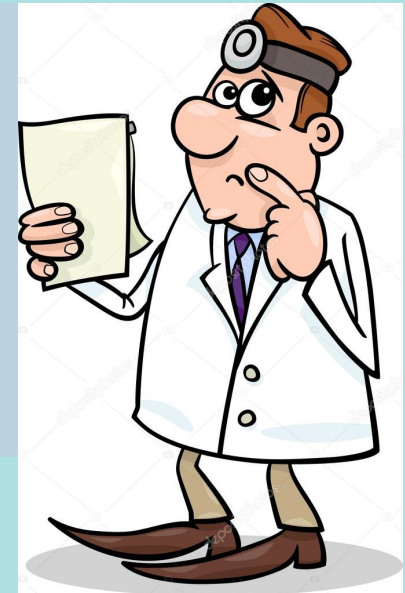
Clinical Case

Hospital admission

- External pacing system
- Summary echocardiography
 - Apical and anterior wall akinesia, LVEF 25-30%
- ABG
 - pH 7.14, O₂ 127mmHg, CO₂ 24mmHg, Lact 62mg/dL, K⁺ 7.5mmol/L, Na⁺ 135mmol/L, Hb 8g/dL

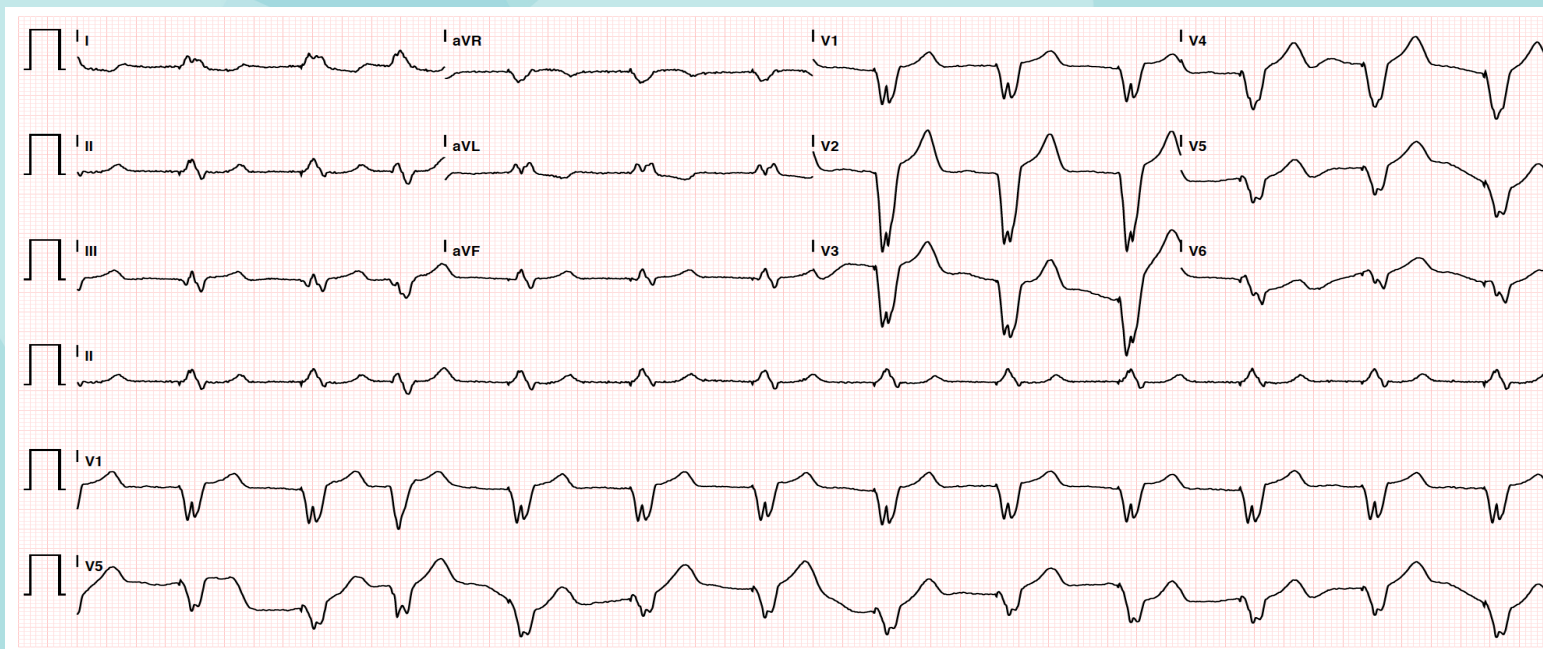


Metabolic iatrogenic sick sinus syndrome



Clinical Case

Metabolic iatrogenic sick sinus syndrome



- Clinical and hemodynamic stabilisation
- Extubation

Clinical Case

Cardiology ward

- Blood samples

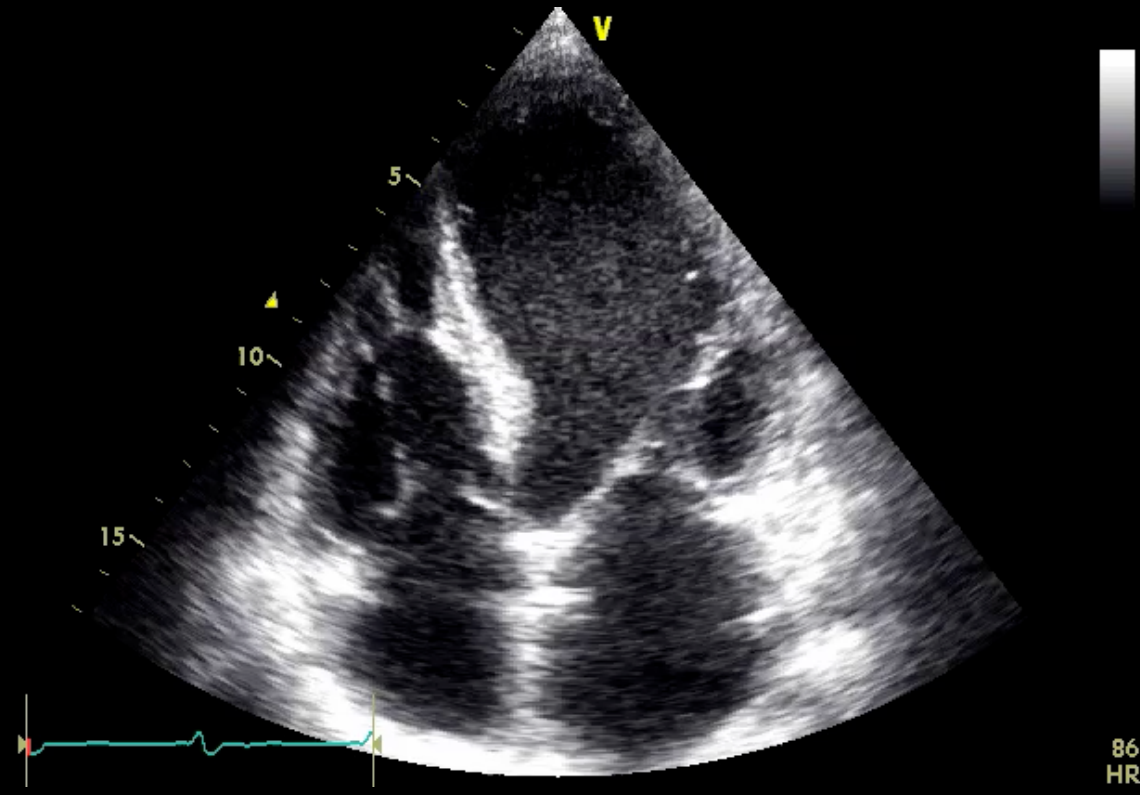
