GERENCIA ÁREA SANITARIA IV

HOSPITAL UNIVERSITARIO CENTRAL DE AST

UNIDAD DE GESTIÓN CLÍNICA DE MEDICINA IN

Congreso de la
Sociedad Asturiana
de Cardiología
Sede: Parador de Corias

Nuevas perspectivas en pacientes complejos

Alvaro Glez Franco

UGC Medicina Interna

RECALCAR
RECURSOS Y CALIDAD EN CARDIOLOGÍA

REGISTRO RECALCAR 2021

Tabla 3.5. Indicadores CMBD_CAR. 2019 (Enfermedades Cardiacas)

	TOTALES	CARDIOLOGÍA
Enfermedades Cardiacas [0]		
ALTAS	330.584	149.173
MEDIANA ESTANCIA HOSPITAL [p50 (RIC)] (días)	6 (RIC: 3, 9)	4 (RIC: 2, 8)
TBM (%)	6,79%	1,86%
TASA DE REINGRESOS (%)	7,15%	5,18%
INDICE DE CHARLSON (>2)	33,57%	21,83%
RAMER *	7,05%	6,67%
RARER *	7,29%	7,27%
Insuficiencia cardiaca [1]		
ALTAS	113.130	24.278
MEDIANA ESTANCIA HOSPITAL [p50 (RIC)] (días)	7 (RIC: 4, 11)	7 (RIC: 5, 11)
TBM (%)	11,25%	4,27%
TASA DE REINGRESOS (%)	11,49%	9,70%
RAMER β	11,75%	11,28%
RARER β	11,63%	11,60%

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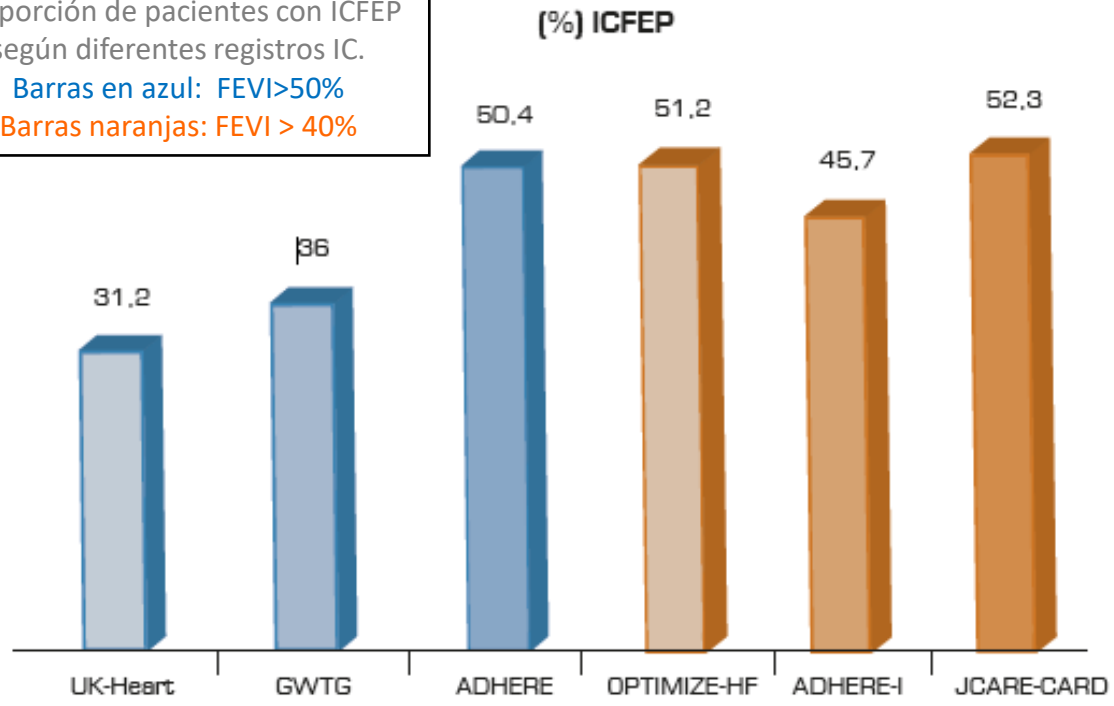
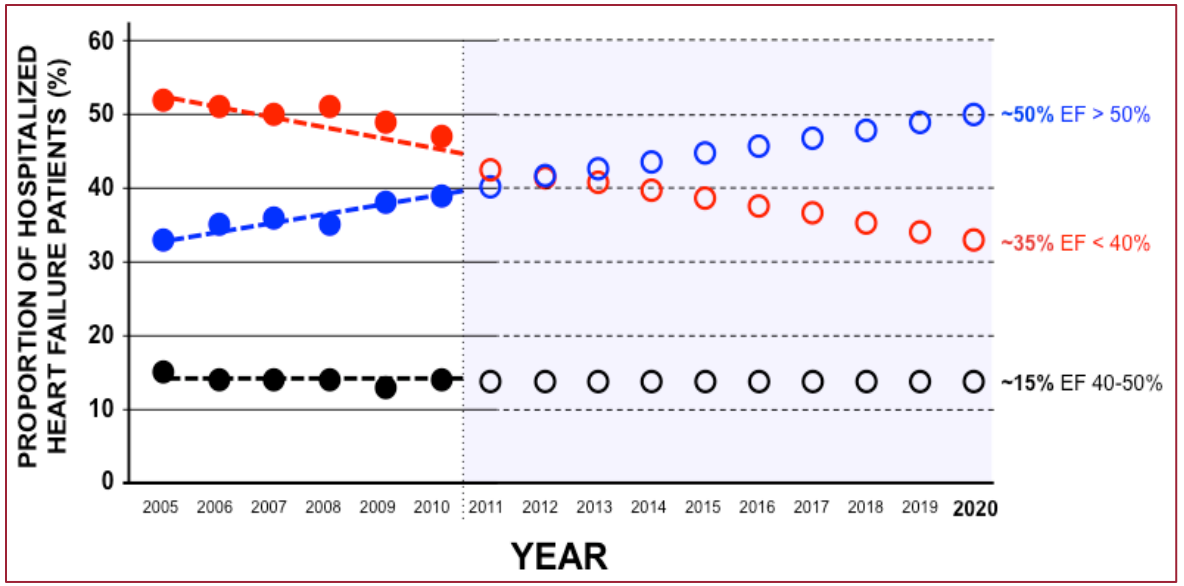
Epidemiología ICFEP

<50 años	50-70 años	>70 años
15%	33%	50%

- Alrededor del **50%**.
- Las **hospitalizaciones** por ICFEP están **en aumento**, mientras que las debidas a ICFER van reduciéndose
- Los ratios de **mortalidad** por todas las causas y **reingresos** son **similares**
- El impacto en reducción de **calidad de vida** y **capacidad de ejercicio** son **similares**

Proporción de pacientes con ICFEP según diferentes registros IC.
Barras en azul: FEVI>50%
Barras naranjas: FEVI > 40%





Oktay, Rich, Shah Curr Heart Fail Rep 2013

Nuevas perspectivas en pacientes complejos

REALIDAD DE LA IC

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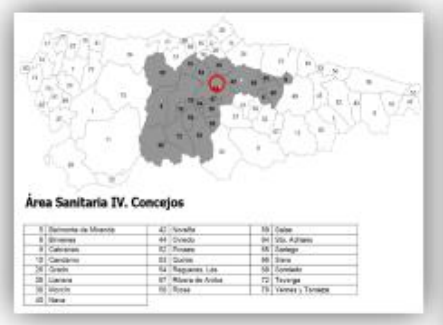
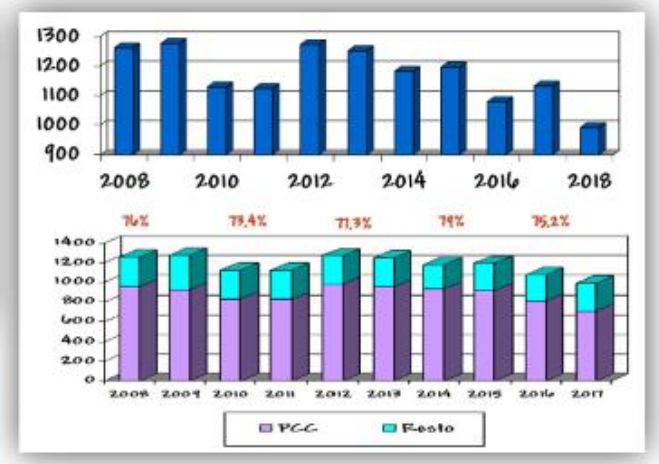
Contexto local: Ingresos anuales por IC - Área Sanitaria IV



Memoria SESPA 2016:

- 331936 habitantes
- 22,33% >65 años



Evolución de ingresos anuales por IC
(GRD 194, CIE-10, Agrupador APR-GRD, versión 32.0)

Datos Formulario ICA
Jun-19 / Ag-20. 294 pacientes

Edad Media
83.53 años (64-102)
Mujeres = 53.4%

Sin FEVI	FEVI<40%	FEVI 40-50%	FEVI>50%
5.9%	24.2%	13%	**56.9%**

SITUACIÓN BASAL	
Barthel	57.9% < 90 (dependencia)
Pfeiffer	38.9% con algún grado de deterioro cognitivo
FRAIL	48% frágiles

Comorbilidad	%
HTA	79.25
DM	37.4
ERC	53.7
FA	58.8
Anemia	41.5

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GRD 194 (Agrupador APR-GRD, versión 36.0). Norma: SNS, Clúster 5, Año 2020

Servicio	N	%sobre total AS IV	% sobre total HUCA	Estancia media depurada	% reingresos
Geriatría	628	51.8		9.31 (+1.66)	9.49
MI (UMIPIC)	**320**	**26.4**	**54.8**	**7.44 (+0.48)**	**5.6**
Cardiología	142	11.71	24.3	9.95 (+3.13)	9.86
Otros	122	10	20.9	8.95 (+1.5)	6.56
TOTAL	**1212**				

DATOS 2021

Codific HUCA 51.9%

Codific HMN 99.9%

RESUMEN (cálculo realizando estimando el volumen de pacientes en HUCA el doble por codificación del 51%)

