DE LAS GUIAS A LA PRÁCTICA CLÍNICA. ACTUALIZACIÓN DE LA GUIAS ICC 2021

ESC European Society of Cardiology

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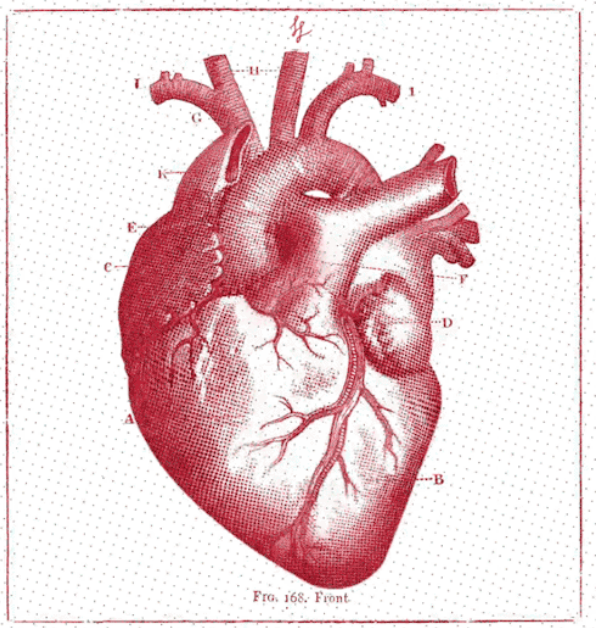
ESC GUIDELINES

2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure

Developed by the Task Force for the diagnosis and treatment of acute and chronic heart failure of the European Society of Cardiology (ESC)

With the special contribution of the Heart Failure Association (HFA) of the ESC



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CLASES DE RECOMENDACIÓN Y NIVELES DE EVIDENCIA

Table 1 **Classes of recommendations**

Classes of recommendations	Definition	Wording to use
Class I	Evidence and/or general agreement that a given treatment or procedure is beneficial, useful, effective.	Is recommended or is indicated
Class II	Conflicting evidence and/or a divergence of opinion about the usefulness/efficacy of the given treatment or procedure.	
Class IIa	Weight of evidence/opinion is in favour of usefulness/efficacy.	Should be considered
Class IIb	Usefulness/efficacy is less well established by evidence/opinion.	May be considered
Class III	Evidence or general agreement that the given treatment or procedure is not useful/effective, and in some cases may be harmful.	Is not recommended

Table 2 **Levels of evidence**

Level of evidence A	Data derived from multiple randomized clinical trials or meta-analyses.
Level of evidence B	Data derived from a single randomized clinical trial or large non-randomized studies.
Level of evidence C	Consensus of opinion of the experts and/or small studies, retrospective studies, registries.

DEFINICIÓN

La insuficiencia cardíaca (IC) es un síndrome clínico. Se debe a una anomalía estructural y/o funcional del corazón que provoca presiones intracardíacas elevadas y/o un gasto cardíaco inadecuado en reposo y/o durante el ejercicio.

La identificación de la etiología de la disfunción cardíaca subyacente es obligatoria en el diagnóstico de la IC

Puede presentarse de forma crónica o de forma aguda

EPIDEMIOLOGIA Y PRONÓSTICO

- Prevalencia de 5/100.000 hab
- Incremento del 1% en 50 años a >10% en >70 años
- Aumento constante en hospitalizaciones por fallo cardíaco, especialmente en mujer
- La causa más común es la isquémica y la hipertensiva
- Deterioran el pronóstico
  - Falta de terapia dirigida
  - FEVI reducida

¿ QUÉ HAY NUEVO? CONCEPTOS Y RECOMENDACIONES

- Cambio en la terminología de insuficiencia cardiaca con fracción de eyección en rango medio' a 'Insuficiencia cardiaca con fraccion eyección moderadamente reducida' (HFmrEF).
- Simplificación del tto de la IC FEVId
- Modificación de la clasificación del fallo cardíaco agudo
- Actualización del tratamiento de las comorbilidades acompañantes de la ICC, incluida diabetes, hiperK, cáncer y déficit de hierro
- Actualización en cardiomiopatías
- Nuevos tratamientos
- Indicadores de calidad

CONCEPTOS

Dos motivos para estas nuevas definiciones:

- Ecografía clínico dependiente para determinar las alteraciones estructurales
- Pacientes con FEVI moderadamente deprimida se benefician del mismo tipo de tto que la deprimida

Table 3 **Definition of heart failure with reduced ejection fraction, mildly reduced ejection fraction and preserved ejection fraction**

Type of HF		HFrEF	HFmrEF	HFpEF
CRITERIA	1	Symptoms ± Signs[a]	Symptoms ± Signs[a]	Symptoms ± Signs[a]
	2	LVEF ≤40%	LVEF 41–49%[b]	LVEF ≥50%
	3	–	–	Objective evidence of cardiac structural and/or functional abnormalities consistent with the presence of LV diastolic dysfunction/raised LV filling pressures, including raised natriuretic peptides[c]

HF = heart failure; HFmrEF = heart failure with mildly reduced ejection fraction; HFpEF = heart failure with preserved ejection fraction; HFrEF = heart failure with reduced ejection fraction; LV = left ventricle; LVEF = left ventricular ejection fraction.

[a]Signs may not be present in the early stages of HF (especially in HFpEF) and in optimally treated patients.

[b]For the diagnosis of HFmrEF, the presence of other evidence of structural heart disease (e.g. increased left atrial size, LV hypertrophy or echocardiographic measures of impaired LV filling) makes the diagnosis more likely.

[c]For the diagnosis of HFpEF, the greater the number of abnormalities present, the higher the likelihood of HFpEF.

OTROS TÉRMINOS

DERECHA

- Determinación por cambios en área fraccional, TAPSE, y velocidad sistólica S´en anillo tricúspideo
- Lo conocido como COR PULMONALE

AGUDA O CRÓNICA

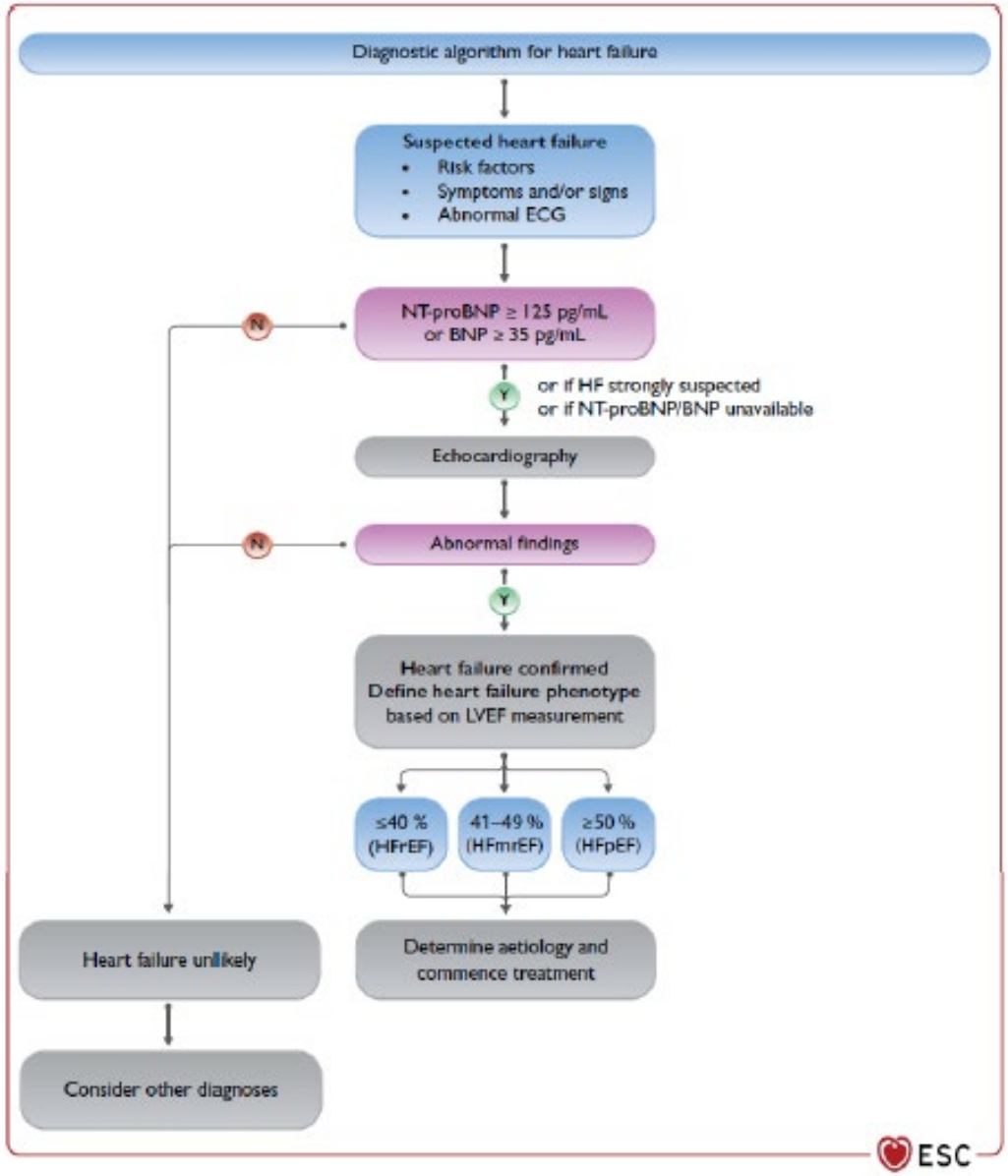
(aguda puede ser debut o descompensación)

REVERSIBLE

Alcohólica, viral, tako-tsubo, periparto o taquicardiomipatia

Estadificación sintomática o clase funcional: uso NYHA

DIAGNÓSTICO



SIGNOS

Más específicos

- Presión yugular elevada
- Relejo hepatoyugular
- 3º ruido cardíaco
- Desplazamiento de tono apical cardíaco

Menos específicos

- Ganancia de peso (>2kg/scem)
- Pérdida de peso (ICC avanzada)
- Caquexia
- Edema periférico
- Derrame pleural
- Taquicardia
- Pulso irregular
- Ascitis
- Oliguria
- Extremidades frias

SÍNTOMAS

- **TÍPICOS**
  - Disnea
  - Ortopnea
  - DPN
  - No tolerancia al ejercicio
  - Edema MMII
- **MENOS TÍPICOS**
  - Tos nocturna
  - Sibilancias
  - Plenitud
  - Confusión
  - Mareo
  - Sincope
  - Bendopnea

Table 4 **New York Heart Association functional classification based on severity of symptoms and physical activity**

Class I	No limitation of physical activity. Ordinary physical activity does not cause undue breathlessness, fatigue, or palpitations.
Class II	Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in undue breathlessness, fatigue, or palpitations.
Class III	Marked limitation of physical activity. Comfortable at rest, but less than ordinary activity results undue breathlessness, fatigue, or palpitations.
Class IV	Unable to carry on any physical activity without discomfort. Symptoms at rest can be present. If any physical activity is undertaken, discomfort is increased.

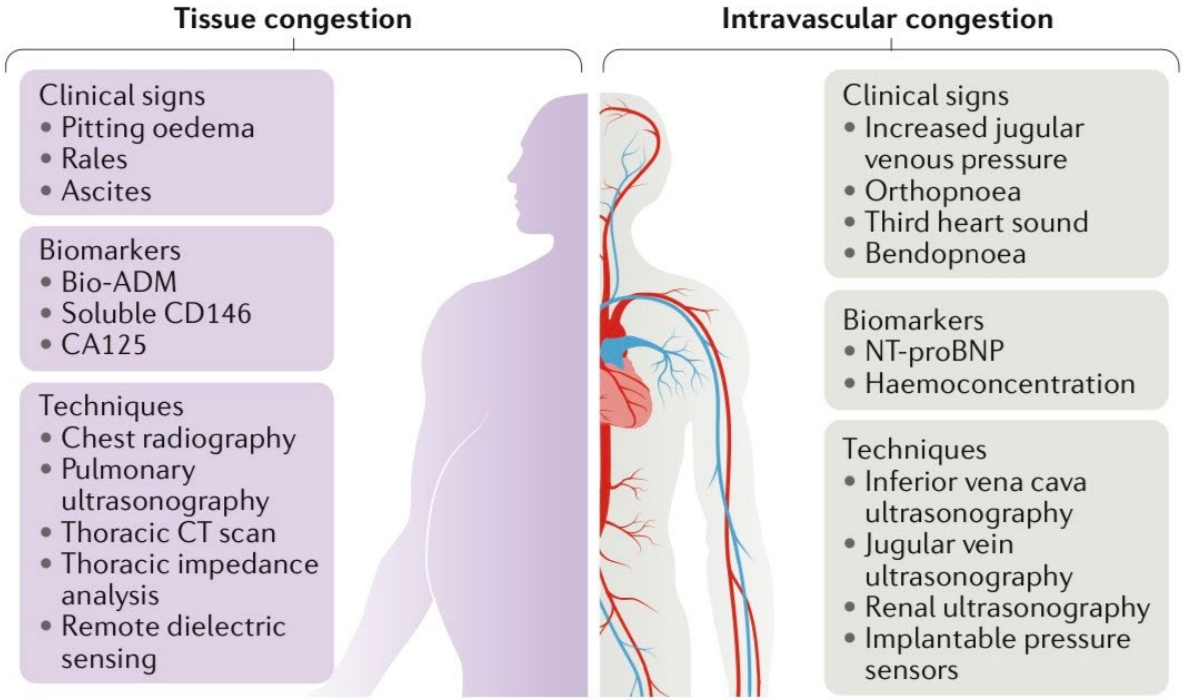


Fig. 2 | **Hypothesized differences between tissue congestion and intravascular congestion.** The figure shows the clinical signs and biomarkers that have been established as markers of congestion and the techniques used for diagnosis. Some signs and biomarkers are more indicative of tissue congestion, whereas others are more indicative of intravascular congestion. bio-ADM, biologically active adrenomedullin; CA125, carbohydrate antigen 125; NT-proBNP, N-terminal pro-B-type natriuretic peptide.

PRUEBAS COMPLEMENTARIAS

- **ECG**
  - Presencia de ACXFA ,Ondas Q, LVH, alteración QRS.
- **Nt-proBNP o BNB.**
  - Niveles menores de 125 y 35 respectivamente hacen el diagnÓstico de ICC poco probable
- **Electrolitos en orina, suero y niveles de Cr.**
- **Función hepática y tiroidea**
- **Ecocardiografía:** Permite determinar alteración LVH, anomalidades en el movimiento cardíaco, HTP y valvulopatias y marcadores de fallo diastólico
- **Rx tórax**.

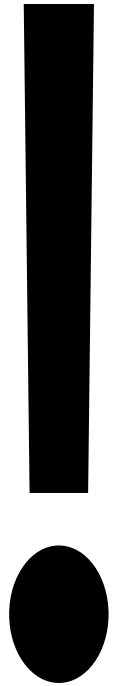
Recommendations	Class[a]	Level[b]
BNP/NT-proBNP[c]	I	B
12-lead ECG	I	C
Transthoracic echocardiography	I	C
Chest radiography (X-ray)	I	C
Routine blood tests for comorbidities, including full blood count, urea and electrolytes, thyroid function, fasting glucose and HbA1c, lipids, iron status (TSAT and ferritin)	I	C

PROBNP

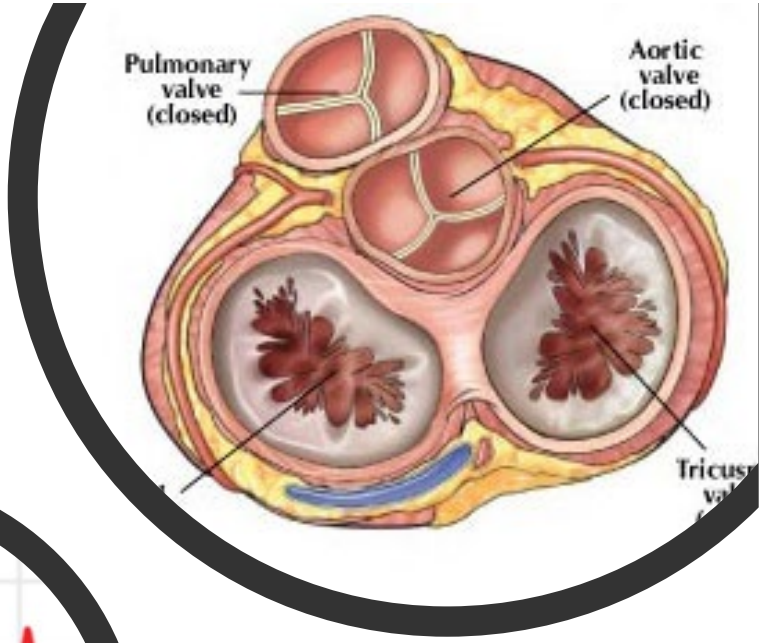
- Niveles menores de NT-probnp de 125 y de BNP de 35 respectivamente hacen el diagnostico de ICC poco probable
- Los niveles de probnp puede ser más baja de lo habitual en pacientes obesos y ancianos
- VPN 94-98%

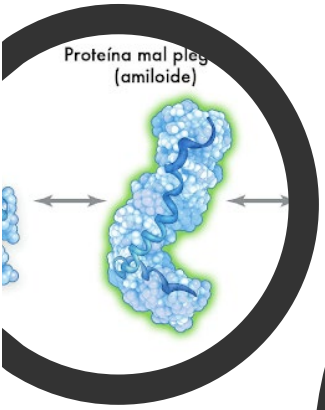
Table 7 Causes of elevated concentrations of natriuretic peptides[86-88]