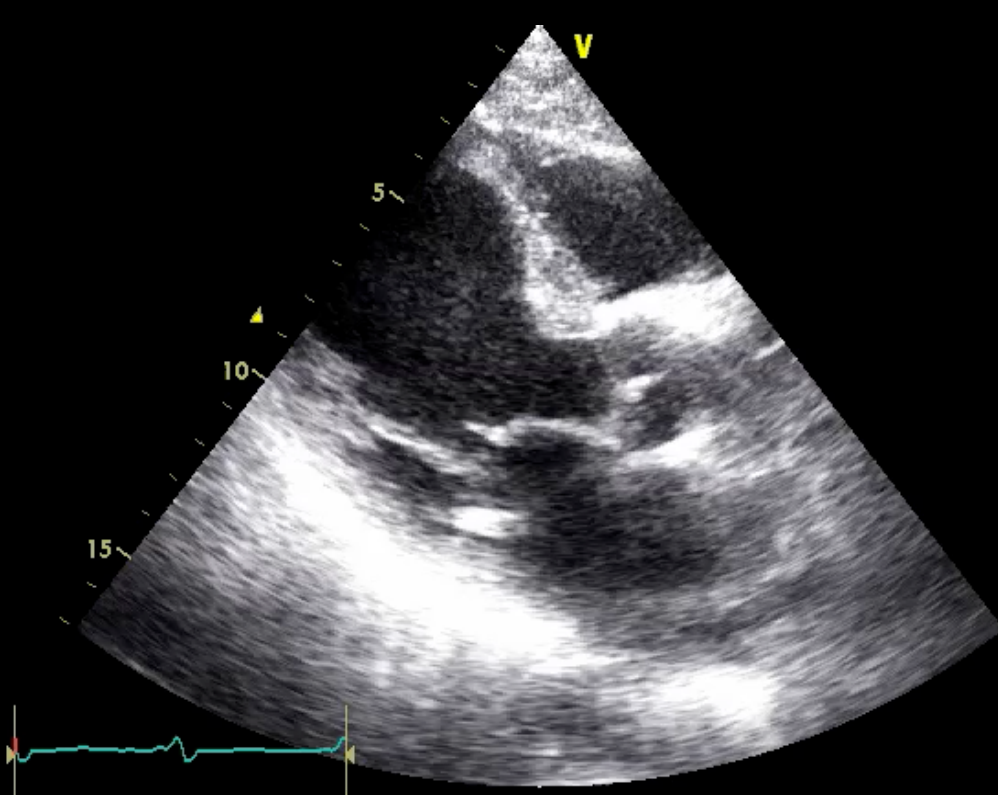
Parameters	Day 1
Hemoglobin (g/dL)	8.5
C-reactive protein (mg/dL)	4.7
Creatinine (mg/dL)	3.2
CKD-EPI (mL/min/1.73)	17.1
Potassium (mmol/L)	7.4
Sodium (mmol/L)	129
ALT (U/L)	865
LDH (U/L)	982
NT-proBNP (pg/mL)	14021
Troponin T (ng/L)	222