HFpEF/HFmrEF in the Last 20 Years

Epidemiology */Pharmacological Trials*

Bathia et al NEJM 2006
HFpEF increasing prevalence prediction to 2020

CHARM-P Trial *(NEJM 2006)*

I-Preserve Trial *(Massie B et al.NEJM 2008)*

PARAMOUNT Trial *Neprilysin Inhibition* *(Solomon SD et al.Lancet 2012)*

RELAX Trial *PDE5-inhibition* *(Redfield MM et al. JAMA 2013)*

TOPCAT Trial *Aldosterone Receptor Antagonist* *(Redfield MM et al. JAMA 2013)*

NEAT Trial *Nitrate* *(Redfield MM et al. NEJM 2016)*

PARAGON Trial *Neprylisin Inhibition*

VICTORIA Trial *Vericiguat – NEJM 2020*

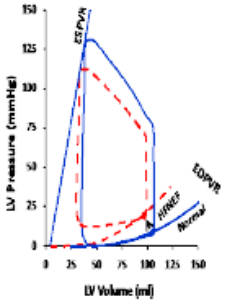
SOLOIST Trial *Sotagliflocin – NEJM 2020*

EMPEROR-P Trial *Empagliflocin – NEJM 2021*

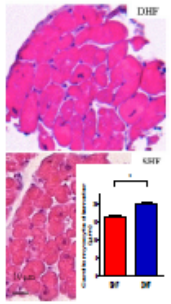
2006 2011 2015

2003 2008 2013 2021

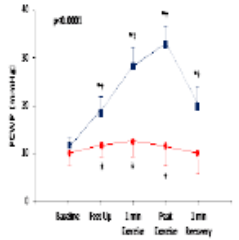
LEFT VENTRICLE → *EXERCISE* *MULTIORGAN Involvement* - *COMORBIDITIES/ Inflammation* *PHENOTYPING*



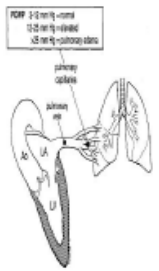
Role of ↑arterial elastance and LV/ circulatory uncoupling **(Burkoff D et al Circulation 2003)**



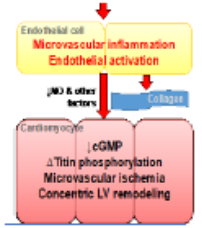
First evidence of myocite stiffness in humans *(van Heerebeek L et al Circulation 2006)*



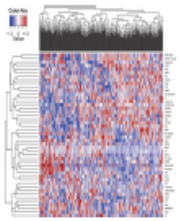
Focus on exercise: ↑PAWP as a key for diagnosis *(Borlaug B et al. Circ Heart Fail 2010)*



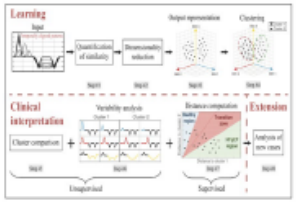
Focus on the pulmonary circulation
PH and RV *(Guazzi M et al. Circulation 2011)*



The Inflammatory hypothesis *(Paulus W et al. JACC 2013)*



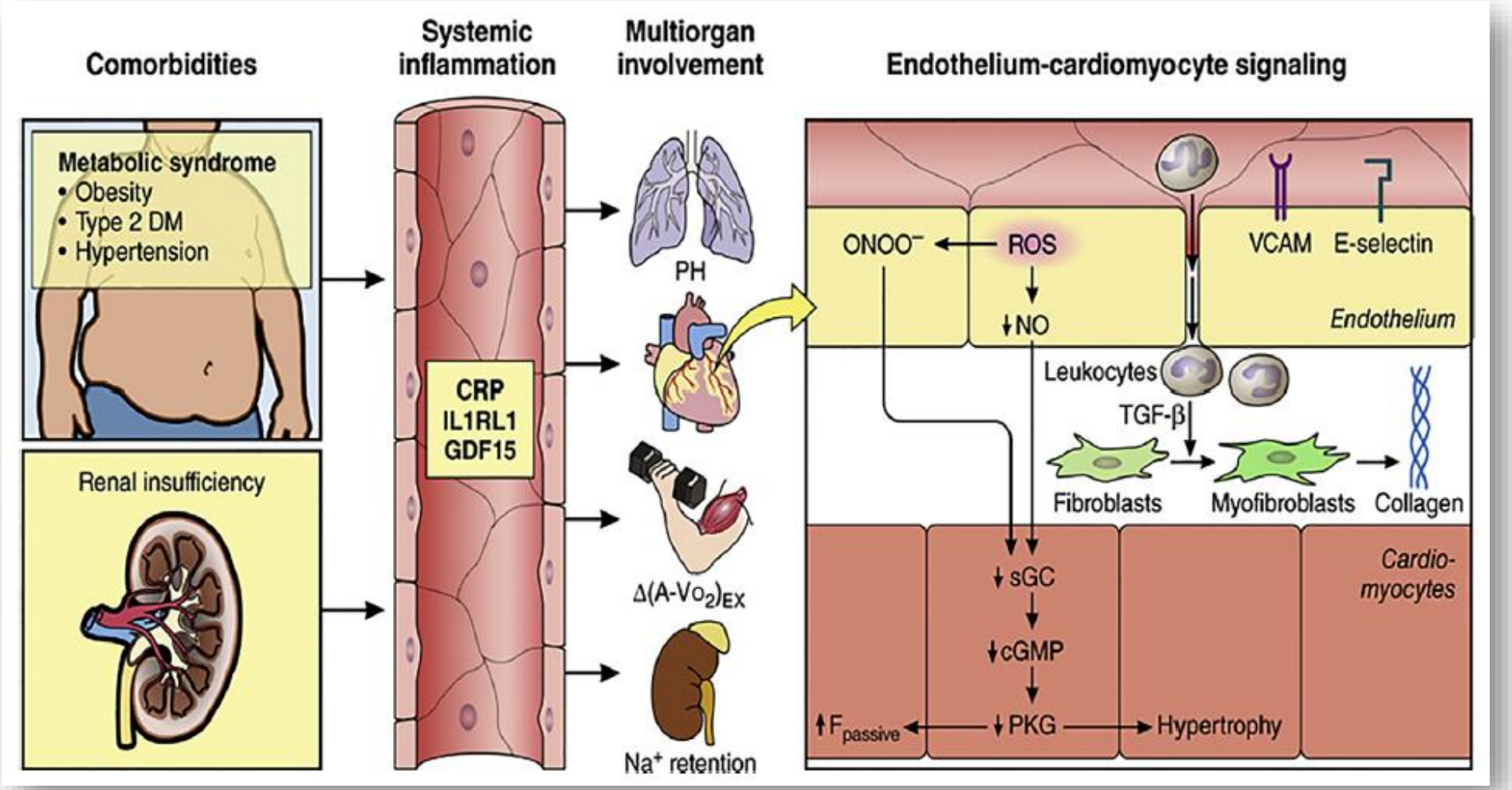
Phenomapping *(Shah SJ et al. Circulation 2015)*



Computer learning/Clustering/ Network analysis → **Big Data**

Substrates */Pathophysiology* */New Generating Hypothesis* */Novel Approaches*

Síndrome Sistémico / Fenotipos



Circulation. 2016;134:73-90. DOI: 10.1161/CIRCULATIONAHA.116.021884

Nuevas perspectivas en pacientes complejos

ICFEP. PAC COMPLEJOS

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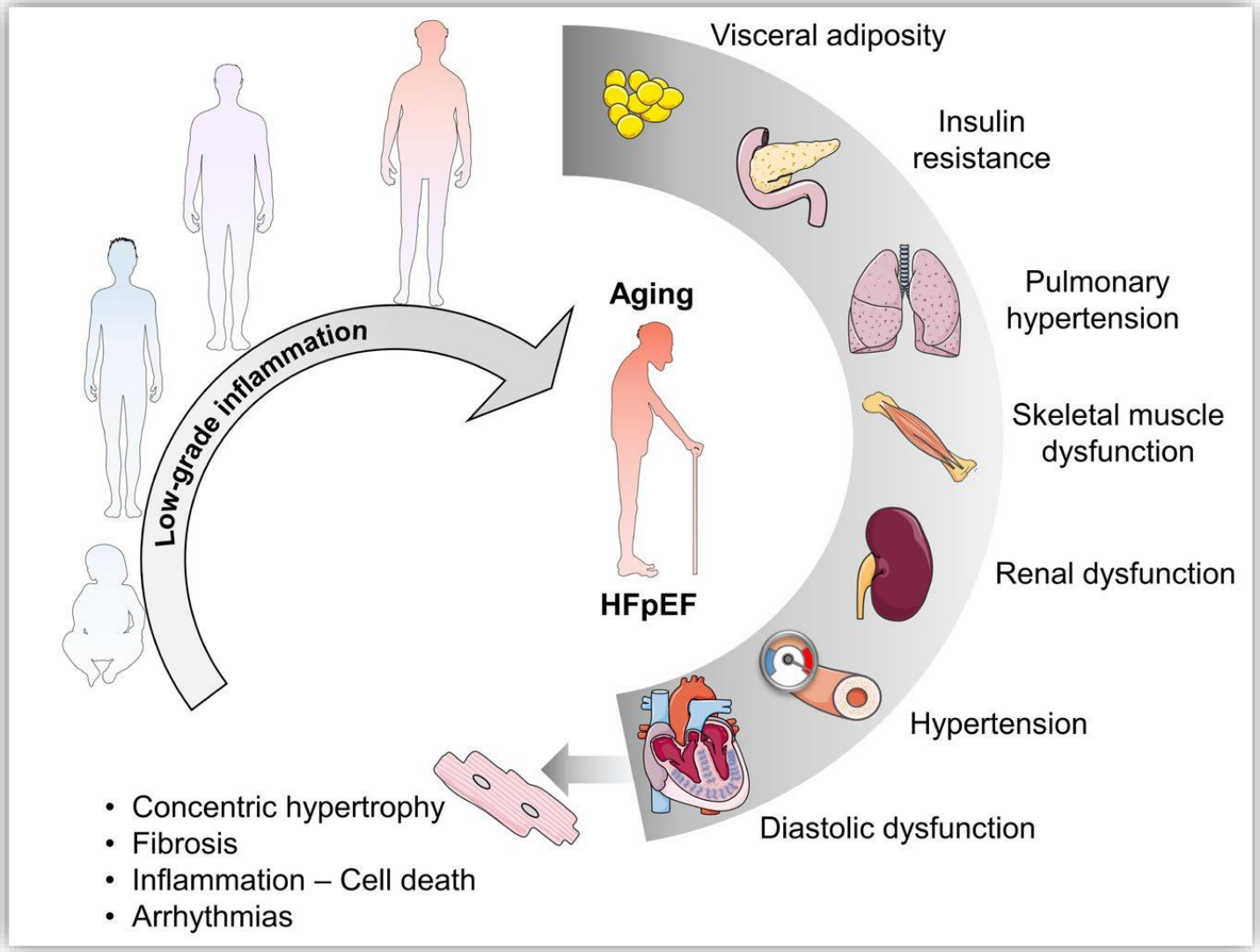