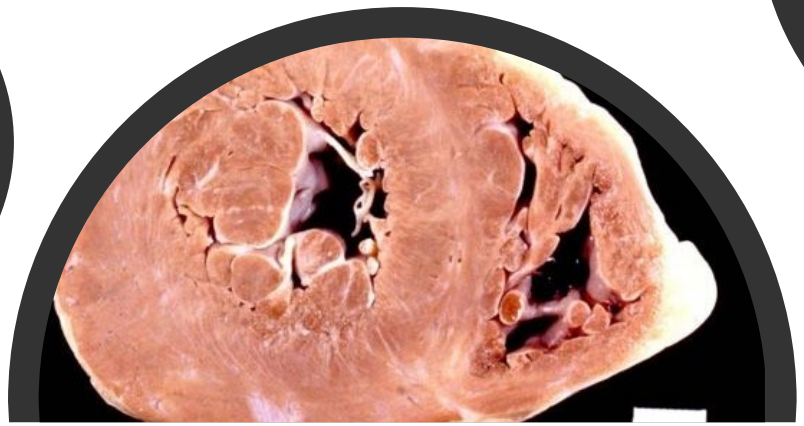
Cardiac	Heart failure ACS Pulmonary embolism Myocarditis Left ventricular hypertrophy Hypertrophic or restrictive cardiomyopathy Valvular heart disease Congenital heart disease Atrial and ventricular tachyarrhythmias Heart contusion Cardioversion, ICD shock Surgical procedures involving the heart Pulmonary hypertension
Non-cardiac	Advanced age Ischaemic stroke Subarachnoid haemorrhage Renal dysfunction Liver dysfunction (mainly liver cirrhosis with ascites) Paraneoplastic syndrome COPD Severe infections (including pneumonia and sepsis) Severe burns Anaemia Severe metabolic and hormone abnormalities (e.g. thyrotoxicosis, diabetic ketosis)



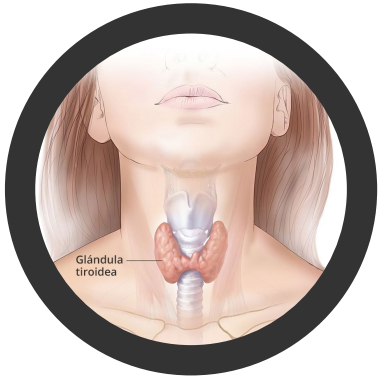
ETIOLOGÍA

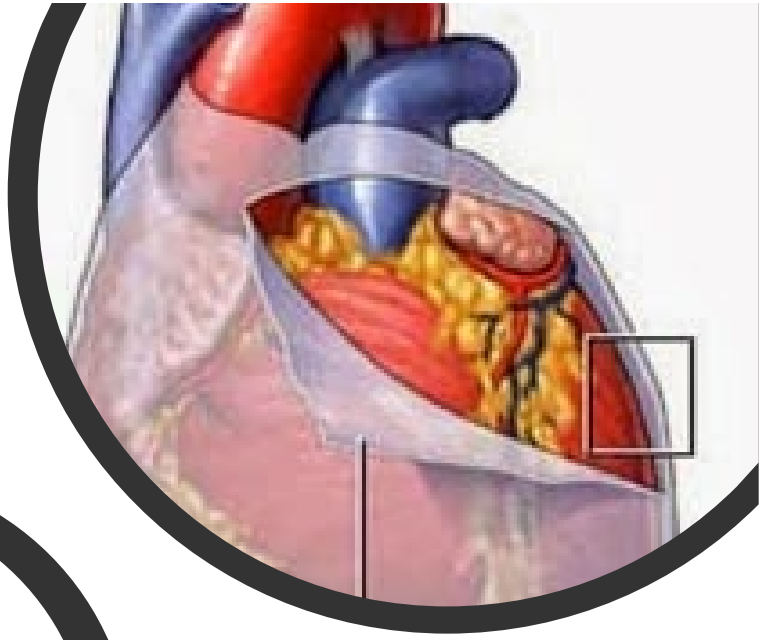

Pulmonary valve (closed)
Aortic valve (closed)

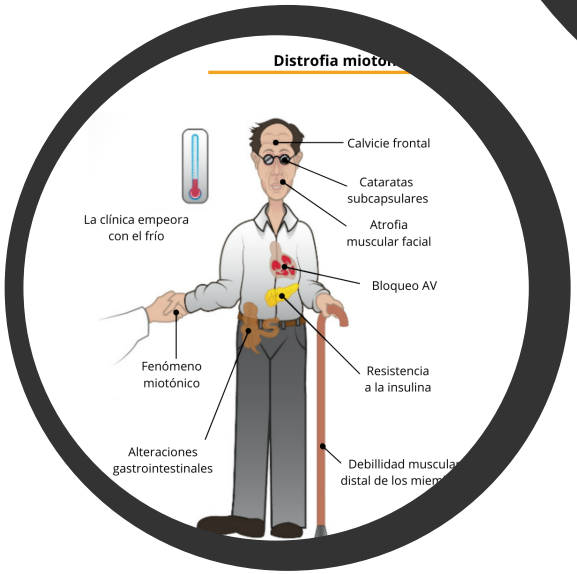

Proteína mal plegada
(amiloide)

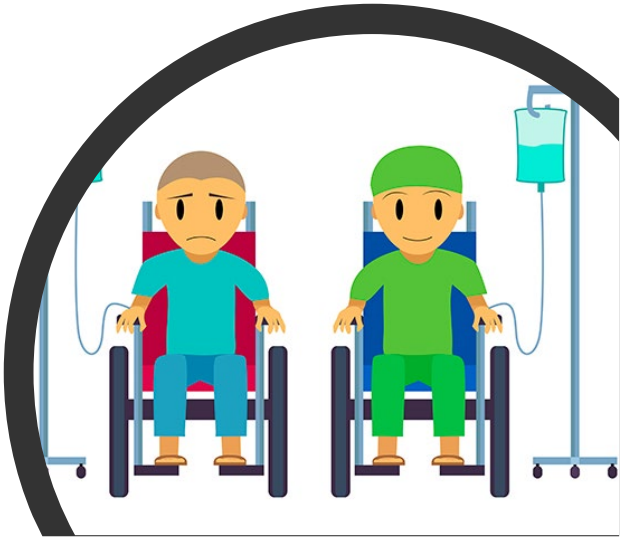


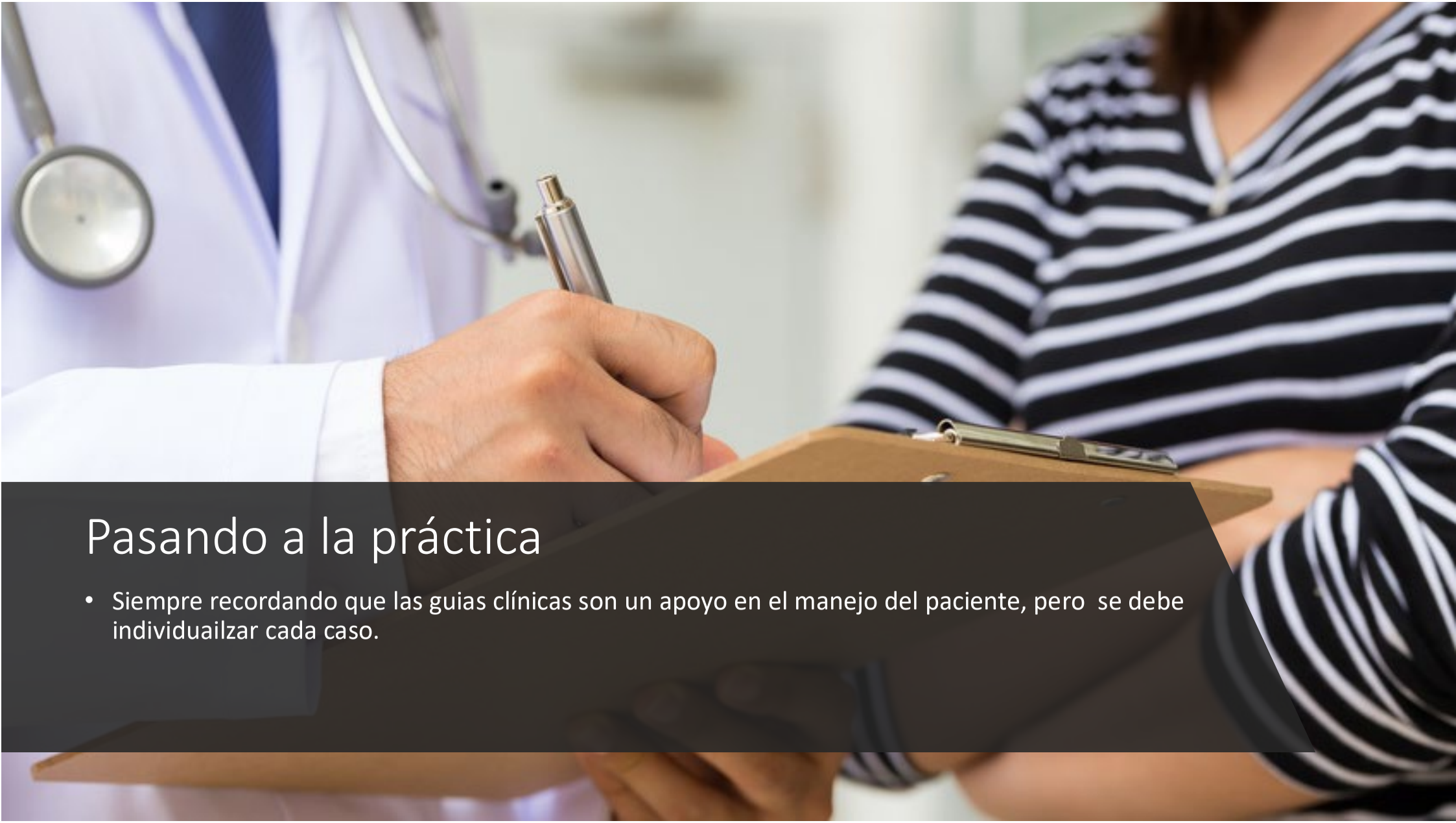
OTRAS ETIOLOGÍAS MENOS COMUNES











Pasando a la práctica

- Siempre recordando que las guias clínicas son un apoyo en el manejo del paciente, pero se debe individuailzar cada caso.

CASO CLíNICO. PEDRO

- Varón de 58 años
- **SITUACION BASAL** : IABVD
- **H.TOXICOS**: Ex fumador desde hace 30 a. No abuso de alcohol
- **Antecedentes médicos:**
  - Hiperuricemia
  - Ictus rama posterior de ACM izquierda 2007
  - Ictus agudo isquemico vertebrobasilar en Julio 2008
  - Cardiopatía isquémica crónica. IAM inferior 1992. No stent.
  - Nódulo tirodeo a estudio.
  - DM TIPO II
- **Tto activo:**
  - Vildagliptina
  - Amlodipino 10mg
  - Olmesartan 40mg/24h
  - Omeprazol 20 mg/24h
  - Alopurinol 100mg/24h
  - Fenofibrato 250 mg/25h
  - Clopidogrel 75 mg/24h
  - Rosuvastatina 20 mg/24h

MOTIVO DE CONSULTA

- Dolor torácico iniciado a las 16.00h opresivo iradiado a espalda, sin cortejo vegetetativo que dura unas dos horas
- En centro de salud : TA 165/105 , se administra captopril 25 mg oral y diazepam 5 mg sl.
- Previamente disnea a moderados esfuerzos, no edema en MMII. No sincope

EXPLORACIÓN CLINICA

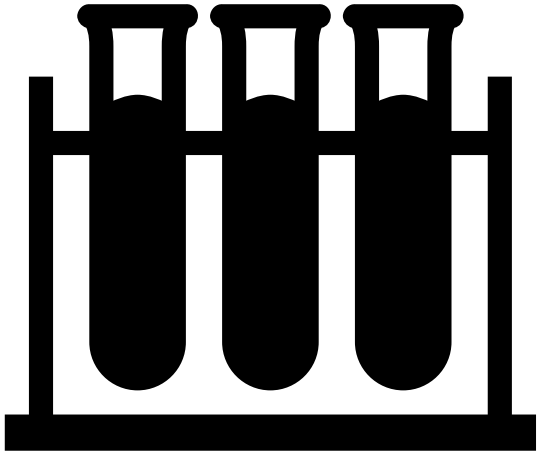
TA 164/101mmhg, FC 70 lpm, sat02 (aa) 100%.
FR 20 rpm. Afebril

BEG. CyO en las tres esferas.

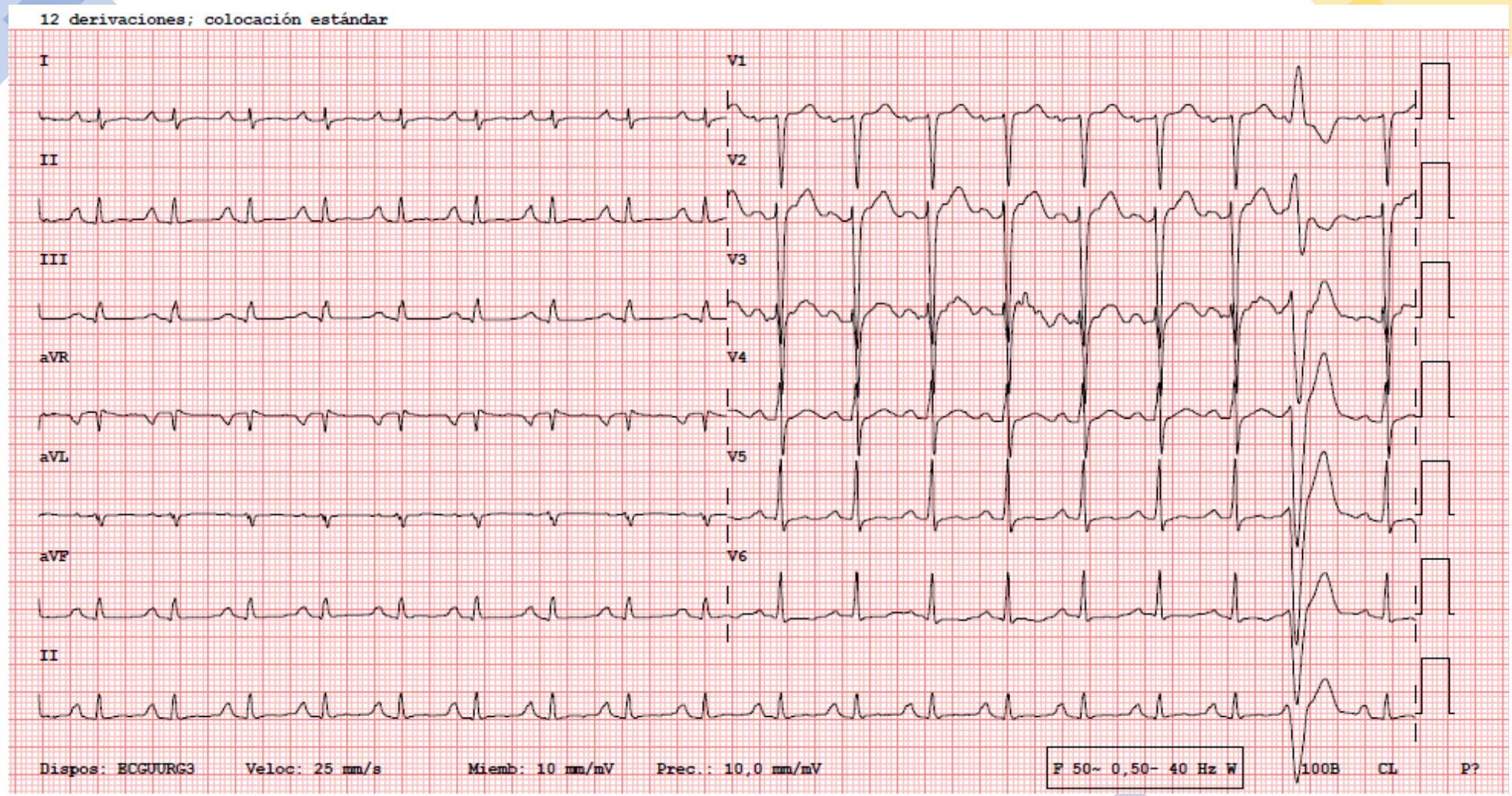
AC rítmica sin soplos audibles AP mvc sin ruidos sobreañadidos