Clinical Case

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Cardiology ward

- Echocardiography

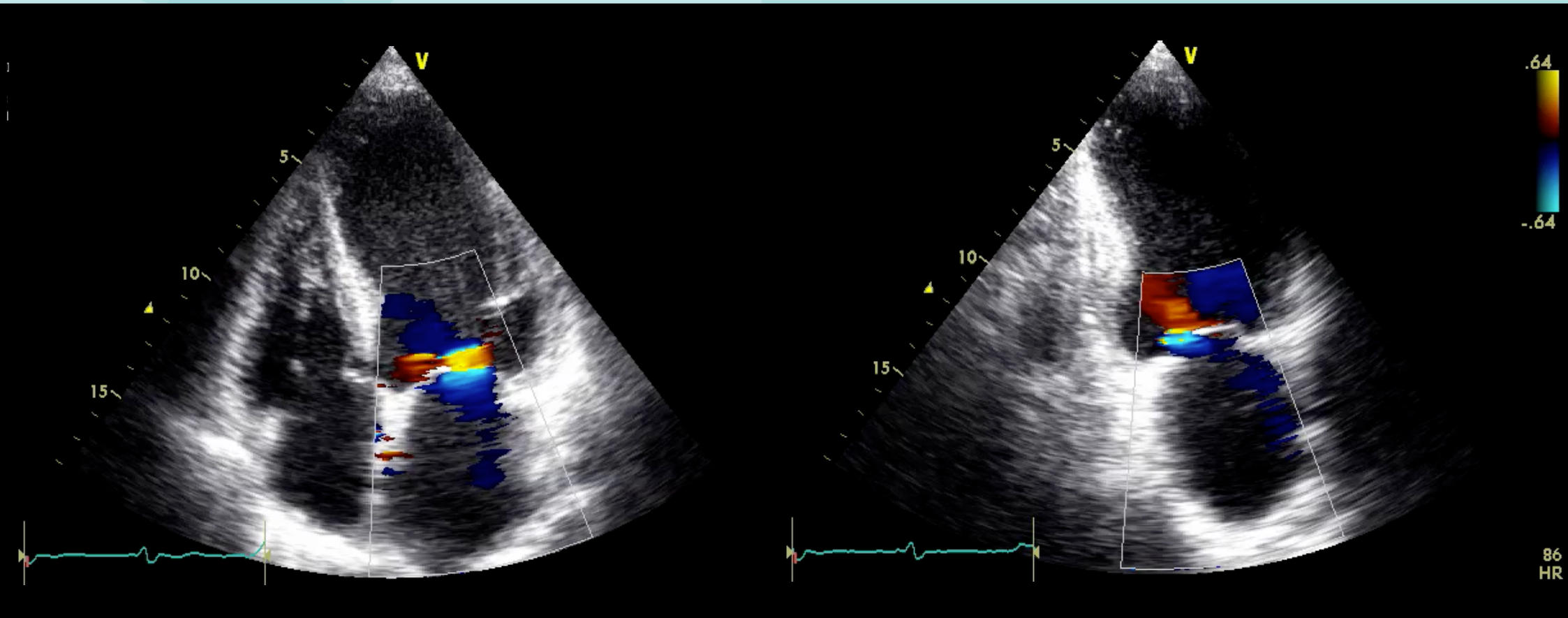


Clinical Case

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Cardiology ward

- Echocardiography



Clinical Case

Cardiology ward