Received: 25 January 2021 | Revised: 21 May 2021 | Accepted: 28 July 2021
DOI: 10.1111/acel.13453

REVIEW

Aging Cell WILEY

Chronic low-grade inflammation in heart failure with preserved ejection fraction

Thassio Mesquita[1] | Yen-Nien Lin[1,2] | Ahmed Ibrahim[1]

CONCLUSION:

The chronic and systemic inflammatory state is a central and prominent feature associated with HFpEF, which is disproportionately found in older individuals.

Hence, strategies aiming to inhibit cardiac proinflammatory pathways in HFpEF, including NLRP3 inflammasome signaling, may be appropriate therapeutic anti-inflammatory interventions

Mesquita T, Lin YN, Ibrahim A. Chronic low-grade inflammation in heart failure with preserved ejection fraction. Aging Cell. 2021 Sep;20(9):e13453. doi: 10.1111/acel.13453. Epub 2021 Aug 12.

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ESC European Society of Cardiology
European Journal of Heart Failure (2021)
doi:10.1002/ejhf.2169
RESEARCH ARTICLE

Identification of distinct phenotypic clusters in heart failure with preserved ejection fraction

Alicia Uijl[1,2,3*], Gianluigi Savarese[2], Ilonca Vaartjes[1], Ulf Dahlström[4], Jasper J Brugts[5], Gerard C.M. Linssen[6], Vanessa van Empel[7], Hans-Peter Brunner-La Rocca[7], Folkert W. Asselbergs[3,8,9], Lars H. Lund[2,10], Arno W. Hoes[1], and Stefan Koudstaal[3,11]

Conclusion: Five distinct clusters of HFpEF patients were identified that differed in clinical characteristics, heart failure drug therapy and prognosis.
These results confirm the heterogeneity of HFpEF and form a basis for tailoring trial design to individualized drug therapy in HFpEF patients.

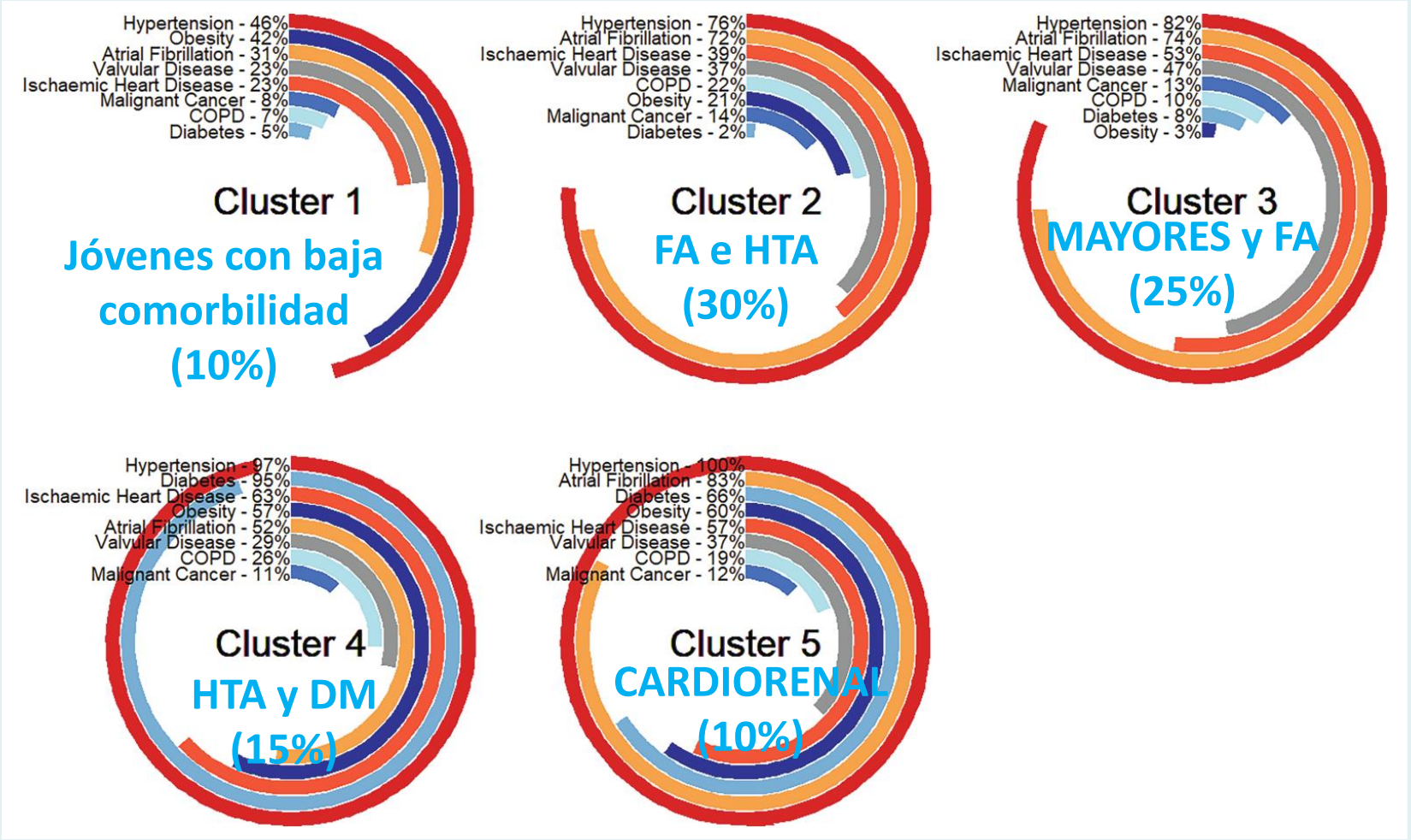

Figure 1 Patient comorbidity profiles within clusters in SwedeHF. Obesity: body mass index >30 kg/m^2. COPD, chronic obstructive pulmonary disease.

Uijl A, Savarese G, Vaartjes I, Dahlström U, Brugts JJ, Linssen GCM, van Empel V, Brunner-La Rocca HP, Asselbergs FW, Lund LH, Hoes AW, Koudstaal S. Identification of distinct phenotypic clusters in heart failure with preserved ejection fraction. Eur J Heart Fail. 2021 Jun;23(6):973-982. doi: 10.1002/ejhf.2169. Epub 2021 May 1. PMID: 33779119; PMCID: PMC8359985.

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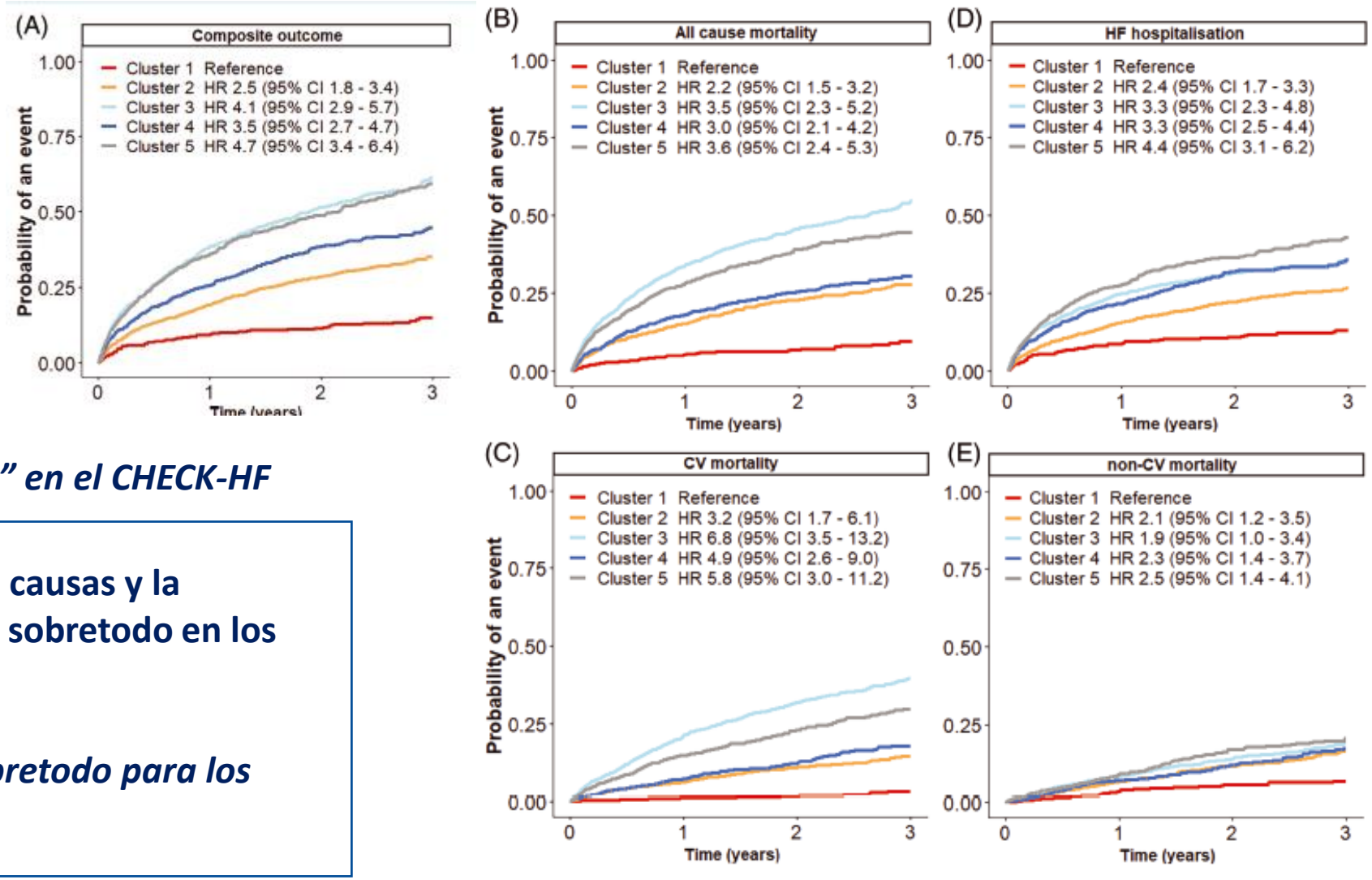