Abdomen anodino

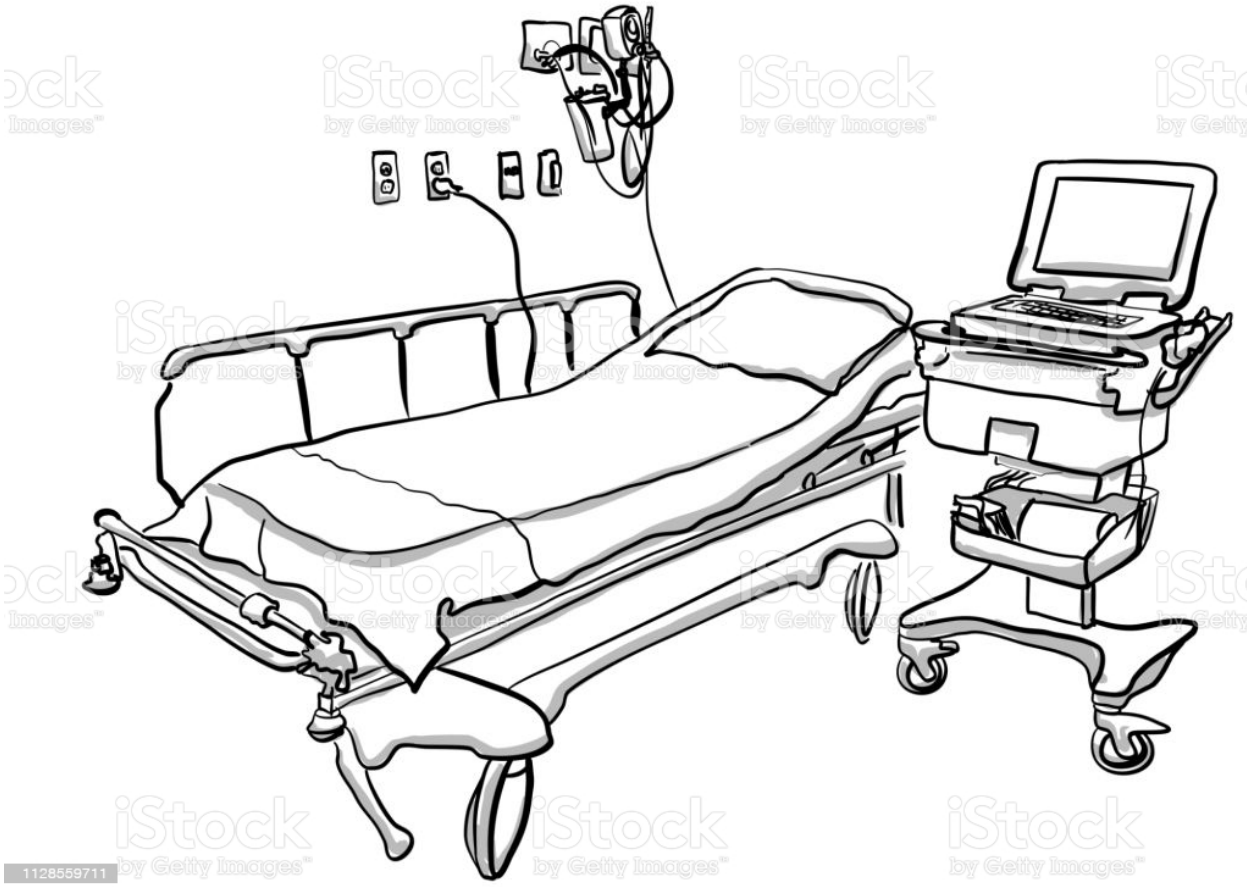
MMII pulsos conservados, no signos de TVP, no edema



PARAMETRO	VALORES
Hemograma	
Leucocitos	8.300/uL
Fórmula	31,4% Linfocitos, 5% Neutrofilos
Hb	14,9 g/dL
Hematocrito	45%
Plaquetas	271000
Bioquimica	
Glucosa	108 mg/dL
Urea	30 mg/dL
Creatinina	0,65 mg/dL
Sodio	146 mmol/L
Potasio	4 mmol/L
Lactato	2,1 mmol/L
CK	78 U/L
Troponina ultrasensible	67.6 ng/mL
Mioglobina	7,8 ng/mL
Probnp	1500 pg/ml


12 derivaciones; colocación estándar
I
II
III
aVR
aVL
aVF
II
V1
V2
V3
V4
V5
V6
Dispos: ECGUURG3
Veloc: 25 mm/s
Miemb: 10 mm/mV
Prec.: 10,0 mm/mV
F 50~ 0,50~ 40 Hz W
100B
CL
P?

Se procede a ingreso…



ANALITICA

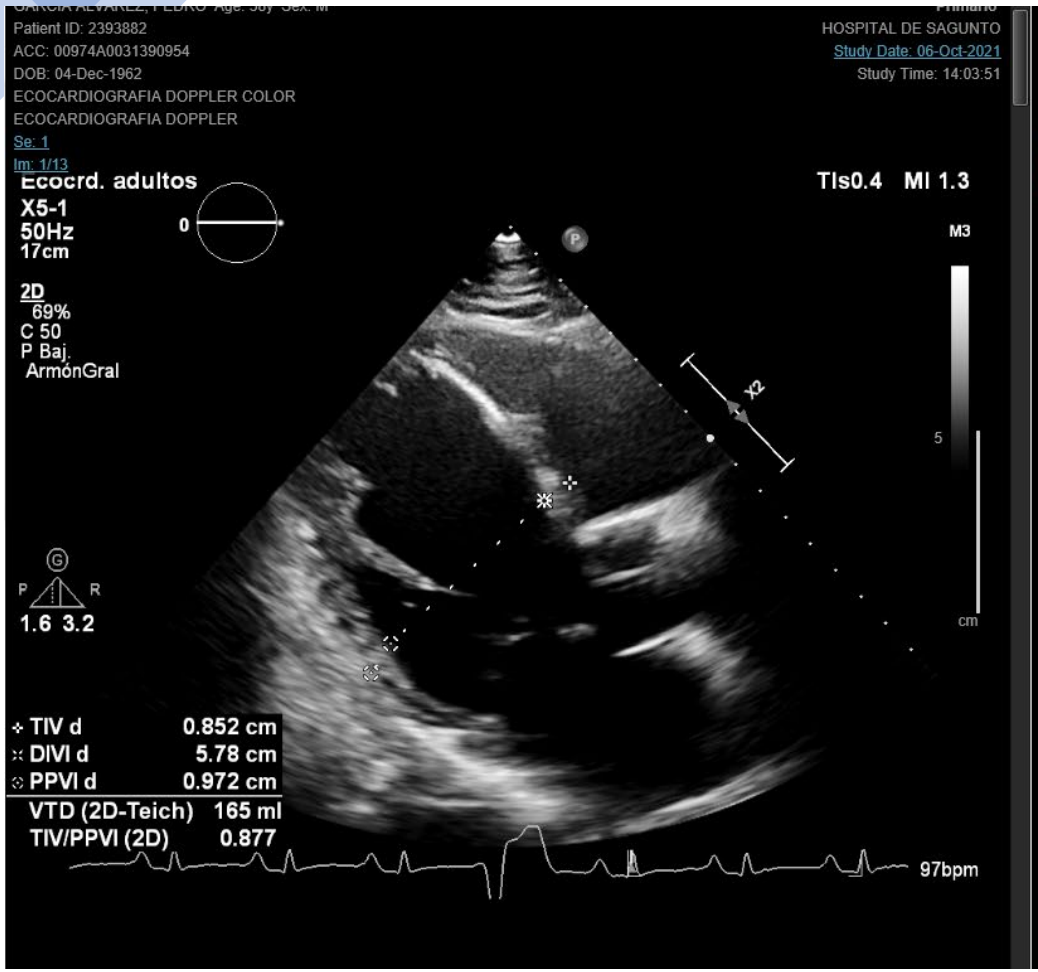
- Control troponinas negativas
- Funcion renal preservada
- Iones en rango
- Probnp 1500

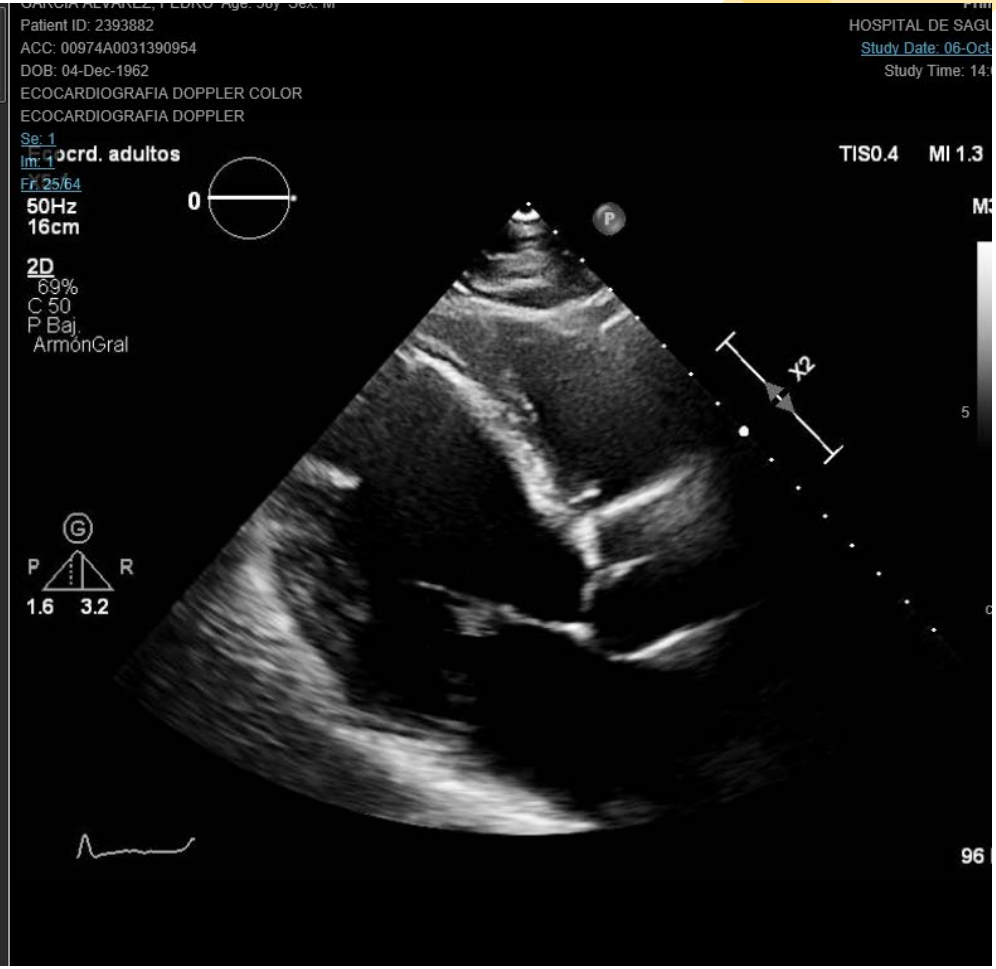
ECOCARDIOGRAFIA

- VI dilatado (VID/VIS 69/46)
- **Depresión servera de función sistólica de 30-32%**
- Hipoquinoseia marcada anterolateral, inferior.
- Auricula izquierda dilatada
- No signos de HTP

RM CARDIACA

- VI dilatado y con depression severa de la fx sistólica con presencia de 3 segmentos con captación de contraste transmural sugerente de necrosis miocárdica.


Patient ID: 2393882
ACC: 00974A0031390954
DOB: 04-Dec-1962
ECOCARDIOGRAFIA DOPPLER COLOR
ECOCARDIOGRAFIA DOPPLER
Se: 1
Im: 1/13
HOSPITAL DE SAGUNTO
Study Date: 06-Oct-2021
Study Time: 14:03:51
Ecocrd. adultos
X5-1
50Hz
17cm
2D
69%
C 50
P Baj.
ArmónGral
TIs0.4 MI 1.3
M3
1.6 3.2
TIV d 0.852 cm
DIVI d 5.78 cm
PPVI d 0.972 cm
VTD (2D-Teich) 165 ml
TIV/PPVI (2D) 0.877
97bpm


Patient ID: 2393882
ACC: 00974A0031390954
DOB: 04-Dec-1962
ECOCARDIOGRAFIA DOPPLER COLOR
ECOCARDIOGRAFIA DOPPLER
Se: 1
Fr: 25/64
HOSPITAL DE SAGU
Study Date: 06-Oct-
Study Time: 14:
50Hz
16cm
2D
69%
C 50
P Baj.
ArmónGral
TIS0.4 MI 1.3
1.6 3.2
96

CATETERISMO CARDIACO

- TCI: Sin lesiones
- ADA: Sin lesiones significativas
- ACX: Remodelado positive, sin estenosis significativas
- ACD: Dominante, oclusión crónica de rama descendente posterior a nivel distal (calibre fino). Se rellena mediante colaterales
- Conclusiones: Oclusión crónica total de rama descendente posterior distal de ACD.

Manejo conservador

¿QUÉ NOS DICEN LAS GUIAS?

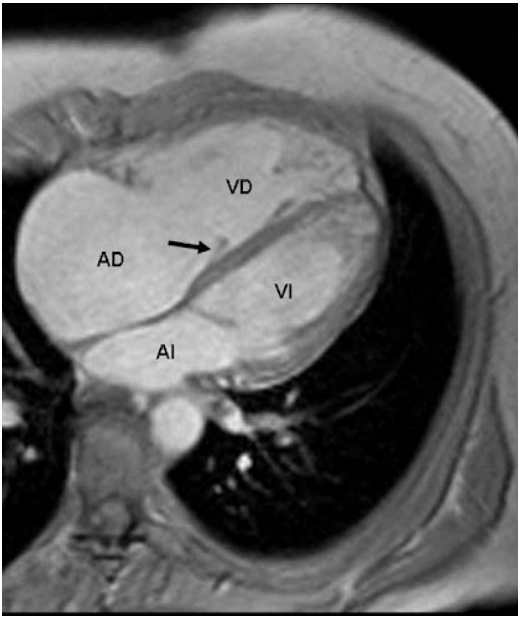
- RECOMENDACIONES ACTUALES

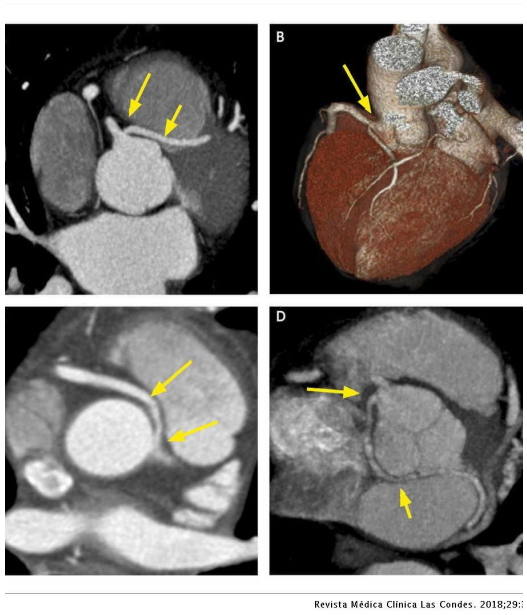
Recommendations	Class[a]	Level[b]
CMR		
CMR is recommended for the assessment of myocardial structure and function in those with poor echocardiogram acoustic windows.	I	C
CMR is recommended for the characterization of myocardial tissue in suspected infiltrative disease, Fabry disease, inflammatory disease (myocarditis), LV non-compaction, amyloid, sarcoidosis, iron overload/haemochromatosis.	I	C
CMR with LGE should be considered in DCM to distinguish between ischaemic and non-ischaemic myocardial damage.	IIa	C

Invasive coronary angiography (in those who are considered eligible for potential coronary revascularization)		
Invasive coronary angiography is recommended in patients with angina despite pharmacological therapy or symptomatic ventricular arrhythmias.[5]	I	B
Invasive coronary angiography may be considered in patients with HFrEF with an intermediate to high pre-test probability of CAD and the presence of ischaemia in non-invasive stress tests.[89]	IIb	B

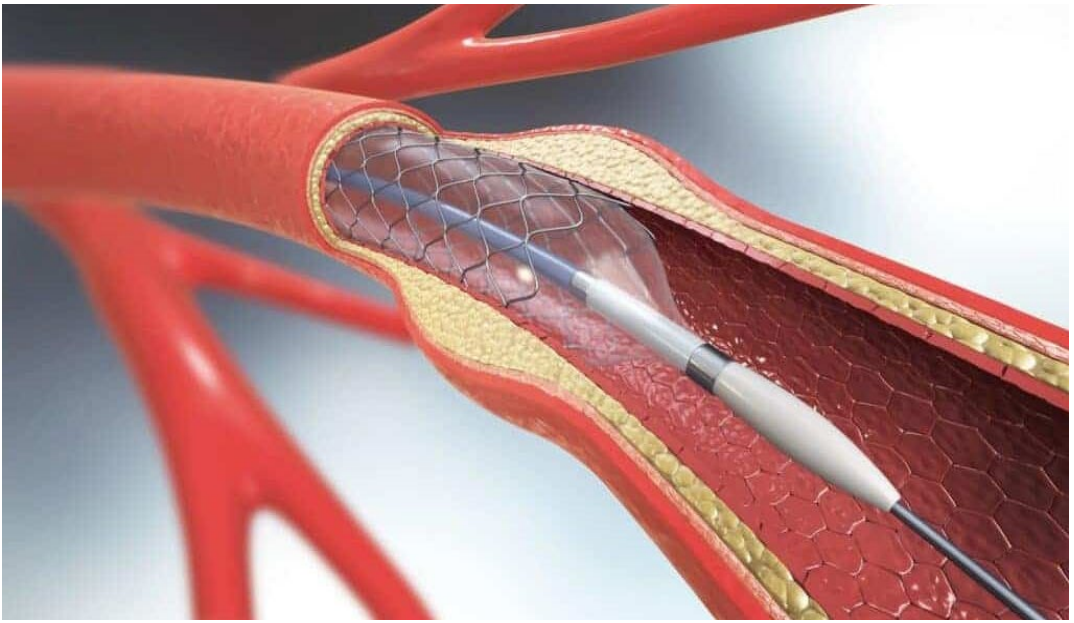
Recommendations for management of patients with HF and CCS	
CABG should be considered as the first-choice revascularization strategy, in patients suitable for surgery, especially if they have diabetes and for those with multivessel disease.	IIa
In LVAD candidates needing coronary revascularization, CABG should be avoided, if possible.	IIa
Coronary revascularization may be considered to improve outcomes in patients with HFrEF, CCS, and coronary anatomy suitable for revascularization, after careful evaluation of the individual risk to benefit ratio, including coronary anatomy (i.e. proximal stenosis >90% of large vessels, stenosis of left main or proximal LAD), comorbidities, life expectancy, and patient's perspectives.	IIb
PCI may be considered as alternative to CABG, based on Heart Team evaluation, considering coronary anatomy, comorbidities, and surgical risk.	IIb

2021	Class	2016	Class
Recommendations for diagnosis of HF			
Invasive coronary angiography may be considered in patients with HFrEF with an intermediate to high pre-test probability of CAD and the presence of ischaemia in non-invasive stress tests.	IIb	Invasive coronary angiography should be considered in patients with HF and intermediate to high pre-test probability of CAD and the presence of ischaemia in non-invasive stress tests (who are considered suitable for potential coronary revascularization) in order to establish the diagnosis of CAD and its severity.	IIa
CTCA should be considered in patients with a low to intermediate pre-test probability of CAD or those with equivocal non-invasive stress tests in order to rule out coronary artery stenosis.	IIa	Cardiac CT may be considered in patients with HF and low to intermediate pre-test probability of CAD or those with equivocal non-invasive stress tests in order to rule out coronary artery stenosis.	IIb
Right heart catheterization may be considered in patients with probable pulmonary hypertension, assessed by echo in order to confirm the diagnosis and assess its reversibility before the correction of valve/structural heart disease.	IIb	Right heart catheterization with a pulmonary artery catheter should be considered in patients with probable pulmonary hypertension assessed by echocardiography in order to confirm pulmonary hypertension and its reversibility before the correction of valve/structural heart disease.	IIa





Revista Médica Clínica Las Condes. 2018;29:



POR TANTO

RMN cardíaca	Angiografía	Estudios de estratificación no invasivas
• Cuando hay mala venta ecocardiografica • Sospecha enfermedad infiltrativa • Considerar CHM	• Paciente con riesgo intermedio de enfermedad coronaria • Pacientes con angina refrataria o arritmias ventriculares sintomáticas	• Paciente con probabilidad baja-intermedia de enfermedad coronaria realizar angiotac coronaria o estudio estrés no invasivo

¿Cómo Podemos optimizar el tratamiento?