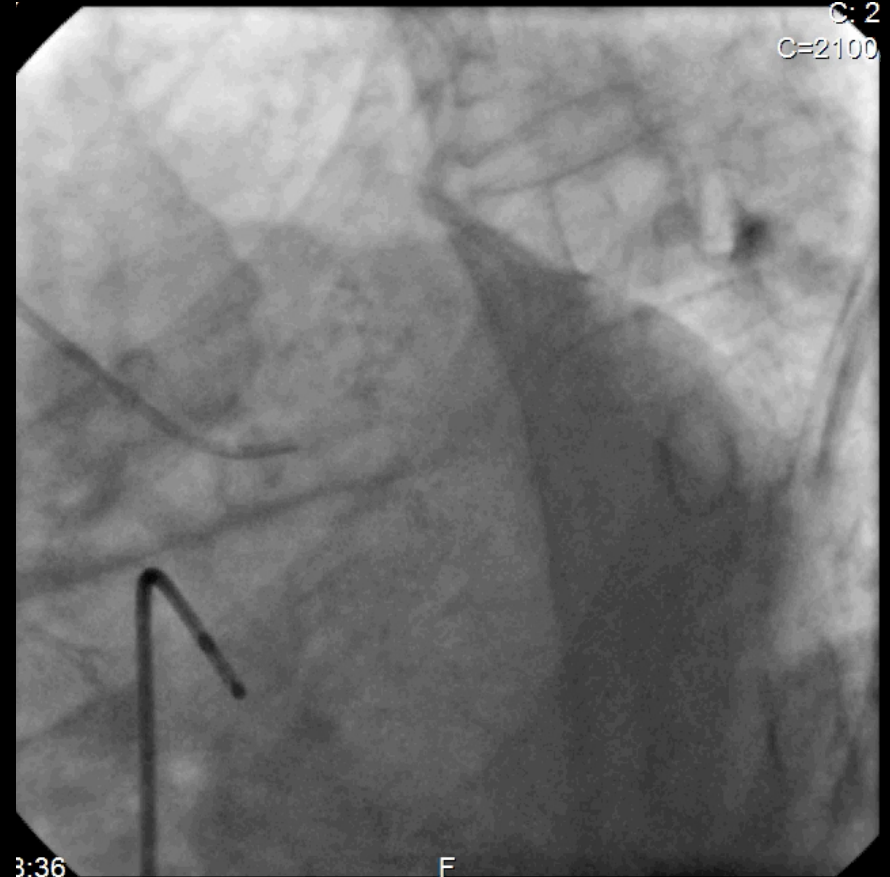
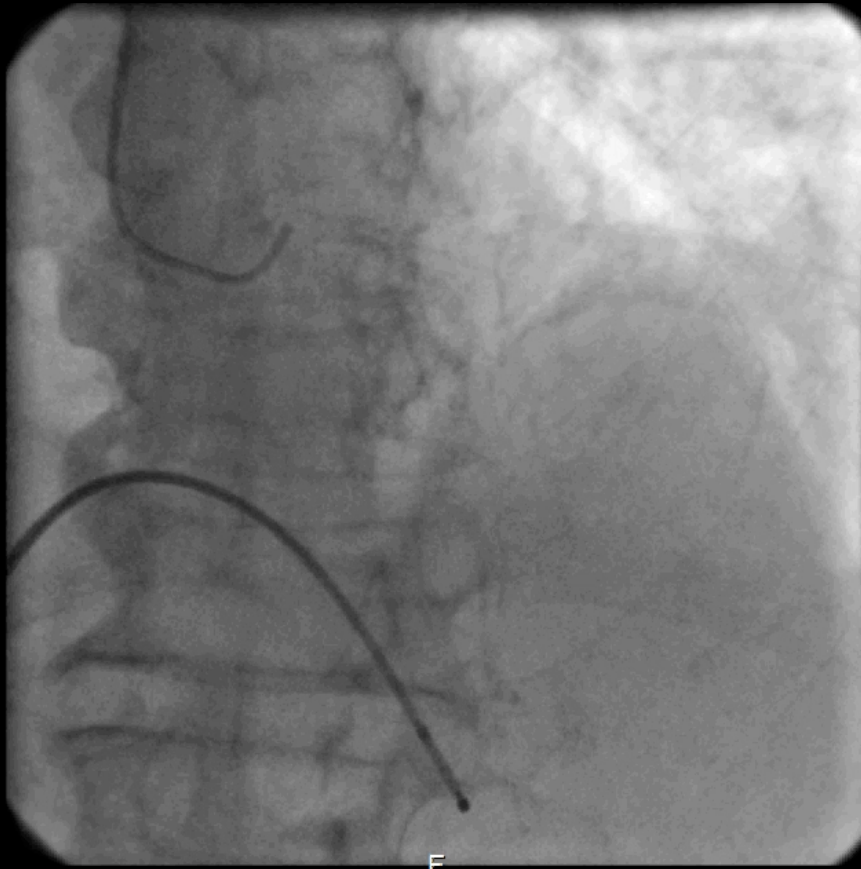
- Blood samples
- Echocardiography
 - Dilated LV, with apical akinesia and diffuse hypokinesia mainly in the septum and anterior wall;
 - LVEF 28%;
 - Severe secondary mitral regurgitation
- Coronariography