Aplican el modelo de "Cluster" en el CHECK-HF

- **La mortalidad por todas las causas y la mortalidad CV se producen sobretodo en los CLUSTER 4 y 5.**
- ***Los ingresos por IC será sobretodo para los CLUSTER 3, 4 y 5***

Uijl A, Savarese G, Vaartjes I, Dahlström U, Brugts JJ, Linssen GCM, van Empel V, Brunner-La Rocca HP, Asselbergs FW, Lund LH, Hoes AW, Koudstaal S. Identification of distinct phenotypic clusters in heart failure with preserved ejection fraction. Eur J Heart Fail. 2021 Jun;23(6):973-982. doi: 10.1002/ejhf.2169. Epub 2021 May 1. PMID: 33779119; PMCID: PMC8359985.

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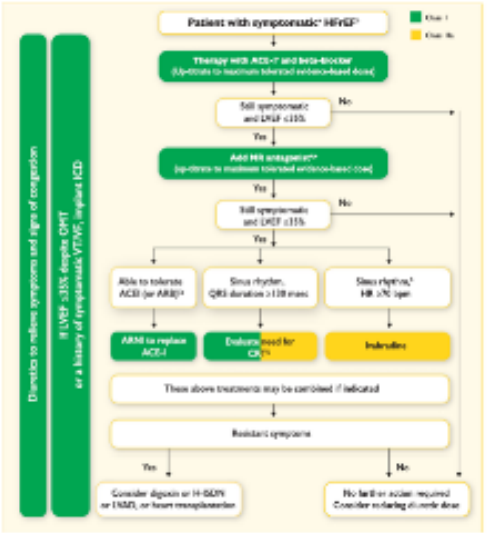
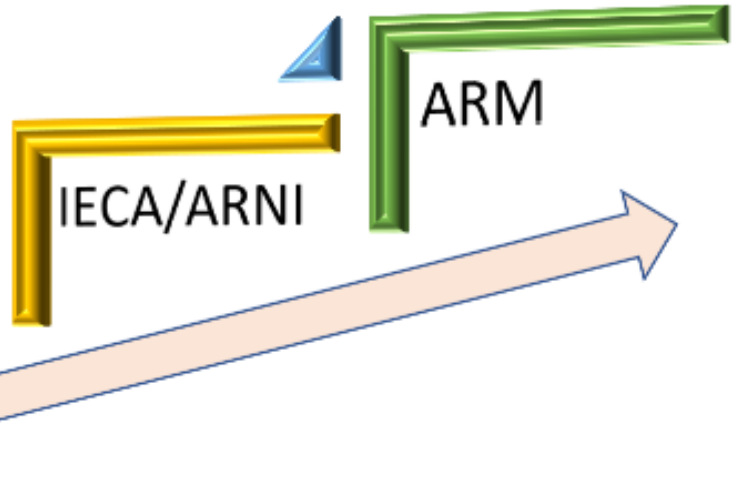
ICFER



- Vertical
- Secuencial
- Primero dosis máximas



- Horizontal
- 4 fcos en 4 sem
- Dosis bajas

"Más vale un poco de todos que mucho de uno"

2016 ESC Guidelines HF www.escardio.org
Ponikowski P, et al. Eur Heart J. 2016; 37(27): 2.129-2.200.

McDonagh, et al 2021 *European Heart Journal*, 1–128.
https://doi.org/10.1093/eurheartj/ehab368

Nuevas perspectivas en pacientes complejos

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ESC European Society of Cardiology

European Heart Journal (2021) 00, 1–128 doi:10.1093/eurheartj/ehab368

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

Authors/Task Force Members: Theresa A. McDonagh* (Chairperson) (United Kingdom), Marco Metra * (Chairperson) (Italy), Marianna Adamo (Task Force Coordinator) (Italy), Roy S. Gardner (Task Force Coordinator) (United Kingdom), Andreas Baumbach (United Kingdom), Michael Böhm (Germany), Haran Burri (Switzerland), Javed Butler (United States of America), Jelena Čelutkienė (Lithuania), Ovidiu Chioncel (Romania), John G.F. Cleland (United Kingdom), Andrew J.S. Coats (United Kingdom), Maria G. Crespo-Leiro (Spain), Dimitrios Farmakis (Greece), Martine Gilard (France), Stephane Heymans

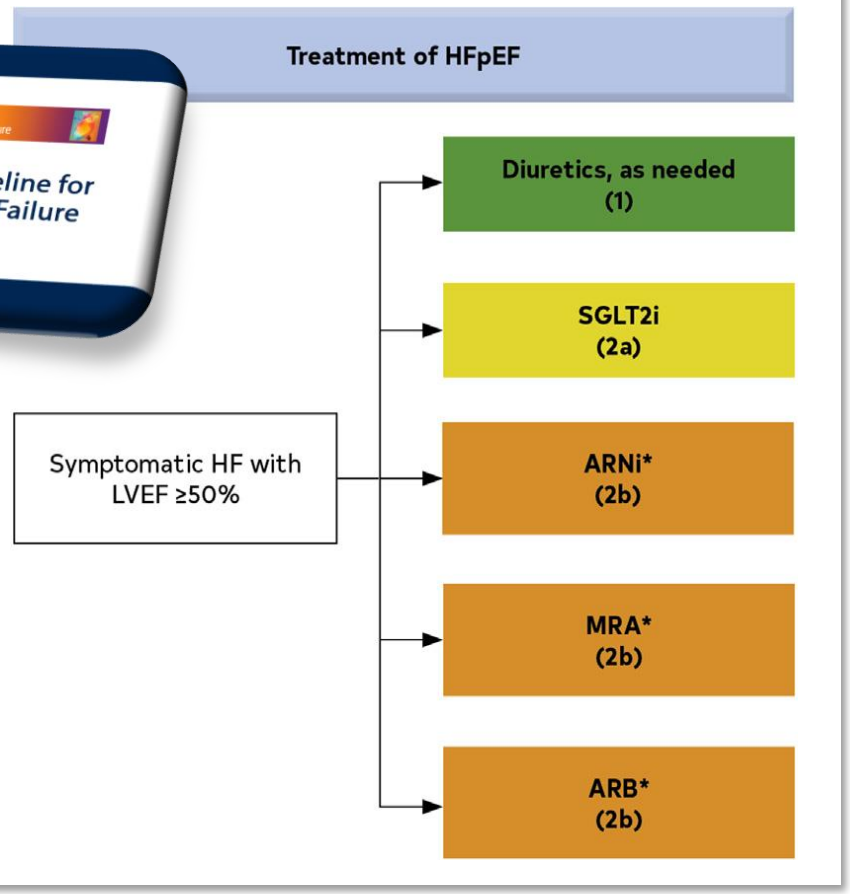
Recommendations for the treatment of patients with heart failure with preserved ejection fraction

Recommendations	Class[a]	Level[b]
Screening for, and treatment of, aetiologies, and cardiovascular and non-cardiovascular comorbidities is recommended in patients with HFpEF (see relevant sections of this document).	I	C
Diuretics are recommended in congested patients with HFpEF in order to alleviate symptoms and signs.[137]	I	C

McDonagh, et al 2021 *European Heart Journal*, 1–128. https://doi.org/10.1093/eurheartj/ehab368

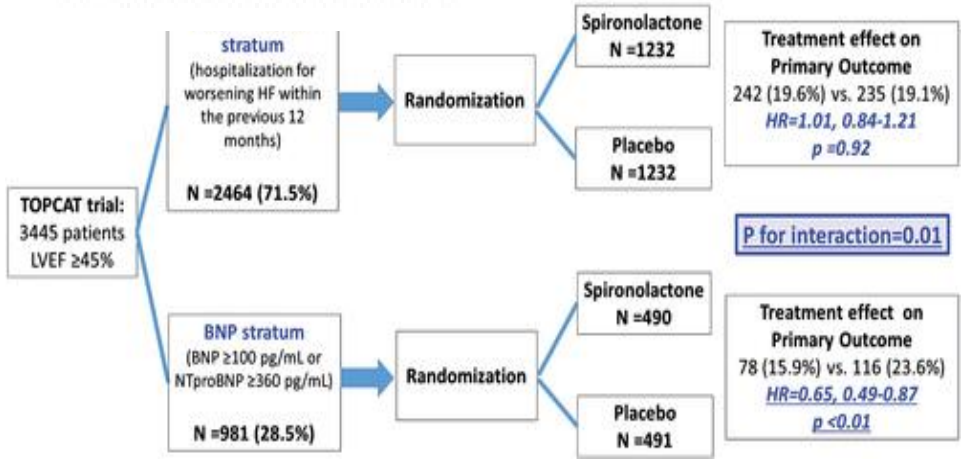
ICFEP

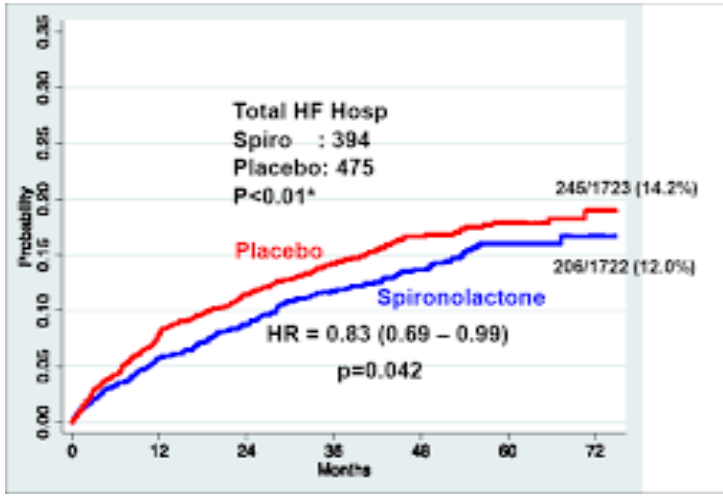
FIGURE 12 Recommendations for Patients With Preserved LVEF (≥50%)



Heidenreich Pa et al. 2022 AHA/ACC/HFSA Guideline for the Management of Heart Failure. Circulation. 2022. doi: 10.1161/CIR.0000000000001063. Epub ahead of print. PMID: 35363499.