FÁRMACOS DE PRIMERA LINEA ICC FEVI DEPRIMIDA

TRATAMIENTO ICC FEVI DEPRIMIDA

Management of HFrEF

To reduce mortality - for all patients

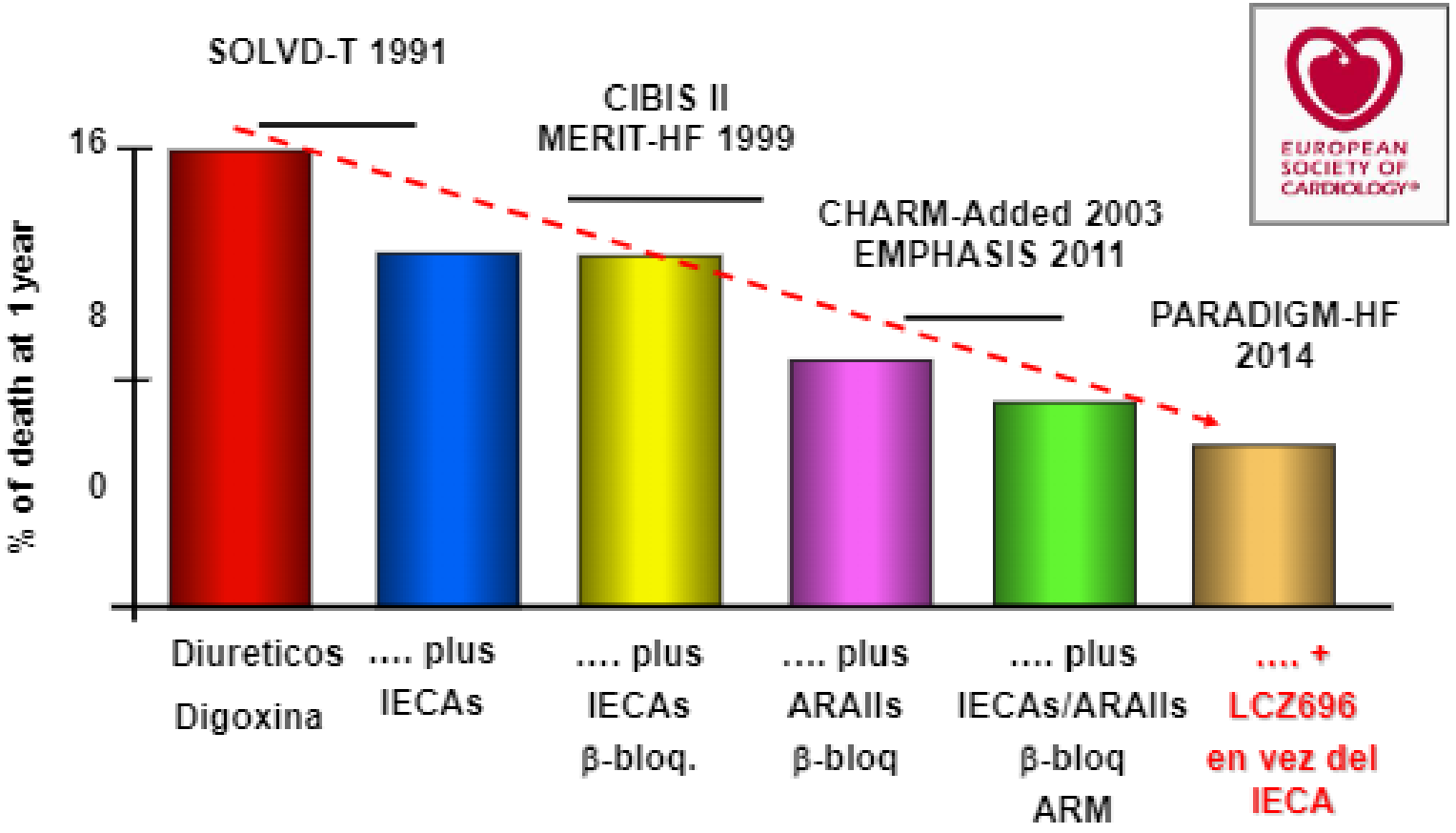
ACE-I/ARNI	BB	MRA	SGLT2i

SE PUEDEN INICIAR AL MISMO TIEMPO

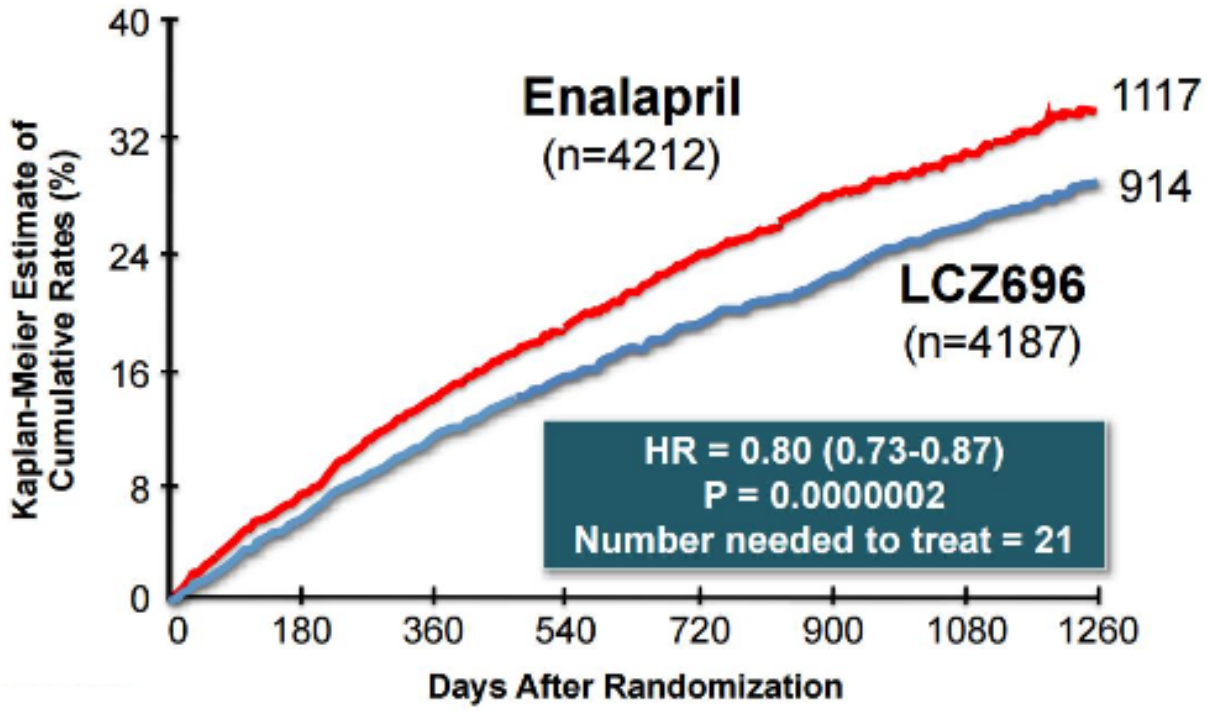
Pharmacological treatments indicated in patients with (NYHA class II–IV) heart failure with reduced ejection fraction (LVEF ≤40%)

Recommendations	Class[a]	Level[b]
An ACE-I is recommended for patients with HFrEF to reduce the risk of HF hospitalization and death.[110–113]	I	A
A beta-blocker is recommended for patients with stable HFrEF to reduce the risk of HF hospitalization and death.[114–120]	I	A
An MRA is recommended for patients with HFrEF to reduce the risk of HF hospitalization and death.[121,122]	I	A
Dapagliflozin or empagliflozin are recommended for patients with HFrEF to reduce the risk of HF hospitalization and death.[108,109]	I	A
Sacubitril/valsartan is recommended as a replacement for an ACE-I in patients with HFrEF to reduce the risk of HF hospitalization and death.[105]	I	B

SACUBITRILO/VALSARTAN


SOLVD-T 1991
CIBIS II
MERIT-HF 1999
CHARM-Added 2003
EMPHASIS 2011
PARADIGM-HF
2014
16
8
0
% of death at 1 year
Diureticos
Digoxina
.... plus
IECAs
.... plus
IECAs
β-bloq.
.... plus
ARAIIs
β-bloq
.... plus
IECAs/ARAIIs
β-bloq
ARM
.... +
LCZ696
en vez del
IECA

PARADIGM-HF: muerte de causa CV u hospitalización por IC



EVIDENCIA CLINICA…

ORIGINAL ARTICLE

Angiotensin–Neprilysin Inhibition in Acute Decompensated Heart Failure

Eric J. Velazquez, M.D., David A. Morrow, M.D., M.P.H., Adam D. DeVore, M.D., M.H.S., Carol I. Duffy, D.O., Andrew P. Ambrosy, M.D., Kevin McCague, M.A., Ricardo Rocha, M.D., and Eugene Braunwald, M.D., for the PIONEER-HF Investigators*

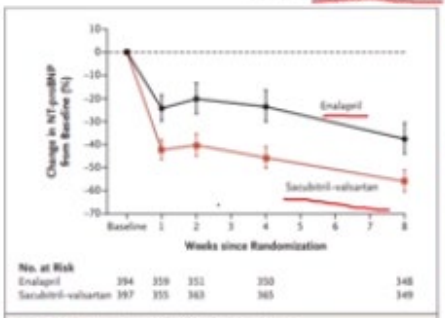


Figure 2. Change in the NT-proBNP Concentration.

The time-averaged reduction in the N-terminal pro–B-type natriuretic peptide (NT-proBNP) concentration was significantly greater in the sacubitril–valsartan group than in the enalapril group; the ratio of the geometric mean of values obtained at weeks 4 and 8 to the baseline value was 0.53 in the sacubitril–valsartan group as compared with 0.75 in the enalapril group (percent change, −46.7% vs. −25.3%; ratio of change with sacubitril–valsartan vs. enalapril, 0.71; 95% CI, 0.63 to 0.81; P<0.001).

FEVI < 40%
BNP elevado
Hospitalizado por descompensación

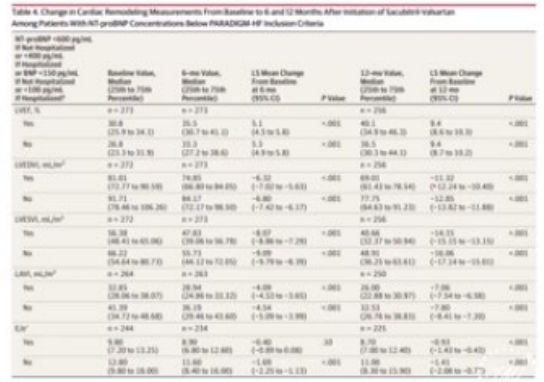
Disminuye niveles de NT-proBNP de forma más rápida y significativa

Paciente estables, sin requerimiento de ajuste en diurético

Association of Change in N-Terminal Pro–B-Type Natriuretic Peptide Following Initiation of Sacubitril-Valsartan Treatment With Cardiac Structure and Function in Patients With Heart Failure With Reduced Ejection Fraction

James L. Januzzi, Jr, MD, Margaret F. Prescott, PhD, […], and Scott D. Solomon, MD

794 pacientes
FEVI < 40% en últimos 6 meses
Correlación entre disminución en NT-proBNP e índices cardiacos
P < 0,05



SACUBITRILO VALSARTAN

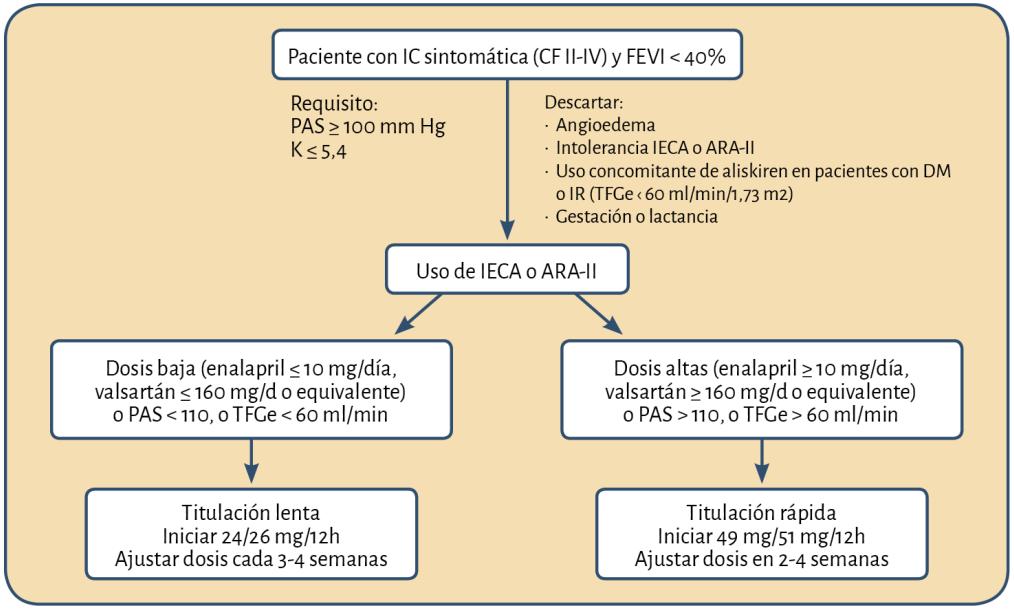
3 presentaciones:
24 mg/26 mg (dosis baja)
49 mg/51 mg (dosis de inicio)
97 mg/103 mg (dosis altas)

Pacientes con uso previo de IECA, debemos suspender su uso 36 horas antes del inicio de sacubitrilo-valsartán

En caso de uso de ARA-II, no hace falta lavado

Precaución: hTA, hiperK, angioedema

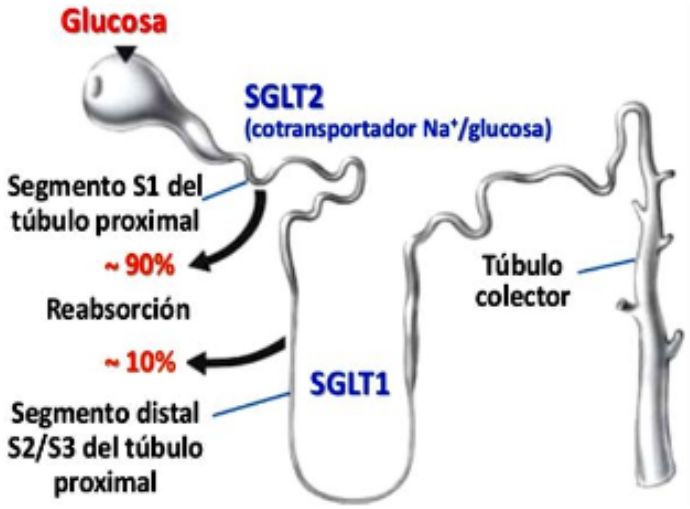
USO DE SACUBITRILOVALSARTAN

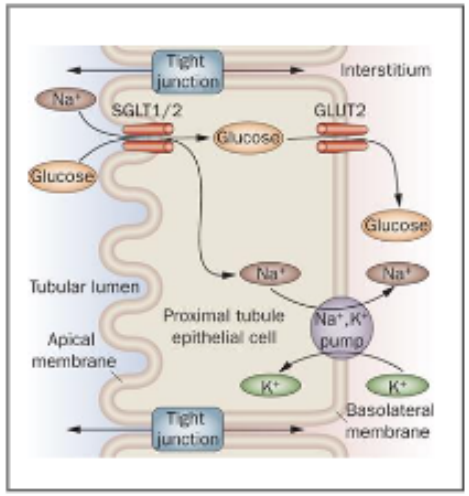


Insuficiencia renal	Leve (TFGe 60-90 ml/ min/1,73 m2)	Moderada/grave (TFGe < 60 ml/ min/1,73 m2)	Estadio final
	"o"	"o"	"o"
Insuficiencia hepática	Leve (Child-Pugh A)	Moderada (Child-Pugh B)	Grave (Child-Pugh C)
Recomendación sacubitrilo/ valsartán	No requiere ajuste de dosis Iniciar con 49/51 mg/12h	Iniciar con 24/26 mg/12h	No se recomienda su uso