Clinical Case

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Cardiology ward

- Coronariography

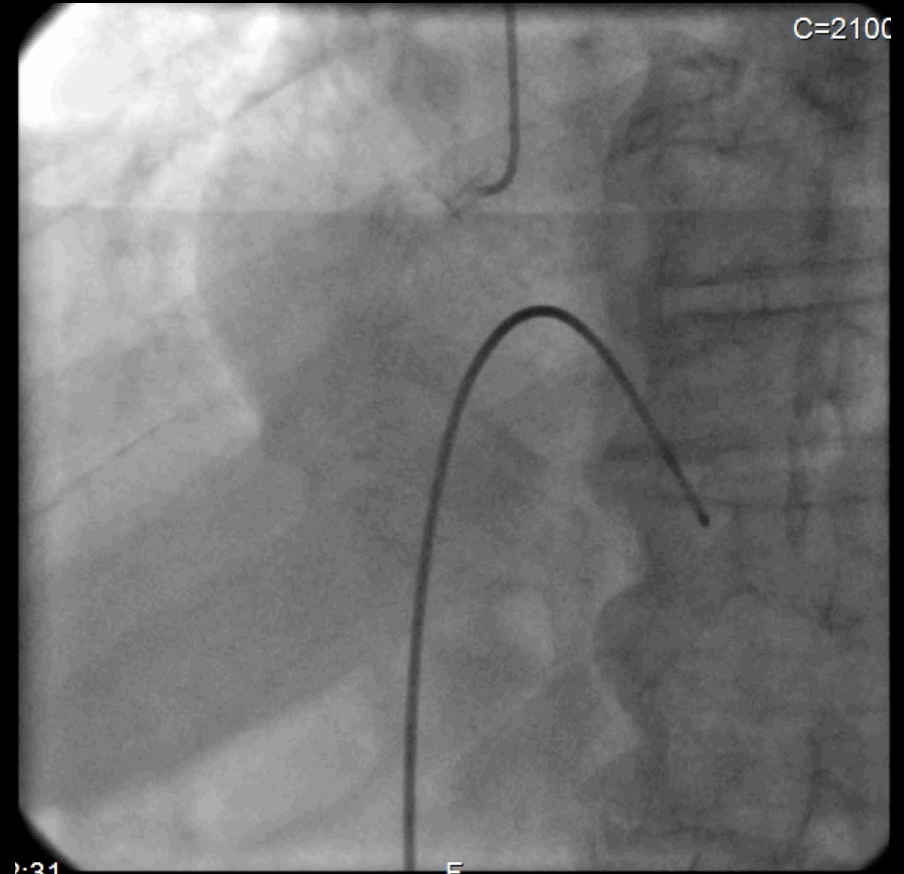
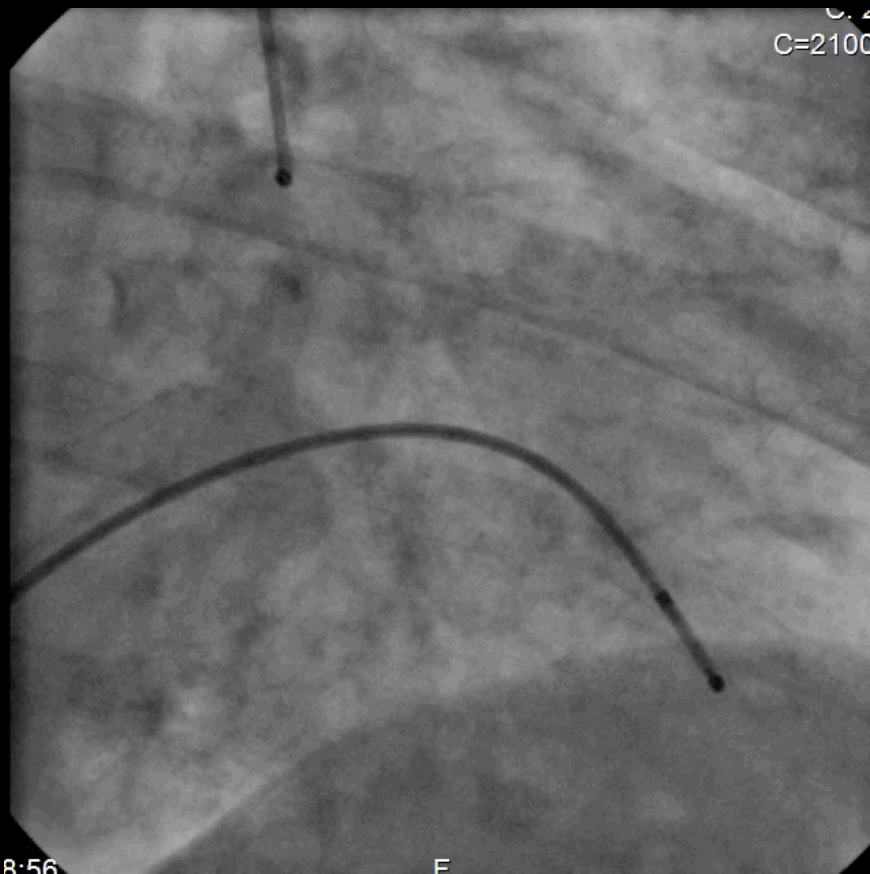