TOPCAT
Funded by the NHLBI





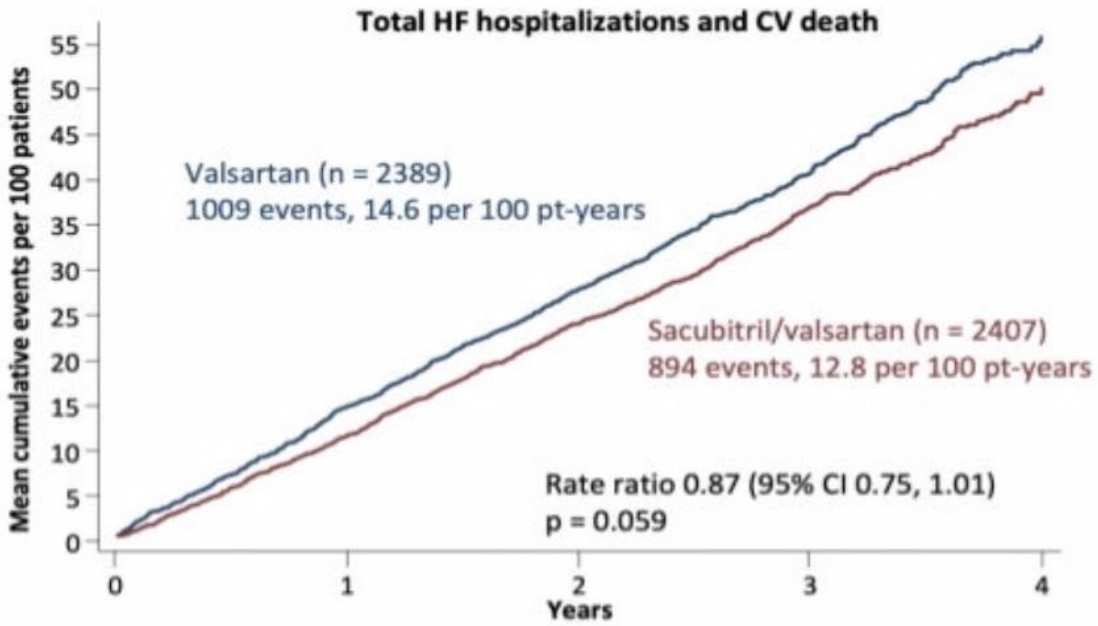
Evidencias en tratamiento farmacológico en pacientes con ICFEp.

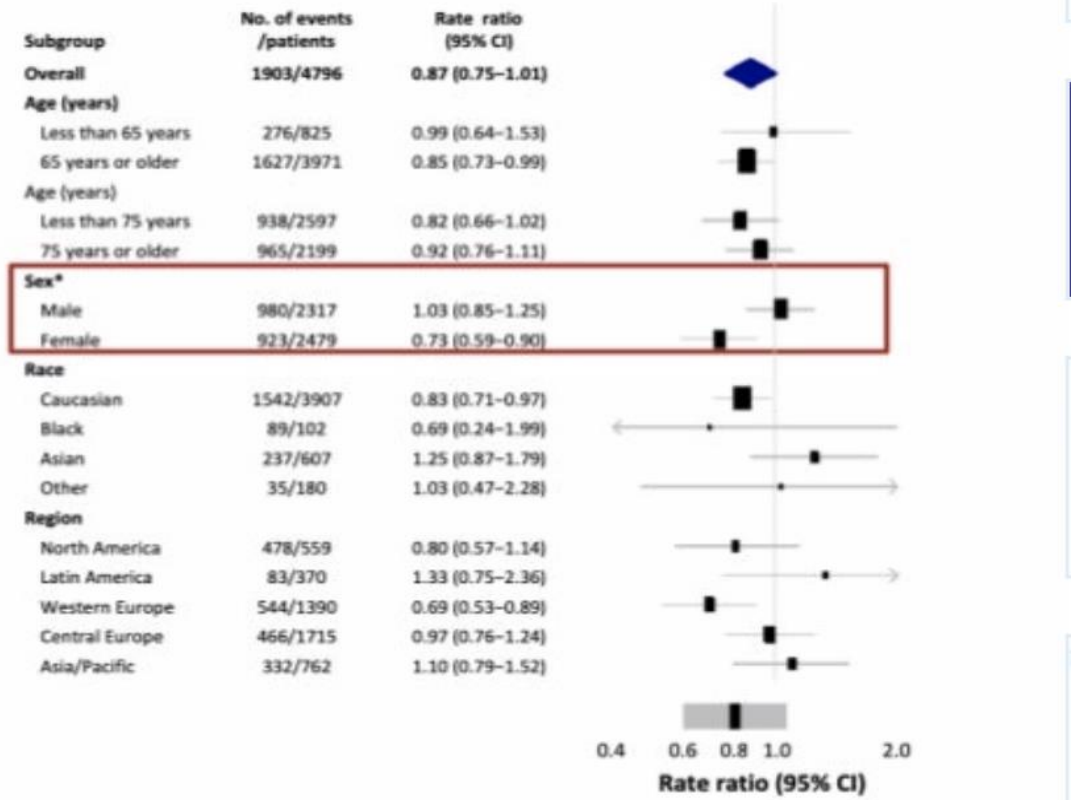
TRATAMIENTO CON ANTIALDOSTERÓNICOS.

- En el estudio TOPCAT se randomizaron 3445 pacientes con ICFEp a placebo frente a espironolactona.
- El objetivo primario fue compuesto de muerte por causas cardiovasculares, muerte súbita recuperada u hospitalización por IC.
- **El tratamiento con espironolactona no redujo significativamente el combinado de muerte por causas cardiovasculares, muerte súbita o insuficiencia cardiaca.**
- **Reducción significativa de hospitalizaciones por IC.**

Pfeffer MA, Claggett B, Assmann SF, Boineau R, Anand IS, Clausell N, et al. Regional variation in patients and out-comes in the treatment of preserved cardiac function heart failure with an aldosterone antagonist (TOPCAT) trial. Circulation, 2015; 131:34-42

Evidencias en tratamiento farmacológico en pacientes con ICFEp.





PARAGONHF

TRATAMIENTO CON SACUBITRILO-VALSARTAN

Posible beneficio del SCB/VST en el subgrupo de FEVI hasta 57% y mujeres

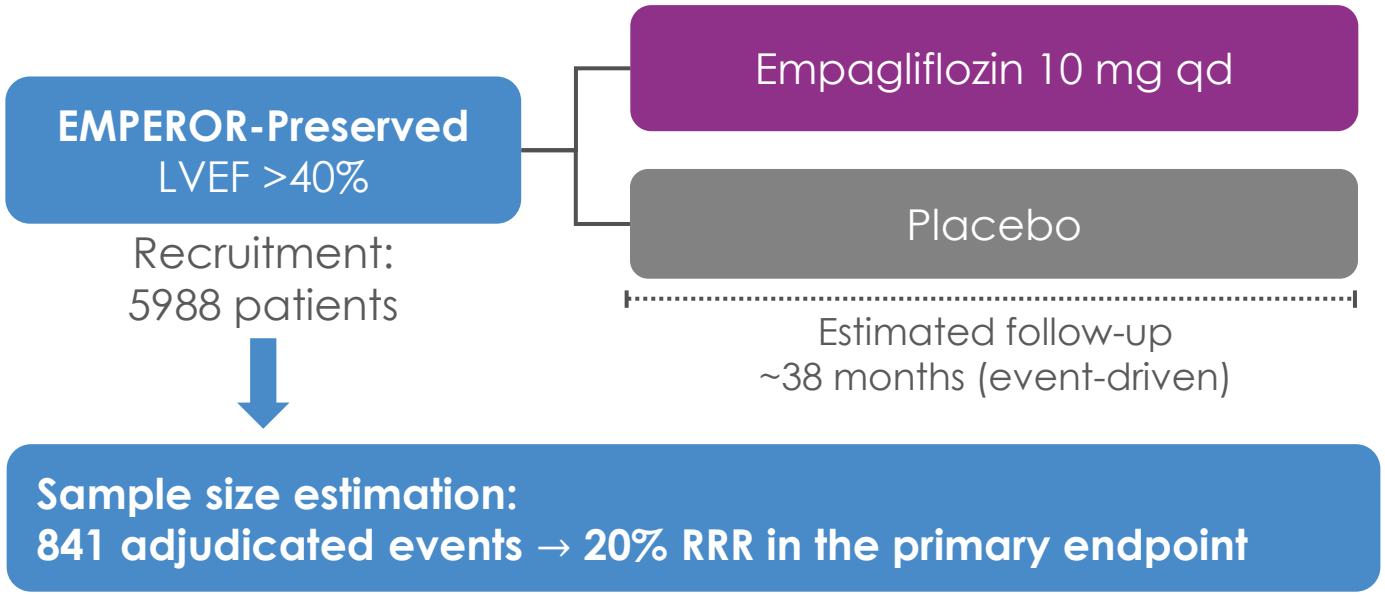
Solomon SD, McMurray JJV, Anand IS, Ge J, Lam CSP, Maggioni AP. Et al. Angiotensin-neprilysin inhibition In heart failure with preserved ejection fraction. N Engl Med. 2019; 381:1609-1620