ISGLT2

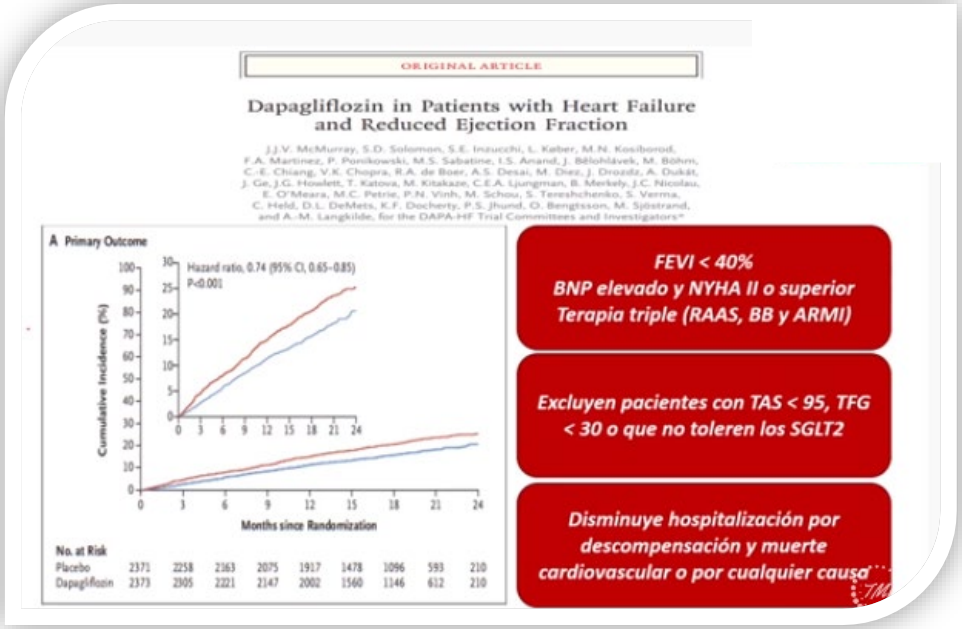
INHIBIDOR DEL CONTRASNSPORTADOR SLGT2

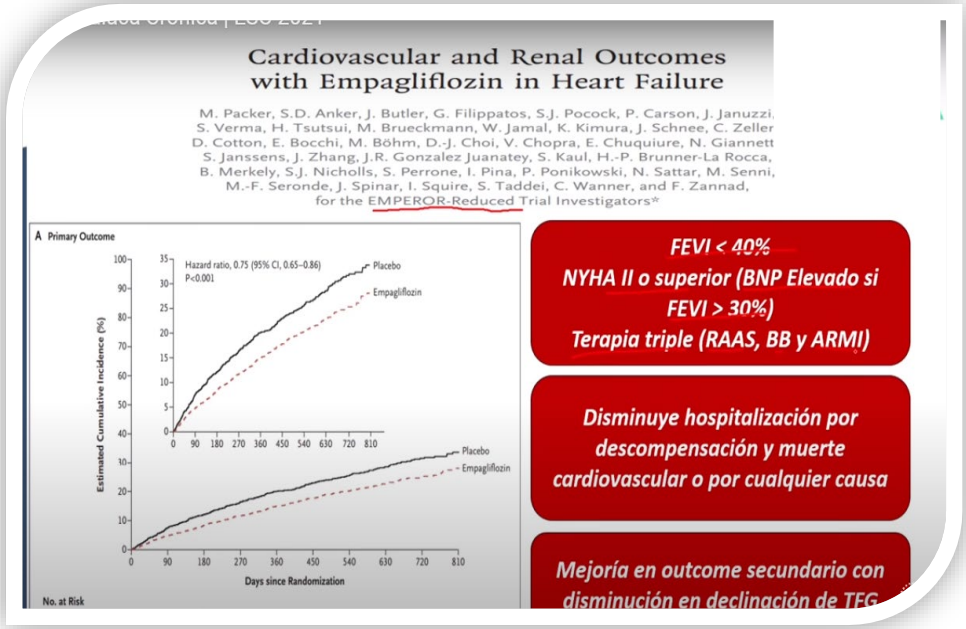




- NO ACTUAMOS sobre el páncreas, sino sobre el riñón
- Canagliflozina, Dapagliflozina, Empagliflozina

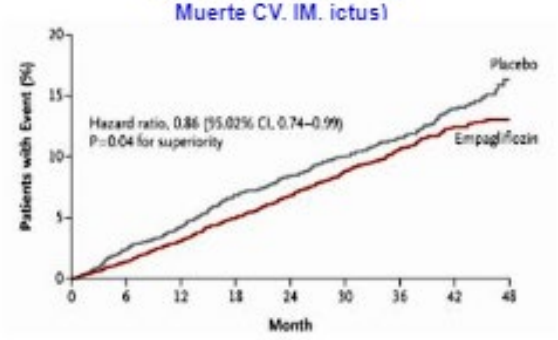
Recordad que no hace falta ser DM para iniciar el fármaco…



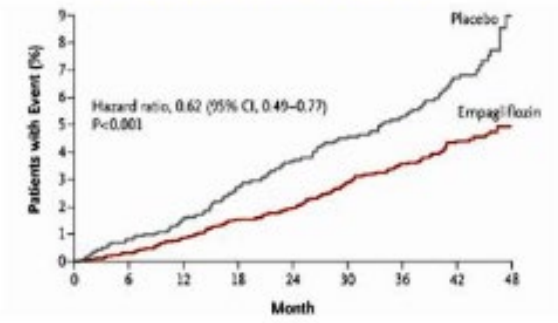


Resultados del estudio EMPA-REG OUTCOME

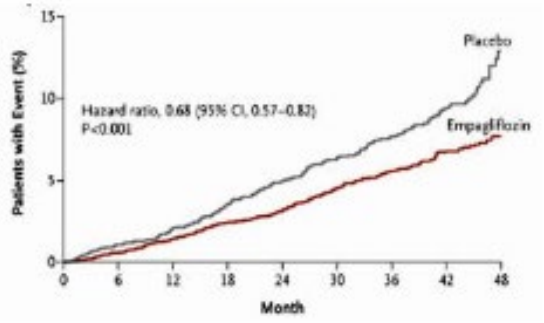
Objetivo Primario (14%)
Muerte CV. IM. ictus)



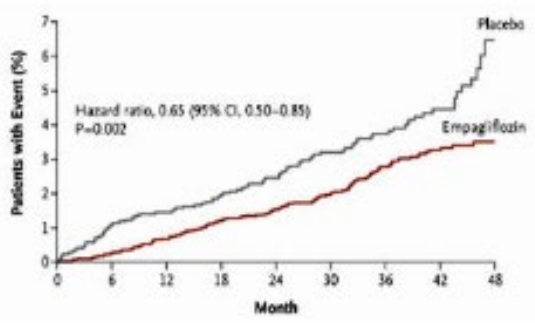
Muerte cardiovascular (38%)



Muerte por cualquier causa (32%)



Hospitalizaciones por IC (35%)



Marso SP et al. N Engl J Med 2016

Además , nuestro paciente es DM tipo II…

Recommendations for the treatment of diabetes in heart failure

Recommendation	Class[a]	Level[b]
SGLT2 inhibitors (canagliflozin, dapagliflozin, empagliflozin, ertugliflozin, sotagliflozin) are recommended in patients with T2DM at risk of CV events to reduce hospitalizations for HF, major CV events, end-stage renal dysfunction, and CV death.[293–297]	I	A
SGLT2 inhibitors (dapagliflozin, empagliflozin, and sotagliflozin) are recommended in patients with T2DM and HFrEF to reduce hospitalizations for HF and CV death.[108,109,136]	I	A

- Especial cuidado en pacientes con baja reserve insulínica por riesgo de cetoacidosis diabetica
- Higiene adecuada de zona intima, incremento de riesgo de infección fúngica genital
- Requiere TFG >25

BETABLOQUEANTE Y ANTAGONISTAS DE LOS RECEPTORES DE ALDOSTERONA

BB Y MRA

Betabloqueante

- Ha demostrado reducir mortalidad
- Deben de iniciarse en el paciente euvolémico, y dosis bajas.

Espironolactona

- se recomienda en adición a betabloqueante
- Precaución en pacientes con alteración de la función renal e hiperpotasemia >5mmol/l

ACE-I		
Captopril[a]	6.25 mg *t.i.d.*	50 mg *t.i.d.*
Enalapril	2.5 mg *b.i.d.*	10–20 mg *b.i.d.*
Lisinopril[b]	2.5–5 mg *o.d.*	20–35 mg *o.d.*
Ramipril	2.5 mg *b.i.d.*	5 mg *b.i.d.*
Trandolapril[a]	0.5 mg *o.d.*	4 mg *o.d.*
ARNI		
Sacubitril/valsartan	49/51 mg *b.i.d.*[c]	97/103 mg *b.i.d.*
Beta-blockers		
Bisoprolol	1.25 mg *o.d.*	10 mg *o.d.*
Carvedilol	3.125 mg *b.i.d.*	25 mg *b.i.d.*[e]
Metoprolol succinate (CR/XL)	12.5–25 mg *o.d.*	200 mg *o.d.*
Nebivolol[d]	1.25 mg *o.d.*	10 mg *o.d.*
MRA		
Eplerenone	25 mg *o.d.*	50 mg *o.d.*
Spironolactone	25 mg *o.d.*[f]	50 mg *o.d.*
SGLT2 inhibitor		
Dapagliflozin	10 mg *o.d.*	10 mg *o.d.*
Empagliflozin	10 mg *o.d.*	10 mg *o.d.*
Other agents		
Candesartan	4 mg *o.d.*	32 mg *o.d.*
Losartan	50 mg *o.d.*	150 mg *o.d.*
Valsartan	40 mg *b.i.d.*	160 mg *b.i.d.*
Ivabradine	5 mg *b.i.d.*	7.5 mg *b.i.d.*
Vericiguat	2.5 mg *o.d.*	10 mg *o.d.*
Digoxin	62.5 µg *o.d.*	250 µg *o.d.*
Hydralazine/ Isosorbide dinitrate	37.5 mg *t.i.d.*/20 mg *t.i.d.*	75 mg *t.i.d.*/40 mg *t.i.d.*

FÁRMACOS DE SEGUNDA LINEA

Fármacos de segunda linea

IECA O ARA II

- Cuando no se tolera ARNI

Ivabradina

- Cuando FEVI <35%, RS y FC > 70 lpm pese a OMT (sin contar ISGLT2) o cuando no se pueda usar BB

Hidralazina + Dinitrato

- Paciente raza negra con FEVI <35% clase NYHAIII-IV a pesar de OMT (sin contra con ISGLT2)
- Considerar primera linea paciente que no tolera ARNI, IECA o ARA II

Vericiguat

- NYHA III/IV con FEVI que se va deteriorándose

Digoxina

- Cuando ACXFA pese a OMT

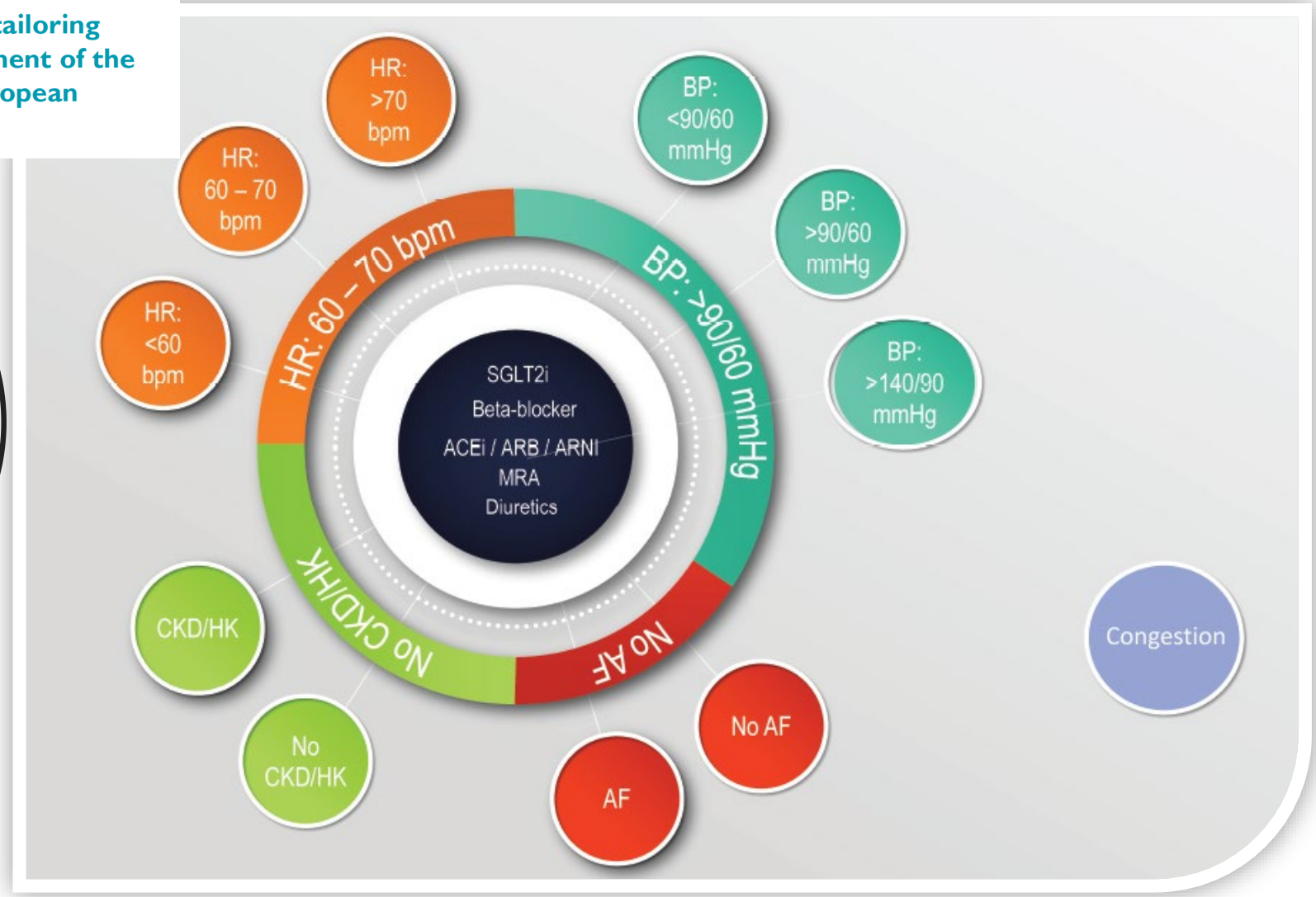
Omecamtiv

ESC European Society of Cardiology
European Journal of Heart Failure (2021) 23, 872–881
doi:10.1002/ejhf.2206

POSITION PAPER

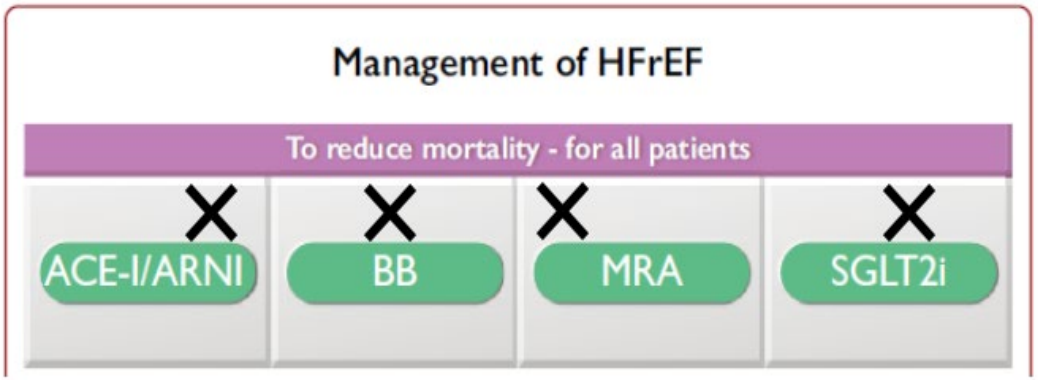
Patient profiling in heart failure for tailoring medical therapy. A consensus document of the Heart Failure Association of the European Society of Cardiology