Clinical Case

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Cardiology ward

- Coronariography



Clinical Case

Cardiology ward

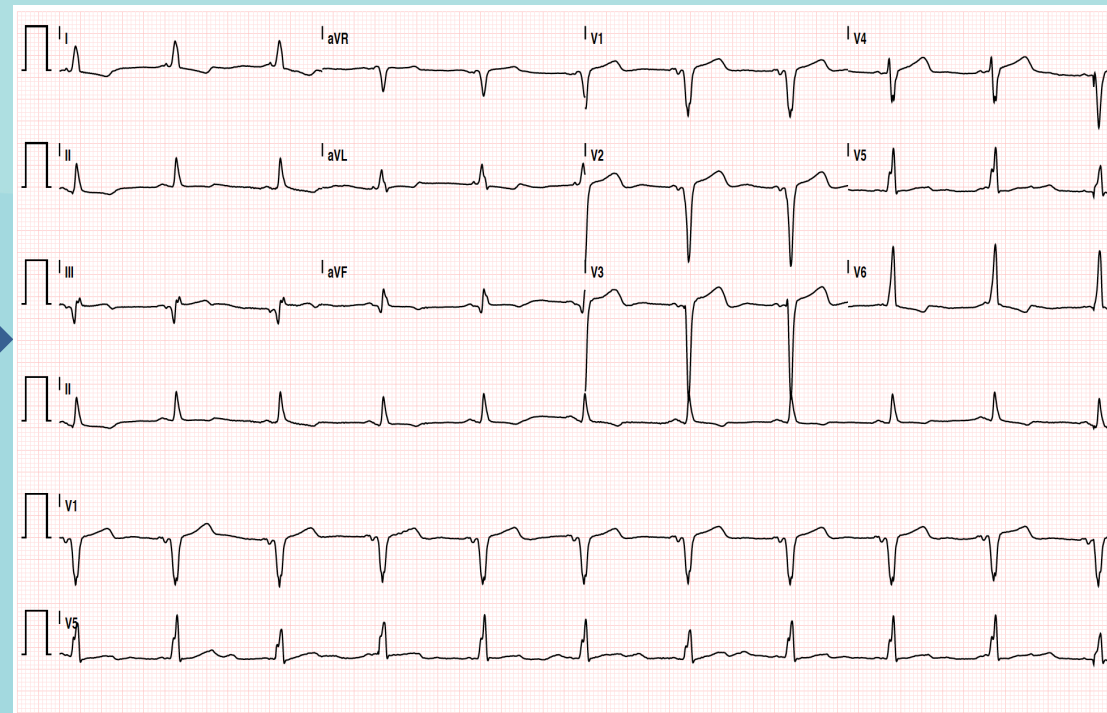
- Blood samples
- Echocardiography
- Coronariography
 - LM – significant distal calcified lesion
 - LAD – long calcified irregularities, 70% lesion in mid segment
 - Cx without significant lesions
 - RCA calcified proximal occlusion, distal segment retrograde perfusion
- Stress echocardiography
 - Ø viability in LAD and ARD territories
 - Ischemia in mid lateral segment

Clinical Case

Cardiology ward

- Blood samples

Parameters	Day 1	Day 2	Day 7
Hemoglobin (g/dL)	8.5	10.0	9.9
C-reactive protein (mg/dL)	4.7	5.1	3.07
Creatinine (mg/dL)	3.2	4.1	1.4
CKD-EPI (mL/min/1.73)	17	12.2	47.8
Potassium (mmol/L)	7.4	4.9	4.2
Sodium (mmol/L)	129		136
ALT (U/L)	865	1299	84
LDH (U/L)	982	1020	63
NT-proBNP (pg/mL)	14021		8675
Troponin T (ng/L)	222	348	57



Clinical Case

Cardiology ward

- Blood samples

Parameters	Day 1	Day 2	Day 7
Hemoglobin (g/dL)	8.5	10.0	9.9
C-reactive protein (mg/dL)	4.7	5.1	3.07
Creatinine (mg/dL)	3.2	4.1	1.4
CKD-EPI (mL/min/1.73)	17	12.2	47.8
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NT-proBNP (pg/mL)	14021		8675
Troponin T (ng/L)	222	348	57

- Re-introduction of perindopril 2mg/day → HiperK⁺ 6.2mmol/L
- Fast normalization after ACEi suspension

Clinical Case

Clinical summary

- Metabolic and iatrogenic sick sinus syndrome
- HFrEF of ischemic etiology (LVEF 28%)
- CKD KDIGO III → AKI AKIN III
- PAD

Metabolic iatrogenic sick sinus syndrome



Pre-discharge?