EMPEROR-Preserved study design[1–3]

Phase III randomized double-blind placebo-controlled trial

Aim: To investigate the safety and efficacy of empagliflozin versus placebo in patients with HF with **preserved ejection fraction**

Population: T2D and non-T2D, aged ≥18 years, chronic HF (NYHA class II–IV)



COMPOSITE PRIMARY ENDPOINT

- **Time to first event of adjudicated CV death or adjudicated HHF**

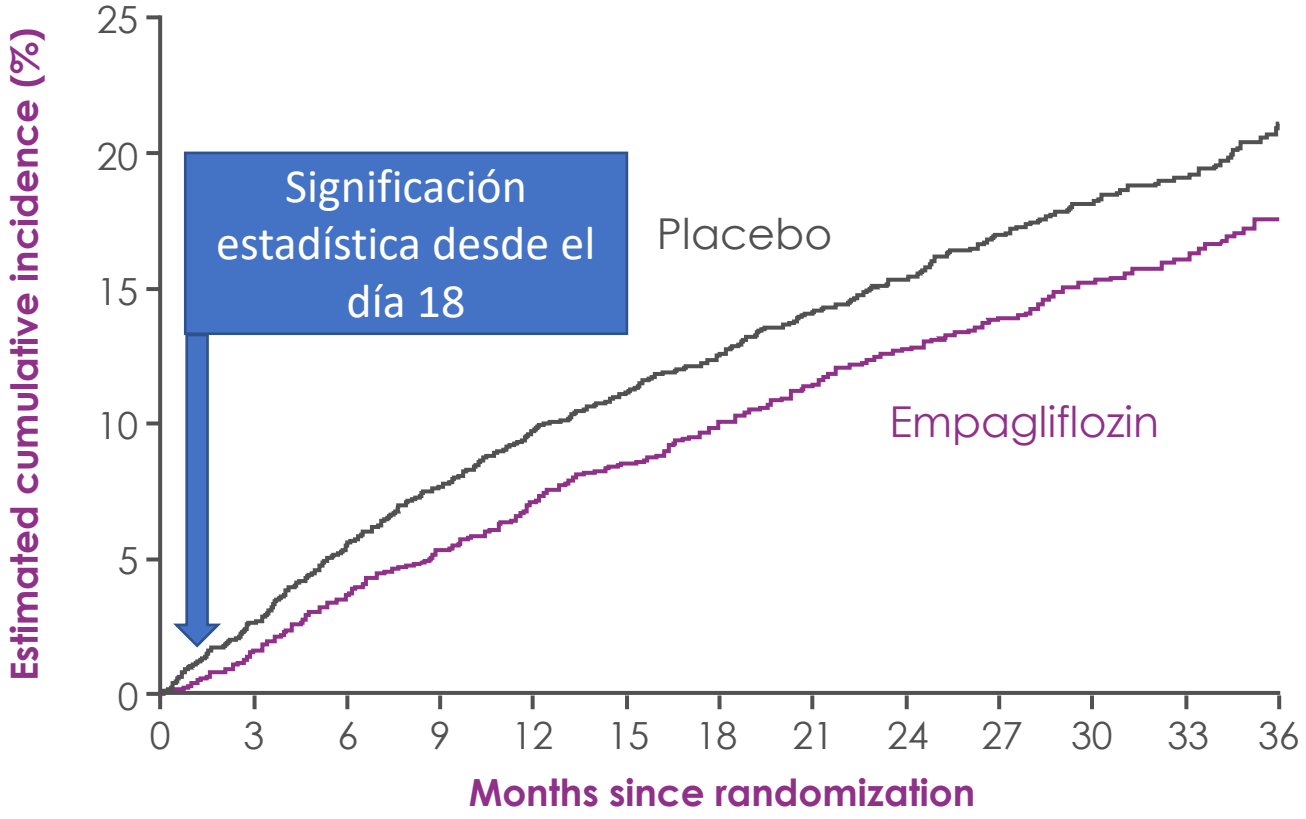
CONFIRMATORY KEY SECONDARY ENDPOINTS

- **First and recurrent adjudicated HHF events**
- **Slope of change in eGFR (CKD-EPI) from baseline**

CKD-EPI, Chronic Kidney Disease Epidemiology Collaboration; CV, cardiovascular; eGFR, estimated glomerular filtration rate; HF, heart failure; HHF, hospitalization for heart failure; LVEF, left ventricular ejection fraction; NYHA, New York Heart Association; qd, once daily; RRR, relative risk reduction; SOC, standard of care; T2D, type 2 diabetes.

1. ClinicalTrials.gov. NCT03057951 (accessed Mar 2021); 2. Anker SD *et al. Eur J Heart Fail.* 2019;21:1279. 3. Anker SD *et al. Eur J Heart Fail.* 2020;22:2383.

Empagliflozin demonstrated a clinically meaningful 21% RRR in the composite primary endpoint of CV death or HHF



Patients at risk

Placebo	2991	2888	2786	2706	2627	2424	2066	1821	1534	1278	961	681	400
Empagliflozin	2997	2928	2843	2780	2708	2491	2134	1858	1578	1332	1005	709	402

RRR 21%

ARR 3.3%

NNT*=31

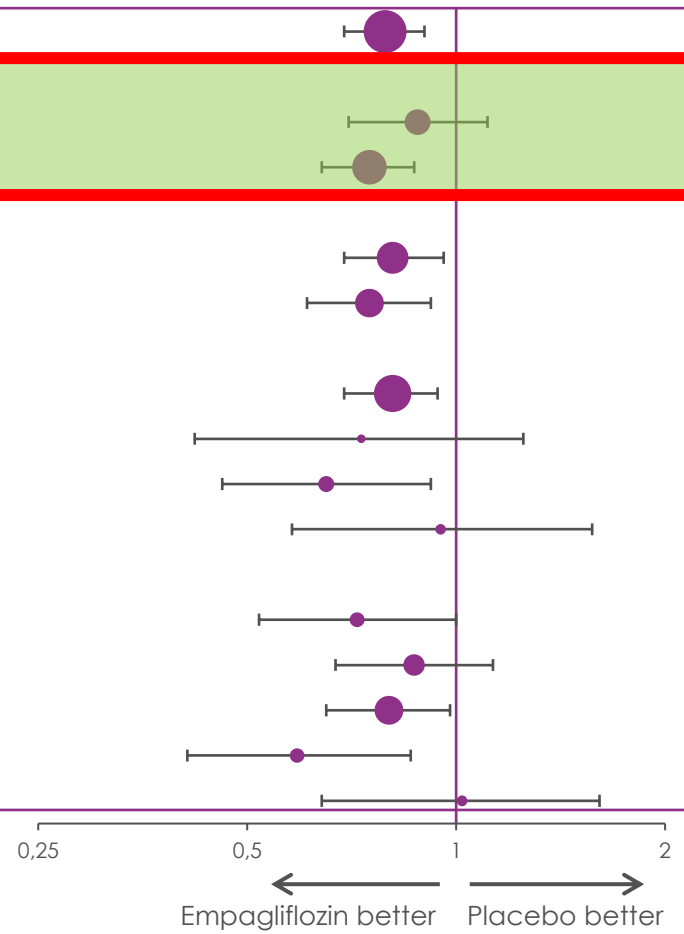
HR: 0.79
(95% CI: 0.69, 0.90)
p<0.001

Empagliflozin:
415 (13.8%) patients with event
Rate: 6.9/100 patient-years
Placebo:
511 (17.1%) patients with event
Rate: 8.7/100 patient-years

*During a median trial period of 26 months. ARR, absolute risk reduction; CI, confidence interval; CV, cardiovascular; HHF, hospitalization for heart failure; HR, hazard ratio; NNT, number needed to treat; RRR, relative risk reduction. Anker S *et al. N Engl J Med*. 2021;XX:XXX.

EMPEROR-Preserved: Primary endpoint
Subgroup analysis

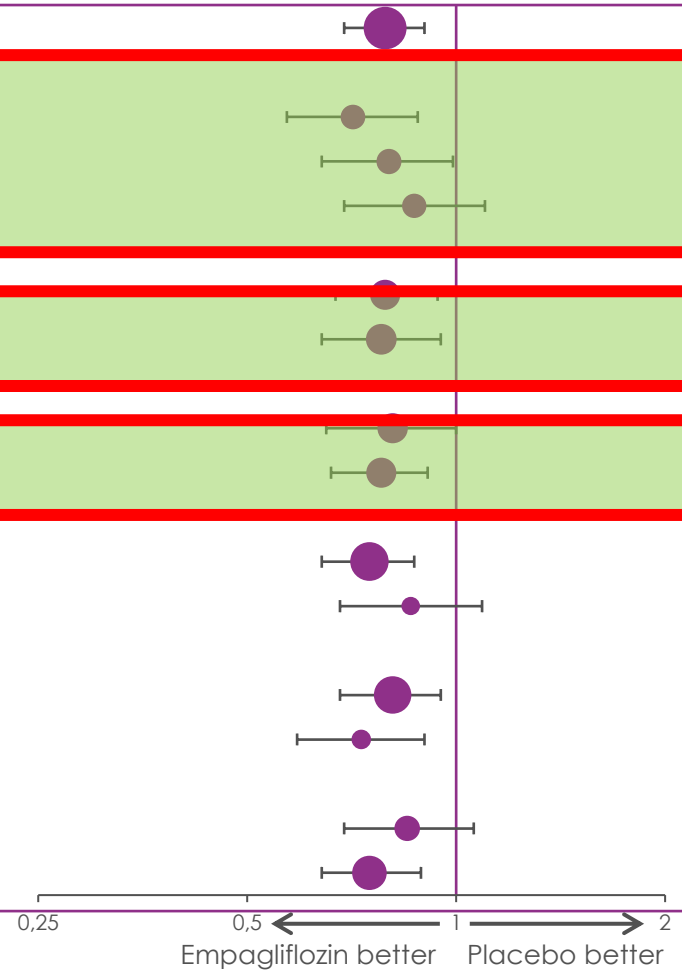
	Empagliflozin	Placebo	HR (95% CI)
	n with event/N analysed		
Overall	415/2997	511/2991	0.79 (0.69, 0.90)
Age, years			
<70	134/1066	152/1084	0.88 (0.70, 1.11)
≥70	281/1931	359/1907	0.75 (0.64, 0.87)
Sex			
Male	253/1659	297/1653	0.81 (0.69, 0.96)
Female	162/1338	214/1338	0.75 (0.61, 0.92)
Race			
White	310/2286	370/2256	0.81 (0.69, 0.94)
Black	24/133	28/125	0.73 (0.42, 1.25)
Asian	54/413	77/411	0.65 (0.46, 0.92)
Other	27/164	36/198	0.95 (0.58, 1.57)
Region			
North America	64/360	83/359	0.72 (0.52, 1.00)
Latin America	105/758	120/757	0.87 (0.67, 1.13)
Europe	165/1346	202/1343	0.80 (0.65, 0.98)
Asia	45/343	69/343	0.59 (0.41, 0.86)
Other	36/190	37/189	1.02 (0.64, 1.61)



CI, confidence interval; HR, hazard ratio.
Anker S *et al. N Engl J Med*. 2021;XX:XXX.