VISIÓN GLOBAL DEL PACIENTE CON ICC FEVI DEPRIMIDA




HR: 60 – 70 bpm
BP: >90/60 mmHg*
No CKD/HK
No AF
SGLT2i
Beta-blocker
ACEi / ARB / ARNI
MRA
Diuretics
HR: >70 bpm
BP: >90/60 mmHg
SGLT2i
Beta-blockers
ACEi / ARB / ARNI
MRA
Diuretics
Ivabradine
HR: >70 bpm
BP: <90/60 mmHg
SGLT2i
MRA
Ivabradine
↓ Beta-blocker
↓Diuretics
↓ACEi / ARB /ARNI
HR: 60 – 70 bpm
BP: <90/60 mmHg
SGLT2i
MRA
↓ Beta-blocker
Ivabradine
↓Diuretics
↓ACEi / ARB /ARNI
HR: <60 bpm
BP: <90/60 mmHg
SGLT2i
MRA
↓ Beta-blockers
↓ACEi / ARB / ARNI
↓Diuretics
HR: 60 – 70 bpm
BP: >140/90 mmHg
SGLT2i
Beta-blocker
↓ACEi / ARB / ARNI
MRA
Diuretics
Vericiguat
Hydralazine/
isosorbide dinitrate
HR: <60 bpm
BP: >90/60 mmHg
SGLT2i
ACEi / ARB / ARNI
MRA
Diuretics
↓ Beta-blocker
Vericiguat
HR: >60 bpm
BP: >90/60 mmHg
SGLT2i
Beta-blocker
ACEi / ARB / ARNI
MRA
Diuretics
Anticoagulants
Digoxin
AF
HR: 60 – 70 bpm
BP: >90/60 mmHg
SGLT2i
Beta-blocker
Diuretics
↓ ACEi / ARB / ARNI
↓ MRA
Potassium binders
Vericiguat
K >5.5 mEq/L
HR: 60 – 70 bpm
BP: >90/60 mmHg
SGLT2i
Beta-blocker
ACEi / ARB / ARNI
MRA
Diuretics
Vericiguat
Hydralazine/
isosorbide dinitrate
eGFR>30 ml/min/1.73m2
HR: 60 – 70 bpm
BP: >90/60 mmHg
SGLT2i
Beta-blocker
Diuretics
Vericiguat
Hydralazine/
isosorbide dinitrate
eGFR<30 ml/min/1.73m2
HR: 60 – 70 bpm
BP: <90/60 mmHg
SGLT2i
ACEi / ARB / ARNI
MRA
↓ Beta-blocker
↓ Diuretics
Anticoagulants
AF

Nuestro paciente



DE CARA AL ALTA TRAS MEJORIA CLÍNICA

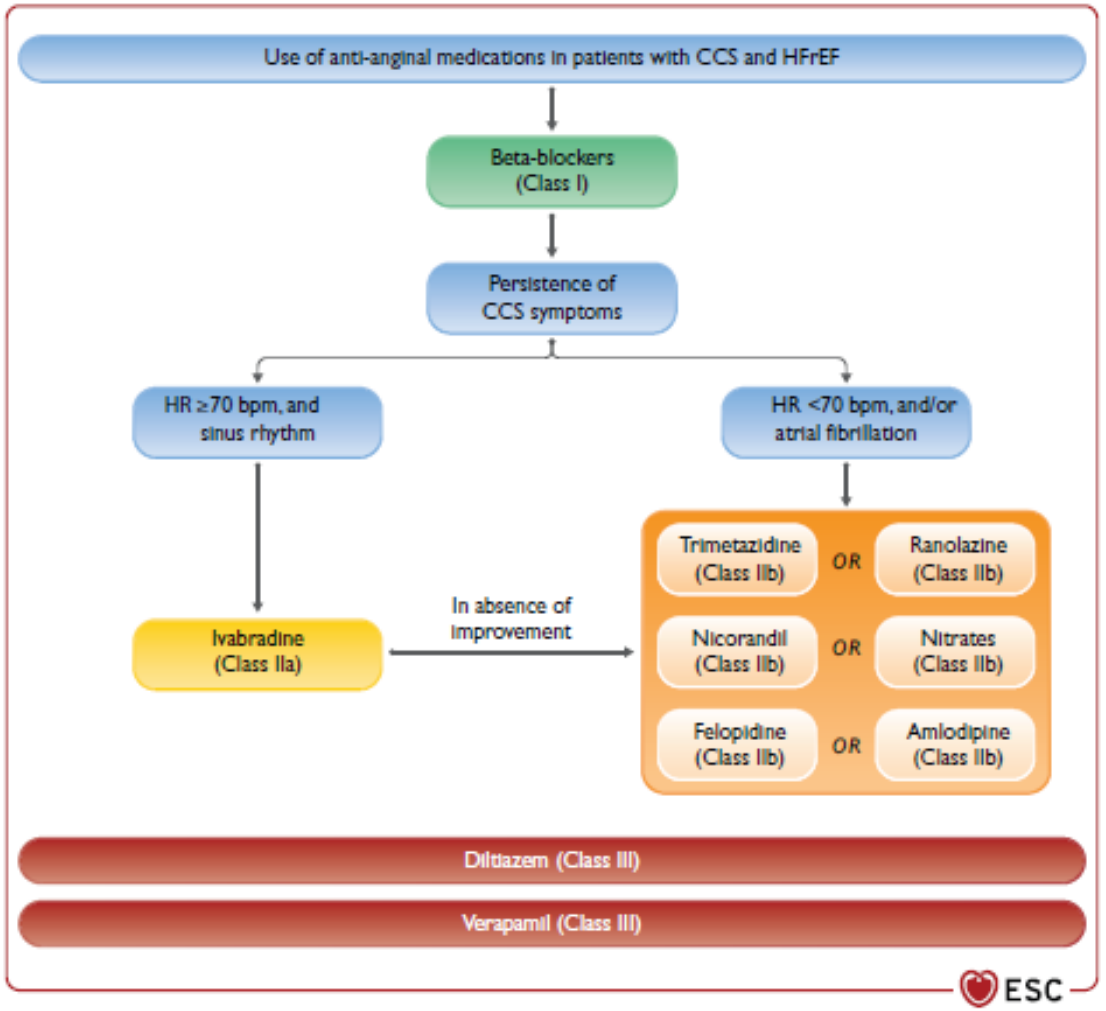
SE INICIA:

- Sacubitrilo/Valsartan 24/26 mg 1 comprimido cada 12 horas
- Bisoprolol 2,5 mg cada 24h
- Espironolactona 25mg cada 24h
- Rosuvastatina + Ezetimiba 20/10 mg / 24h
- Iniciamos metformina/dapagliflozina

SUSPENDEMOS:

- Olmesartan
- Vildagliptina

Además , recordemos qe nuestro paciente tiene cardiopatia isquemica

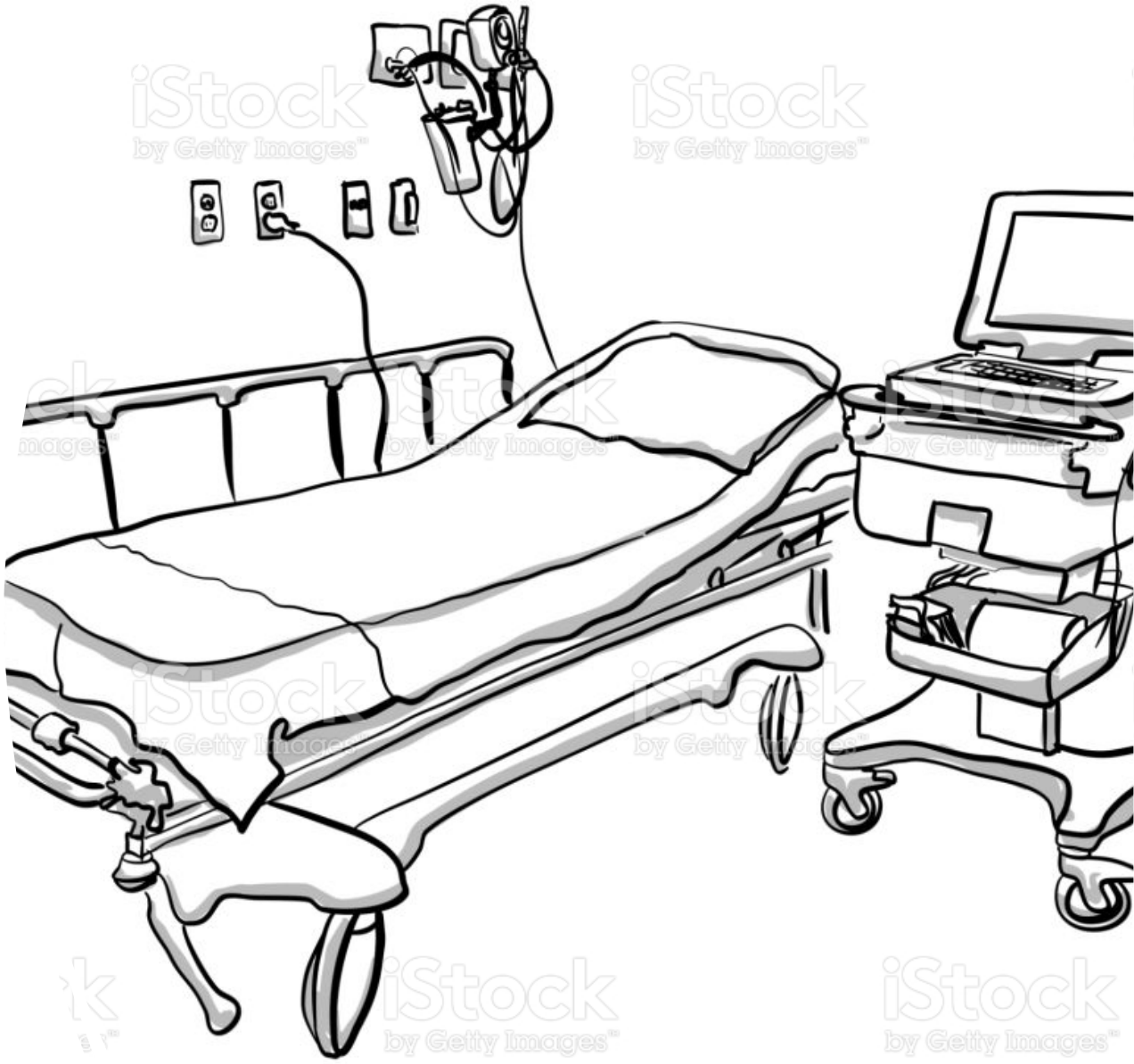


CASO CLÍNICO . CARMEN

- Mujer de 78a
- **SITUACION BASAL** : IABVD. Deterioro cognitivo incipiente.
- **Antecedentes medicos:**
  - HTA
  - Dislipemia
  - Obesidad
  - Artrosis
  - Enfermedad rena cronica estadio IV
- **Tto activo:**
  - Pazital 37.5mcg/325 mg cada 24h
  - Amlodipino 5mg
  - Hidroclorotiazida 25 mg / 24h
  - Omeprazol 20 mg/24h
  - Betahistina 16 mg/24 h

MOTIVO DE INGRESO

- Disnea de reposo de 24h de evolución, previamente disnea progresiva de 2 meses de junto sensación de opresión torácica
- Ortopnea de dos almohadas
- NO oliguria ni aumento de edema en MMII



EXPLORACIÓN CLINICA

TA 110/60mmhg, FC 90 lpm, sat02 (aa) 92-94% con vmx 50%. FR 30 rpm. Afebril

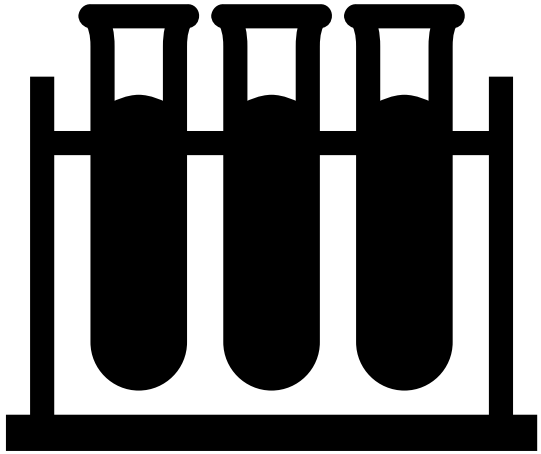
Regular estado general. CyO en las tres esferas.

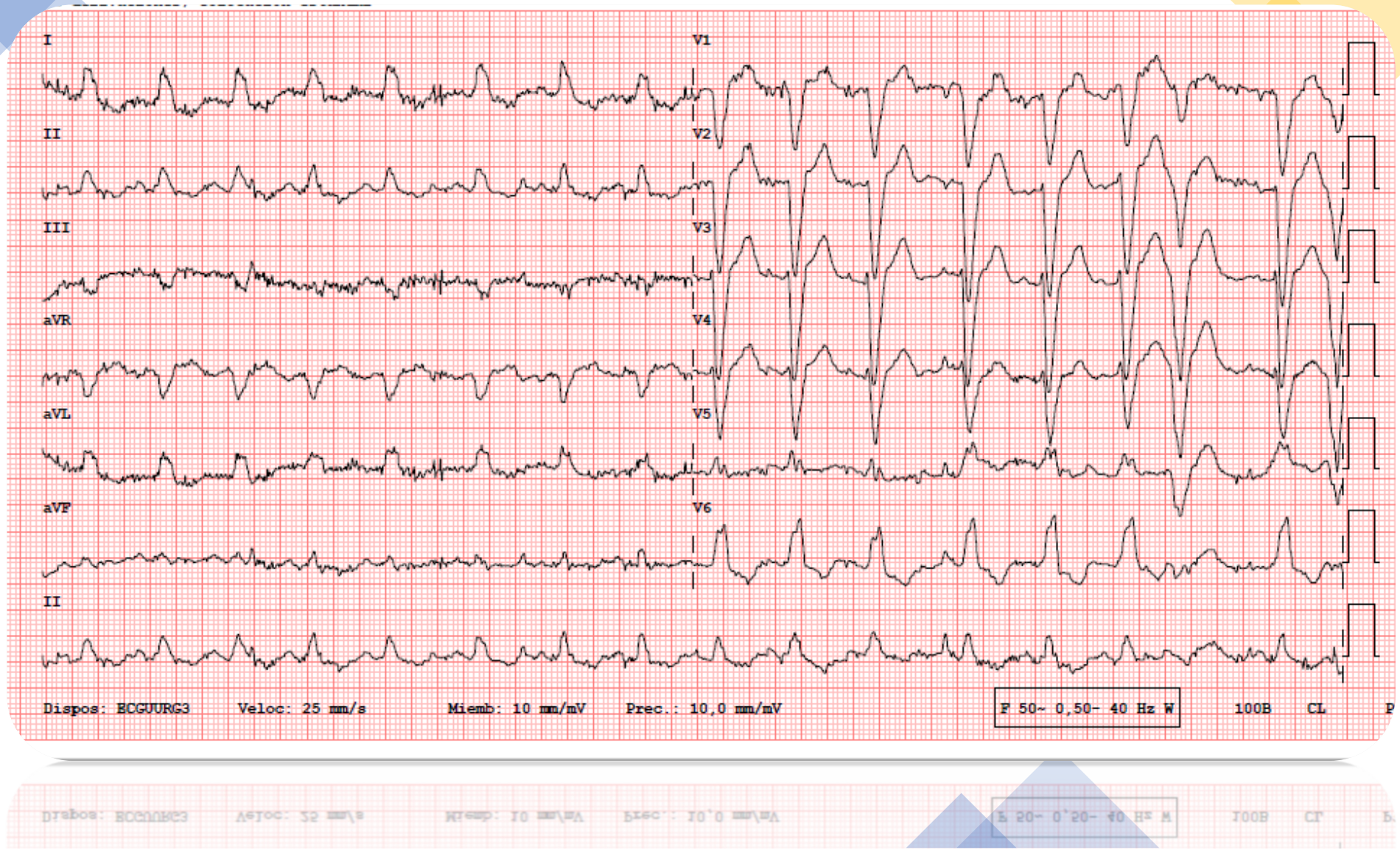
AC rítmica sin soplos audibles AP crepitantes hasta campos medios en hemitórax izq y base derecha