Clinical Case

RICA^{HF}team

Triple challenge

Oral Therapy

Coronary intervention

Pacing intervention

Clinical Case

Triple challenge

Oral Therapy

HFrEF optimized
therapy

Vs

Suspension of
RASi and MRA

Coronary intervention

PCI LMS → Cx

Vs

Conservative
Tx

Clinical Case

Triple challenge

Oral Therapy

HFrEF optimized
therapy

Vs

Suspension of
RASi and MRA

Coronary intervention

PCI LMS → Cx

Vs

Conservative
Tx

Pacing intervention

No intervention

Vs

Pacemaker
DDDR

Vs

CRT-P

Clinical Case

Triple challenge

Oral Therapy

HFrEF optimized
therapy

Vs

Suspension of
RASi and MRA

Coronary intervention

PCI LMS → Cx

Vs

Conservative
Tx

Pacing intervention

No intervention

Vs

Pacemaker
DDDR

Vs

CRT-P

Clinical Case

Pacing

Recommendations for cardiac resynchronization therapy implantation

Recommendations

CRT is recommended for symptomatic patients with HF in sinus rhythm with a QRS duration ≥ 130 msec, LBBB morphology and with LVEF $\leq 35\%$ despite OMT in order to improve symptoms and reduce morbidity and mortality.

CRT should be considered for symptomatic patients with HF in sinus rhythm with a QRS duration ≥ 130 msec, LBBB morphology and with LVEF $\leq 35\%$ despite OMT in order to improve symptoms and reduce morbidity and mortality.

CRT is recommended for symptomatic patients with HF in sinus rhythm with a QRS duration of ≥ 130 msec, LBBB morphology and with LVEF $\leq 35\%$ despite OMT in order to improve symptoms and reduce morbidity and mortality.

CRT may be considered for symptomatic patients with HF in sinus rhythm with a QRS duration ≥ 130 msec, LBBB morphology and with LVEF $\leq 35\%$ despite OMT in order to improve symptoms and reduce morbidity and mortality.

CRT rather than RV pacing is recommended for patients with HFrEF regardless of NYHA class who have sinus rhythm and high degree AV block in order to reduce morbidity. This includes patients with AF (see Section 4.2.2).

CRT should be considered for patients with LVEF $\leq 35\%$ in NYHA Class III–IV⁴ despite OMT in order to improve symptoms and reduce morbidity and mortality, if they are in AF and have a QRS duration ≥ 130 msec provided a sinus rhythm capture is in place or the patient is expected to return to sinus rhythm.

Patients with HFrEF who have received a conventional pacemaker or an ICD and subsequently developed sinus rhythm and who have a high proportion of RV pacing may be considered for upgrade to CRT. This does not apply to patients with a CRT-D.

CRT is contra-indicated in patients with a QRS duration < 130 msec.

HF: when OMT is not an option

Recommendations for the management of bradyarrhythmias in heart failure

Recommendations	Class ^a	Level ^b	Ref ^c
When pauses >3 seconds are identified on the ECG, or if the bradycardia is symptomatic and the resting ventricular rate is <50 bpm in sinus rhythm or <60 bpm in AF, it should be considered whether there is need for any rate limiting medications prescribed; for patients in sinus rhythm beta-blockers should be reduced in dose or withdrawn only as a last resort.	IIa	C	
For patients with symptomatic, prolonged or frequent pauses despite adjustment of rate limiting medication, either beta-blocker withdrawal or pacing may be considered as the next step.	IIb	C	
Pacing solely to permit initiation or titration of beta-blocker therapy in the absence of a conventional pacing indication is not recommended.	III	C	
In patients with HFrEF who require pacing and who have high degree AV block, CRT rather than RV pacing is recommended.	I	A	274, 275, 290
In patients with HFrEF who require pacing who do not have high degree AV block, pacing modes that avoid inducing or exacerbating ventricular dyssynchrony should be considered.	IIa	C	

Ferreira, Rafael Santos, Cardiology Department, CHULN

Clinical Case

Discharge

- Asymptomatic, SR
- PM DDDR
- Medical therapy
 - Bisoprolol 2.5mg, furosemide 40mg, clopidogrel 75mg, rosuvastatin 10mg, metformin 850mg bid, linagliptine 5mg, alopurinol 300mg

RICA^{HF}team



Clinical Case

RICA^{HF}team

2 months
later

♂, 82 years
Syncope & chest pain while having breakfast

Fatigue NYHA III, atypical chest pain

Medical Service

Decompensated chronic heart failure



Clinical Case

Discharge

- **Optimized medical therapy**
 - **Spironolactone 12.5mg/day, isossorbide dinitrate 20mg, Bisoprolol 2.5mg, furosemide 40mg, clopidogrel 75mg, rosuvastatin 10mg, metformin 850mg bid, linagliptine 5mg, alopurinol 300mg**





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