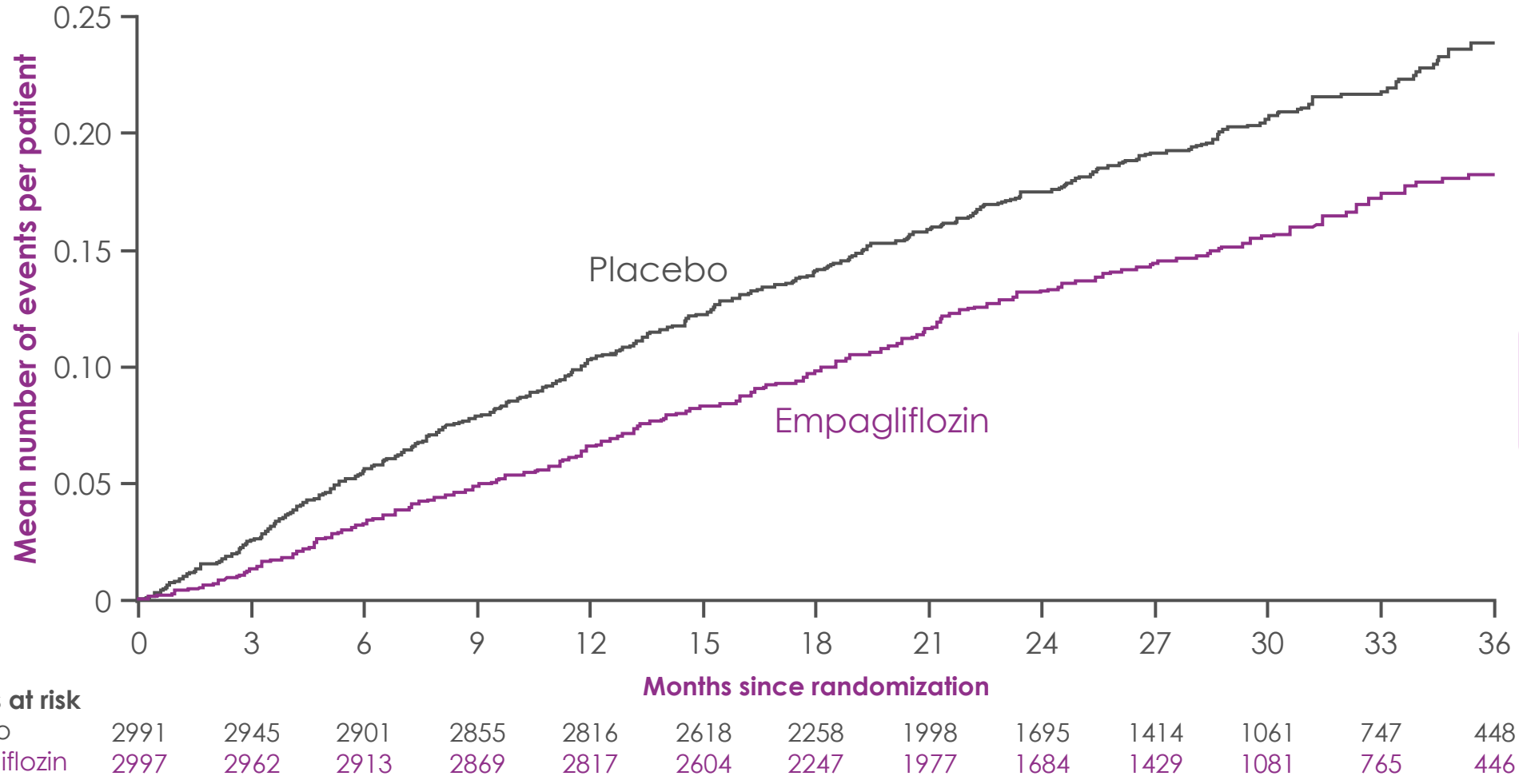
EMPEROR-Preserved: Primary endpoint
Subgroup analysis

	Empagliflozin	Placebo	HR (95% CI)
	n with event/N analysed		
Overall	415/2997	511/2991	0.79 (0.69, 0.90)
Baseline LVEF			
<50%	145/995	193/988	0.71 (0.57, 0.88)
≥50% to <60%	138/1028	173/1030	0.80 (0.64, 0.99)
≥60%	132/974	145/973	0.87 (0.69, 1.10)
Baseline diabetes status			
Diabetes	239/1466	291/1472	0.79 (0.67, 0.94)
No diabetes	176/1531	220/1519	0.78 (0.64, 0.95)
Baseline eGFR (CKD-EPI)			
≥60 mL/min/1.73 m²	152/1493	189/1505	0.81 (0.65, 1.00)
<60 mL/min/1.73 m²	263/1504	321/1484	0.78 (0.66, 0.91)
Baseline NYHA class			
II	275/2435	361/2452	0.75 (0.64, 0.87)
III/IV	140/562	150/539	0.86 (0.68, 1.09)
HF hospitalization in ≤12 months			
No	258/2298	319/2321	0.81 (0.68, 0.95)
Yes	157/699	192/670	0.73 (0.59, 0.90)
Cause of HF			
Ischaemic	157/1079	177/1038	0.85 (0.69, 1.06)
Non-ischaemic	258/1917	334/1953	0.75 (0.64, 0.89)



See slide notes for abbreviations. Anker S *et al. N Engl J Med*. 2021;XX:XXX.

EMPEROR-Preserved: Key secondary endpoint – adjudicated total HHF (first and recurrent)



RRR 27%

HR: 0.73
(95% CI: 0.61, 0.88)
p<0.001

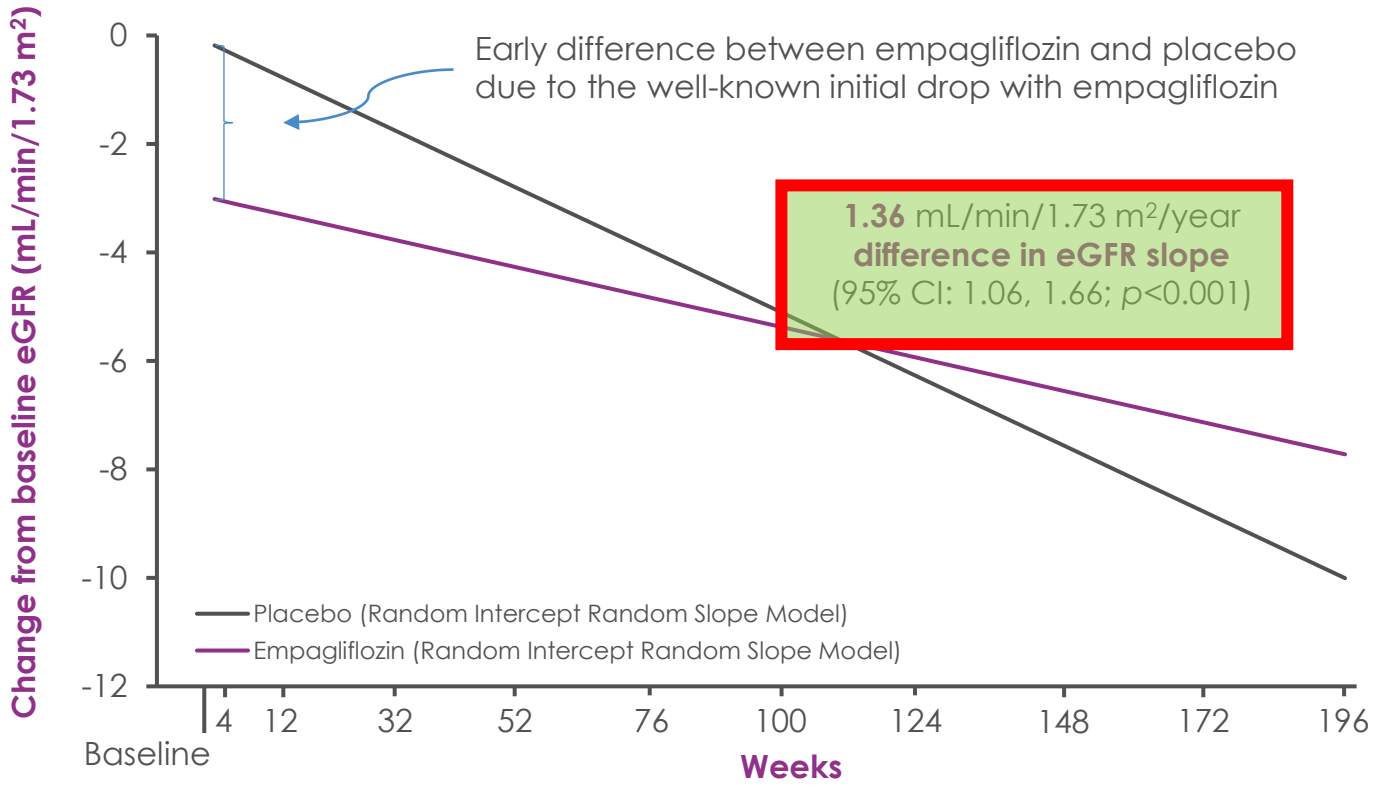
Empagliflozin: 407 patients with event
Placebo: 541 patients with event

Patients at risk

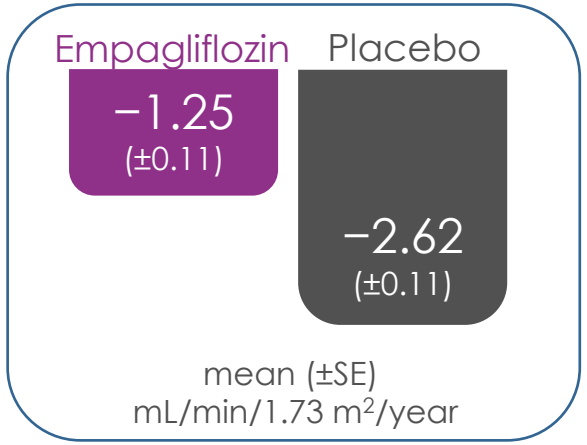
Placebo	2991	2945	2901	2855	2816	2618	2258	1998	1695	1414	1061	747	448
Empagliflozin	2997	2962	2913	2869	2817	2604	2247	1977	1684	1429	1081	765	446

CI, confidence interval; HHF, hospitalization for heart failure; HR, hazard ratio; RRR, relative risk reduction.
Anker S *et al. N Engl J Med*. 2021;XX:XXX.