Abdomen anodino

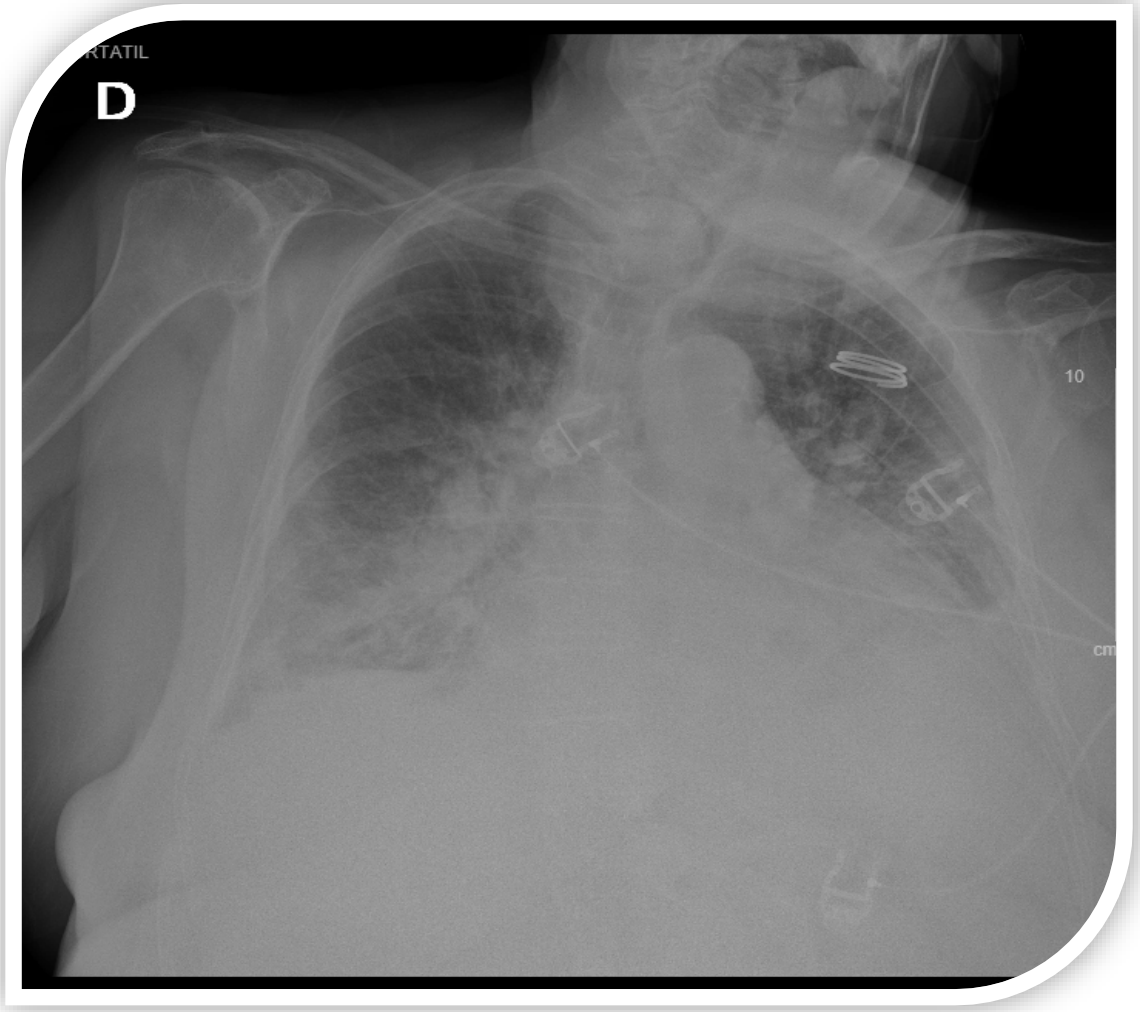
MMII pulsos conservados, no signos de TVP, no edema

PARAMETRO	VALORES
Hemograma	
Leucocitos	8.300/uL
Fórmula	31,4% Linfocitos, 5% Neutrofilos
Hb	10.4 g/dL
Hematocrito	45%
Plaquetas	271000
Bioquimica	
Glucosa	108 mg/dL
Urea	94 mg/dL
Creatinina	2.52 mg/dL
Sodio	146 mmol/L
Potasio	4 mmol/L
Lactato	2,1 mmol/L
CK	78 U/L
Troponina ultrasensible	337.3 ng/mL
Mioglobina	7,8 ng/mL
Probnp	34.323 pg/ml
Metabolismo ferrico	Ferritina 30ng/ml, Hierro 19microg/dl, C.fijacio hierro 255 mg/dl, IST 6%.

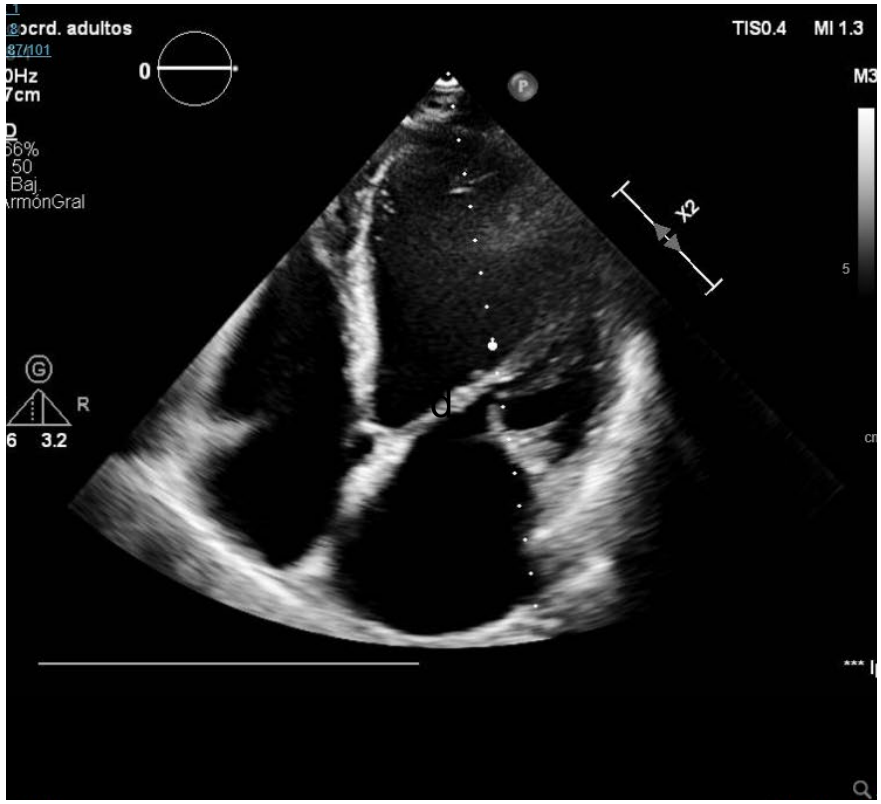



I
II
III
aVR
aVL
aVF
II
V1
V2
V3
V4
V5
V6
Dispos: ECGUURG3
Veloc: 25 mm/s
Miemb: 10 mm/mV
Prec.: 10,0 mm/mV
F 50~ 0,50~ 40 Hz W
100B
CL

RX TORAX



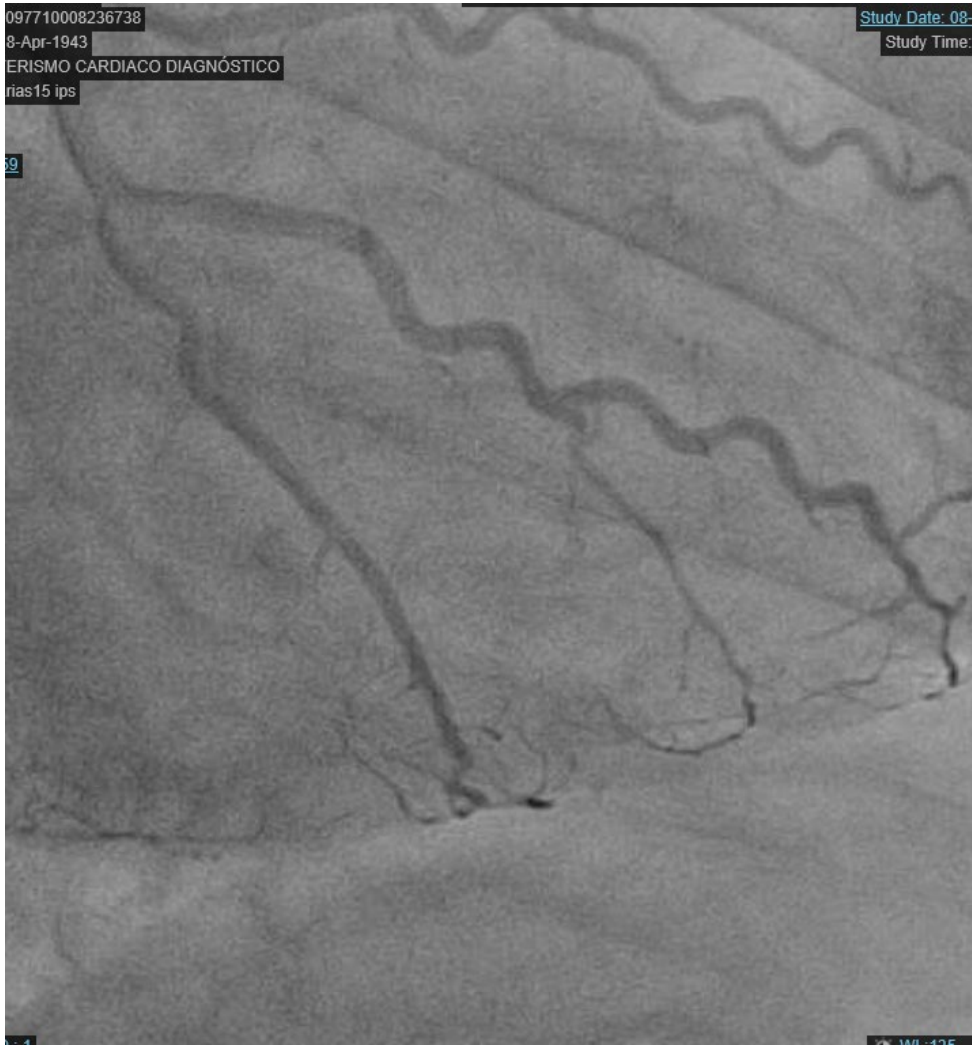
ECOCARDIOGRAFÍA



Patron de **miocardiopatia dilatada con disfunción sistolica severa de VI (20%).** Asincronia intraventricular. Regurgitación mitral moderada-severa secundaria. Hipertension pulmonar severa (75mmghg)

CATETERISMO CARDIACO

Sin lesiones



DIAGNÓSTICO

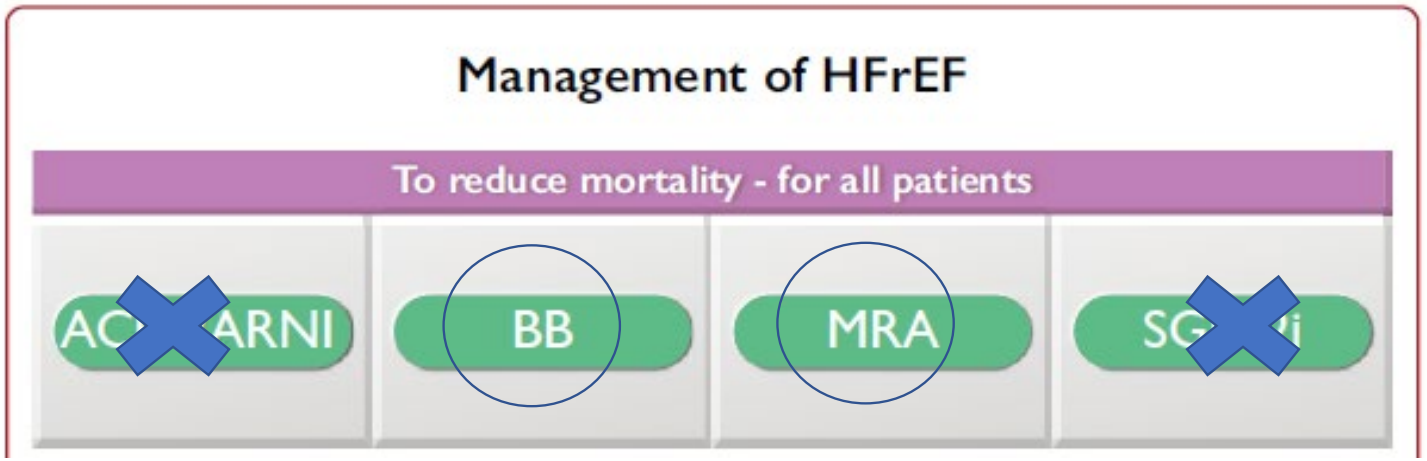
- INSUFICIENCIA CARDIACA FEVI DEPRIMIDA ETIOLOGICA NO FILIADA
- HIPERTENSION PULMONAR SEVERA
- HTA
- DISLIPEMIA
- OBESIDAD

Tras tratamiento depletivo la paciente mejora proresivamente…

¿Qué podemos hacer ahora por Carmen?

TRATAMIENTO ICC FEVI DEPRIMIDA

FILTRADO GLOMERULAR DE 18….



La experiencia clínica es muy limitada en pacientes con insuficiencia renal grave

No recomendado en TFGe <25

Metabolismo férrico…

- Deficiencia de hierro: Ferritina <100 ng/ml o ferritina de 100-299ng/ml con índice de saturación de transferrina <20%.
- El uso de estimuladores de la eritropoyesis no esta indicado en ICC con FEVI deprimida por aumento del R trombotico y no mejorar supervivencia
- Uso recomendado de hierro carboximaltosa

Ferritina 30ng/ml, Hierro 19microg/dl, C.fijacio hierro 255 mg/dl, IST 6%.

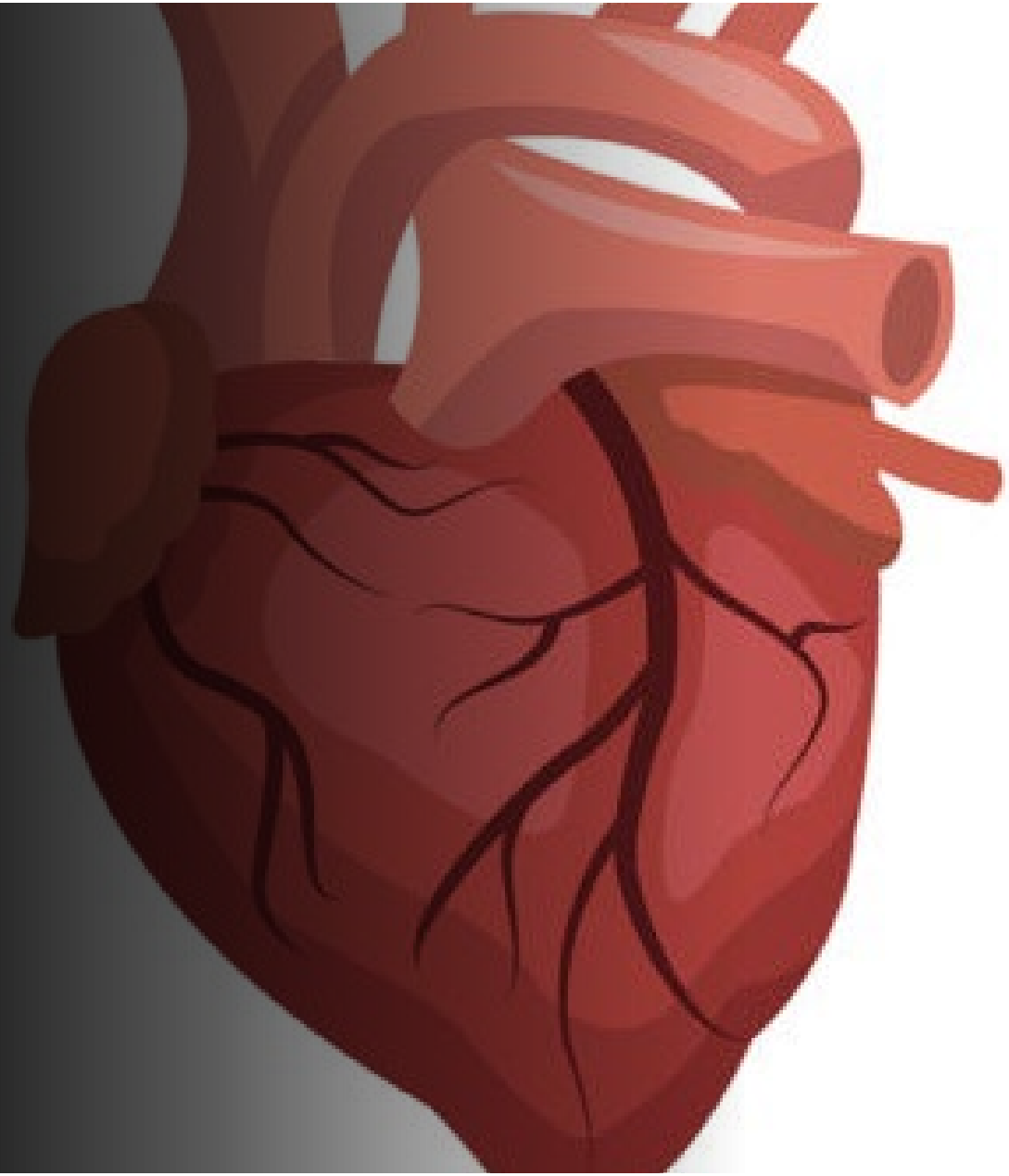
Recommendations	Class[a]	Level[b]
It is recommended that all patients with HF be periodically screened for anaemia and iron deficiency with a full blood count, serum ferritin concentration, and TSAT.	I	C
Intravenous iron supplementation with ferric carboxymaltose should be considered in symptomatic patients with LVEF <45% and iron deficiency, defined as serum ferritin <100 ng/mL or serum ferritin 100–299 ng/mL with TSAT <20%, to alleviate HF symptoms, improve exercise capacity and QOL.[720,722,724]	IIa	A
Intravenous iron supplementation with ferric carboxymaltose should be considered in symptomatic HF patients recently hospitalized for HF and with LVEF <50% and iron deficiency, defined as serum ferritin <100 ng/mL or serum ferritin 100–299 ng/mL with TSAT <20%, to reduce the risk of HF hospitalization.[512]	IIa	B

Se administra 1g iv de hierro carboximaltosa durante ingreso

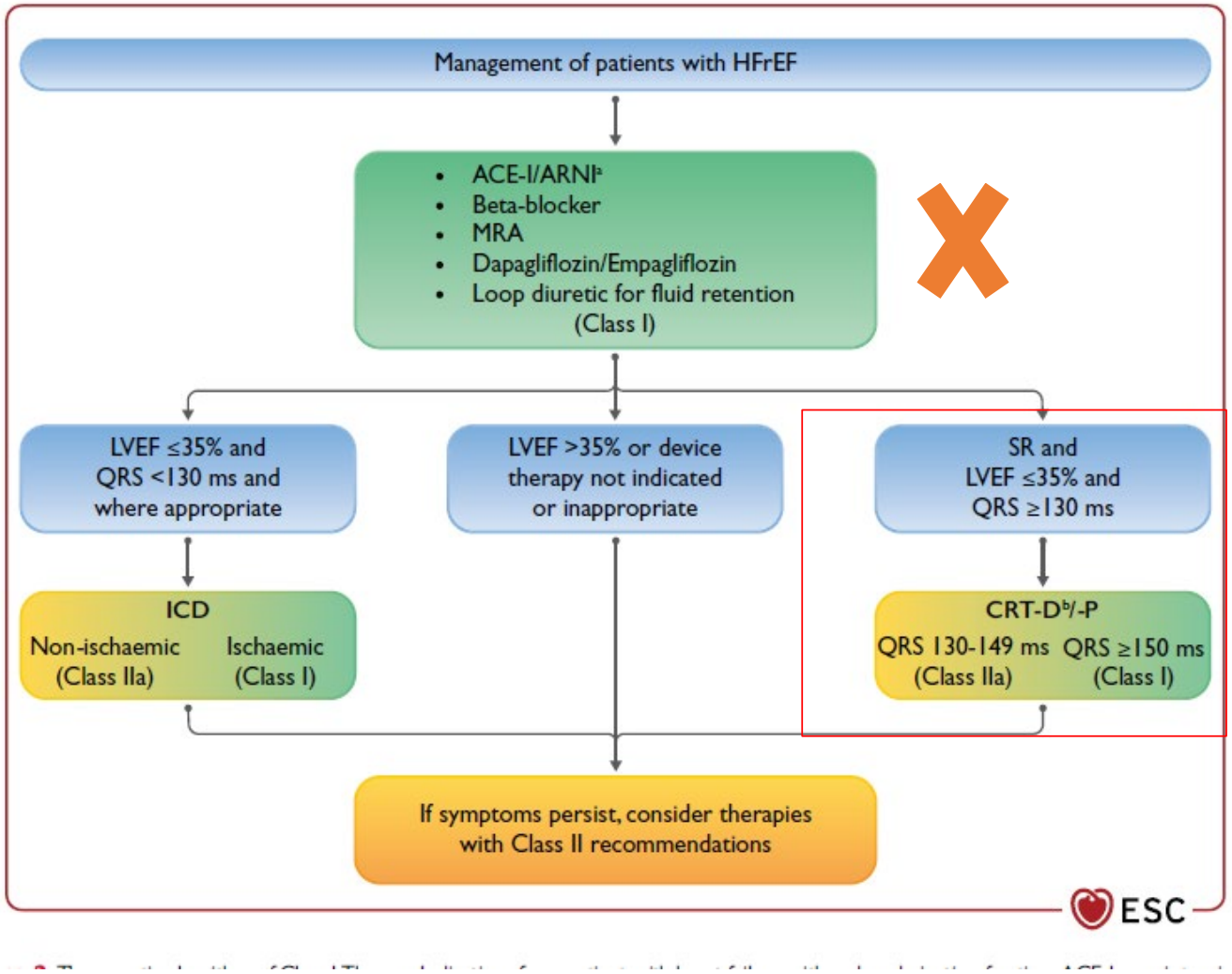
Peso corporal	35 kg a < 70kg		≥70kg	
Hb (g/dL)	≥10	<10	≥10	<10
Dosis total de hierro	1000 mg	1500 mg	1500 mg	2000 mg
Administración semana 1	1000 mg	1000 mg	1000 mg	1000 mg
Administración semana 2	–	500 mg	500 mg	1000 mg

Citamos a Carmen en la Unidad de ICC

¿Qué hacemos si no hay mejoría de la función renal y no podemos optimizar tratamiento farmacológico?



DISPOSITIVOS INTRACARDIACOS



Recommendations	Class[a]	Level[b]
CRT is recommended for symptomatic patients with HF in SR with a QRS duration ≥150 ms and LBBB QRS morphology and with LVEF ≤35% despite OMT in order to improve symptoms and reduce morbidity and mortality.[205–215]	I	A
CRT rather than RV pacing is recommended for patients with HFrEF regardless of NYHA class or QRS width who have an indication for ventricular pacing for high degree AV block in order to reduce morbidity. This includes patients with AF.[216–219]	I	A
CRT should be considered for symptomatic patients with HF in SR with a QRS duration ≥150 ms and non-LBBB QRS morphology and with LVEF ≤35% despite OMT in order to improve symptoms and reduce morbidity and mortality.[205–215]	IIa	B
CRT should be considered for symptomatic patients with HF in SR with a QRS duration of 130–149 ms and LBBB QRS morphology and with LVEF ≤35% despite OMT in order to improve symptoms and reduce morbidity and mortality.[211,220]	IIa	B
Patients with an LVEF ≤35% who have received a conventional pacemaker or an ICD and subsequently develop worsening HF despite OMT and who have a significant proportion of RV pacing should be considered for 'upgrade' to CRT.[221]	IIa	B

Continued

CARDIORESINCRONIZADOR

- Reduce mortalidad y morbilidad
  - Se recomienda en pacientes en RS y QRS >130 ms FEVI <35%, con OMT
  - Se recomienda en pacientes que requieran marcapasos (incluso si ACXFA)

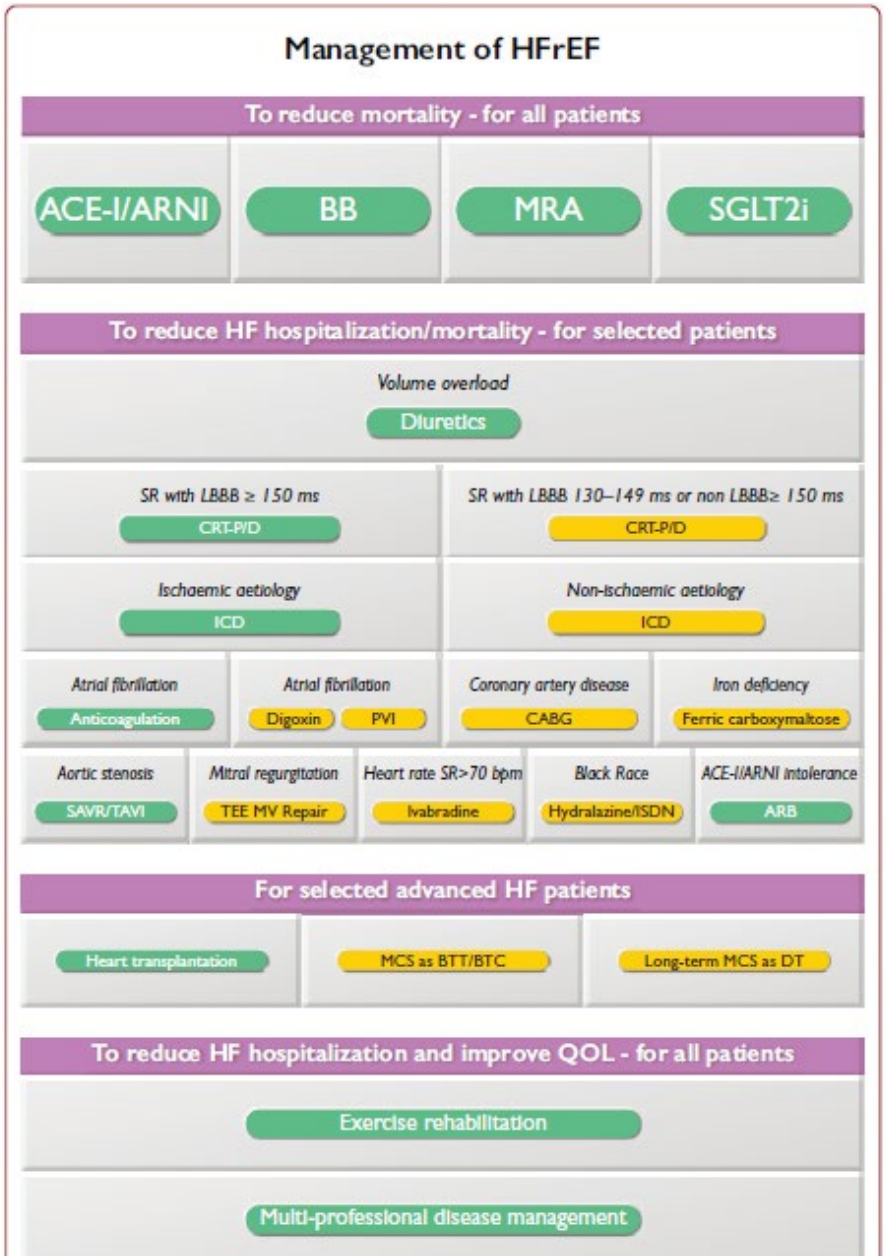
CARDIODESFIBRILADOR IMPLANTABLE

- Prevención secundaria
  - Arritmia ventricular inestable (no ocurrida en 48h post IAM o por causa reversible) con >1año de expectativa de vida
- Prevención primaria
  - Se recomienda en cardiopatía isquémica con >3 meses de OMT que persiste <35% FEVI y NIHA II-III con expectativa de vida >1 Año
  - Considerar en caridopatía no isquemica con >3 meses de OMT con persitencia de FEVI,35% y NYHA II-III, con expectative de vida >1 año
  - Contraindiacco en primeros 40 días post infarto o en n NYHA IV , a noser que sea candidado a CRT, vad o traspolante

Recommendations	Class[a]	Level[b]
Secondary prevention		
An ICD is recommended to reduce the risk of sudden death and all-cause mortality in patients who have recovered from a ventricular arrhythmia causing haemodynamic instability, and who are expected to survive for >1 year with good functional status, in the absence of reversible causes or unless the ventricular arrhythmia has occurred <48 h after a MI.[162–164]	I	A
Primary prevention		
An ICD is recommended to reduce the risk of sudden death and all-cause mortality in patients with symptomatic HF (NYHA class II–III) of an ischaemic aetiology (unless they have had a MI in the prior 40 days—see below), and an LVEF ≤35% despite ≥3 months of OMT, provided they are expected to survive substantially longer than 1 year with good functional status.[161,165]	I	A

PARA CONCLUIR

VISION GLOBAL DEL TTO DE ICC FEVI DEPRIMIDA



EN NUESTRO HOSPITAL

- Derivar a estos pacientes a la Unidad de Insuficiencia Cardiaca
- **Podemos citar a los pacientes en la Unidad poniendo en la agenda : ESPECIALIDAD HDMC**

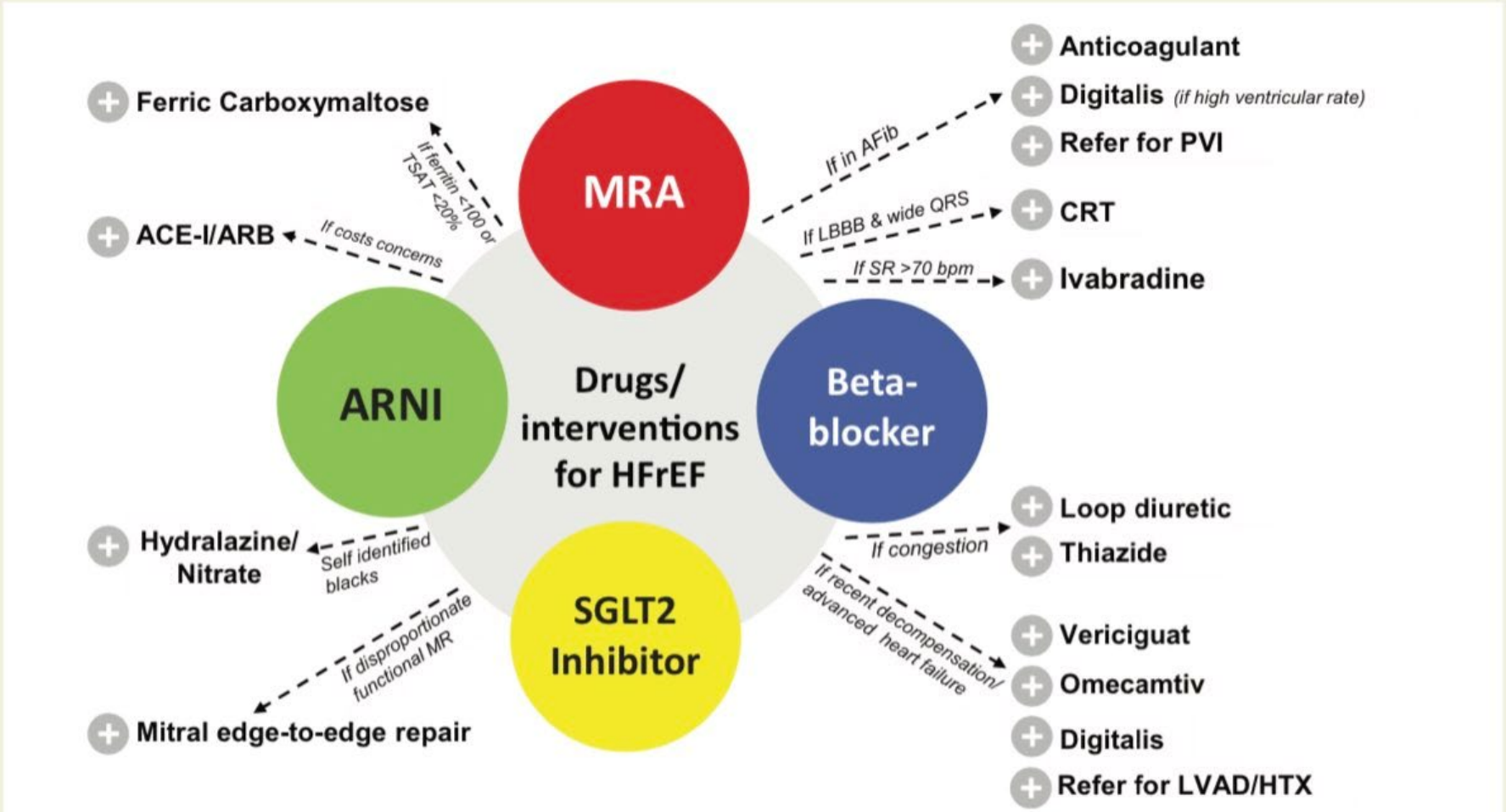
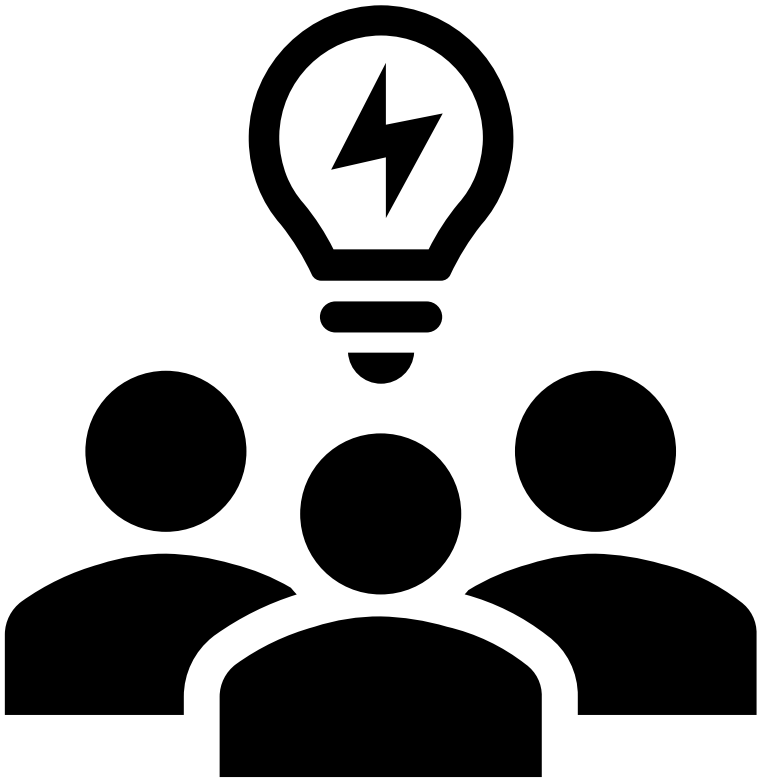


Figure 1 Drug, interventional, and device treatment for heart failure with reduced ejection fraction (HFrEF). ACE-I, angiotensin-converting enzyme inhibitor; Afib, atrial fibrillation; ARB, angiotensin receptor blocker; ARNI, angiotensin receptor/neprilysin inhibitor; CRT, cardiac resynchronization therapy; HTX, heart transplantation; LBBB, left bundle branch block; LVAD, left ventricular assist device; MR, mitral regurgitation; MRA, mineralocorticoid receptor antagonist; PVI, pulmonary vein isolation; SGLT2, sodium–glucose co-transporter 2; SR, sinus rhythm; TSAT, transferrin saturation.

IDEAS PARA LLEVARSE A CASA

- Incremento progresivo de la prevalencia de ICC y hospitalización
- “Los 4 fantasticos” : Uso de ARNI/IECA, BB, MRA e ISGLT.
  - Inicio concomitante.
- Uso ISGLT2 en FEVI deprimida en NO diabéticos
- Importancia de identificar la etiología de ICC
- Manejo de las comorbilidades asociadas a ICC
- Apoyo de cara al alta



Gracias