Empagliflozin protected the kidney by significantly slowing the decline in kidney function



The rate of eGFR decline in patients treated with empagliflozin was half that of patients treated with placebo



eGFR slope = rate of decline (and is a measure for long-term renal function). eGFR slope is analysed based on on-treatment data using a random coefficient model including age, baseline eGFR and baseline LVEF as linear covariates and sex, region, baseline diabetes status, and baseline by time and treatment by time interactions as fixed effects; the model allows for randomly varying slope and intercept between patients.
eGFR, estimated glomerular filtration rate; LVEF, left ventricular ejection fraction; SE, standard error.
Developed from data reported in Anker S *et al. N Engl J Med*. 2021;XX:XXX.

Nuevas perspectivas en pacientes complejos

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ESC European Society of Cardiology
European Heart Journal (2021) 00, 1–11
https://doi.org/10.1093/eurheartj/ehab798
CLINICAL RESEARCH
Heart failure and cardiomyopathies

Effect of empagliflozin in patients with heart failure across the spectrum of left ventricular ejection fraction

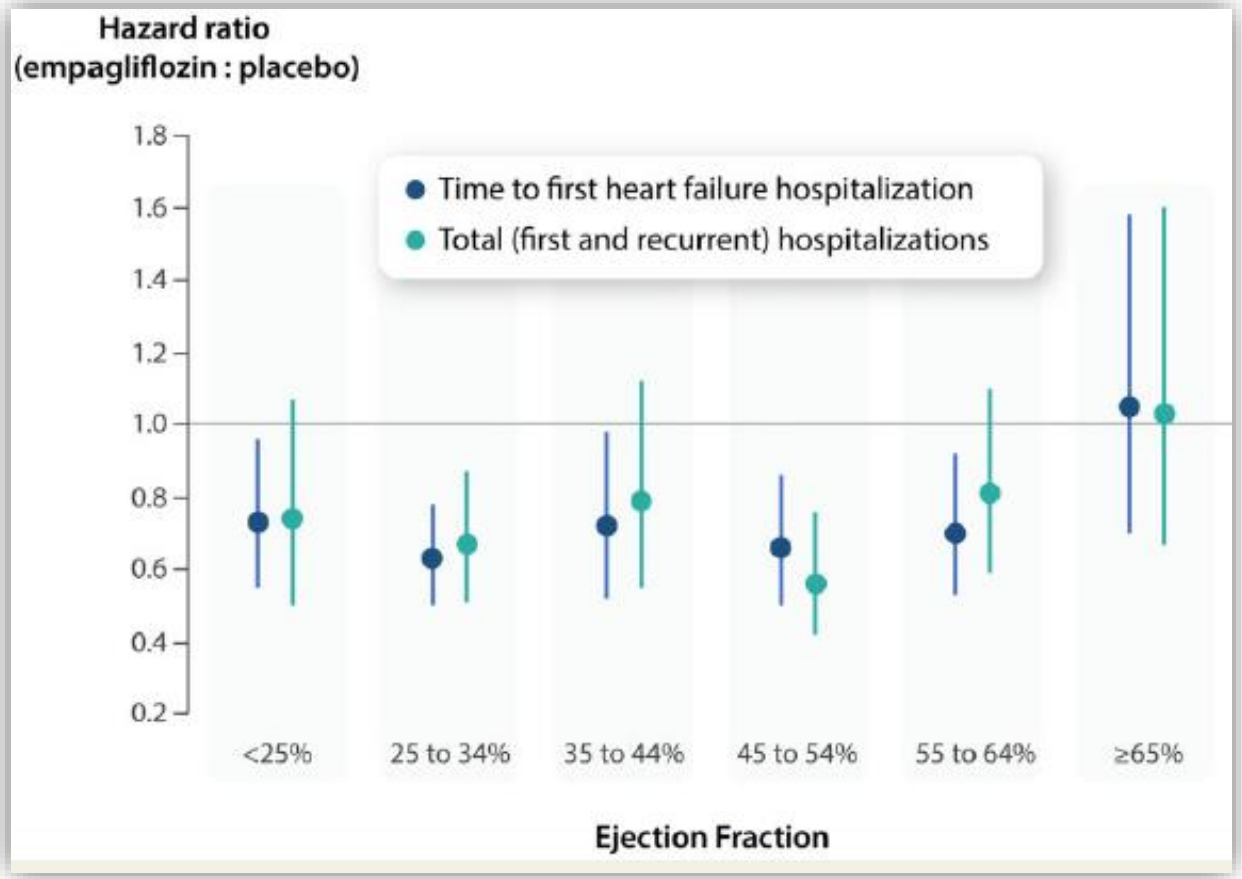
Javed Butler [1*†], Milton Packer[2*†], Gerasimos Filippatos [3], Joao Pedro Ferreira [4], Cordula Zeller [5], Janet Schnee [6], Martina Brueckmann [7], Stuart J. Pocock[8], Faiez Zannad[4], and Stefan D. Anker[9]

Butler J, Packer M, Filippatos G, Ferreira JP, Zeller C, Schnee J, Brueckmann M, Pocock SJ, Zannad F, Anker SD. Effect of empagliflozin in patients with heart failure across the spectrum of left ventricular ejection fraction. Eur Heart J. 2021 Dec 8:ehab798. doi: 10.1093/eurheartj/ehab798. Epub ahead of print. PMID: 34878502.

1. The risk of cardiovascular death and hospitalization for heart failure declined progressively as ejection fraction increased from <25% to >_65%.

2. Empagliflozin reduced the risk of cardiovascular death or heart failure hospitalization, mainly by reducing heart failure hospitalizations.

3. Empagliflozin reduced the risk of heart failure hospitalization by 30% in all ejection fraction subgroups, with an attenuated effect in patients with an ejection fraction >_65%



Dapagliflozina en pacientes con IC con FEVI Preservada.

Lo que está por venir…

- ESTUDIO DELIVER-HF: estudio internacional, multicéntrico, controlado por placebo, randomizado, doble ciego,
- Objetivo primario de reducción de mortalidad cardiovascular y hospitalizaciones por insuficiencia cardiaca.
- 6100 pacientes mayores de 40 años diagnosticados de IC con FEVI preservada (>40%) en situación clínica NYHA II-IV.
- Randomizados a dapagliflozina 10 ms vs. Placebo.

The SGLT2 inhibitor dapagliflozin in heart failure with preserved ejection fraction: a multicenter randomized trial.
Michael E. Nassif, Sheryl L. Windsor, Mikhail N. Kosiborod
Nature Medicine **volume 27**, pages 1954–1960 (2021)

EMPULSE: the missing link

EMPEROR-Reduced
Chronic heart failure (HF) with reduced ejection fraction (HFrEF) with or without type 2 diabetes (T2D)

DAPA-HF
Chronic HFrEF with or without T2D

EMPULSE
Acute HF
HFrEF or HFpEF
with or without T2D

EMPEROR-Preserved
Chronic HF with preserved ejection fraction (HFpEF) with or without T2D

SOLOIST
Pre-/post-discharge after acute HF with T2D

HF, heart failure; HFpEF, heart failure with preserved ejection fraction; HFrEF, heart failure with reduced ejection fraction; T2D, type 2 diabetes.

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PIONEERHF		EMPULSE
24h-10d		24h-5 d
> 100mmHg (6h)		> 100mmHg (6h)
No aumento iv 6h		No aumento iv 6h
No 24h		No 24h
FEVI< 40%		ICr/ICm/ICp
NT-proBNP ≥1600 pg/mL o BNP ≥400 pg/mL		NT-proBNP ≥1600 pg/mL o BNP ≥400 o 72h previa NT-proBNP ≥2400 pg/mL o BNP ≥600 pg/mL FA

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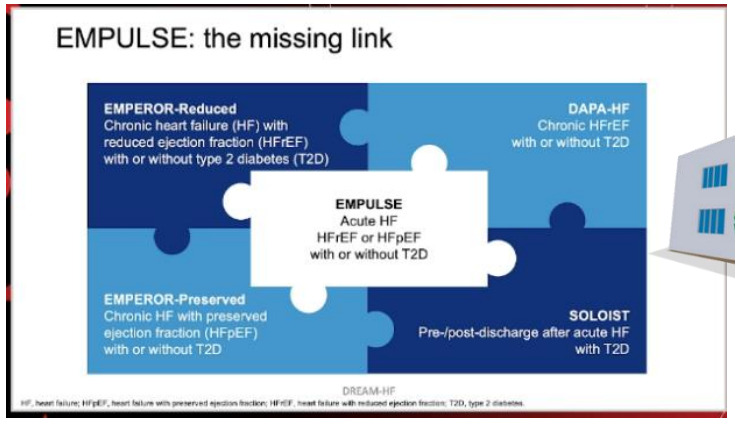
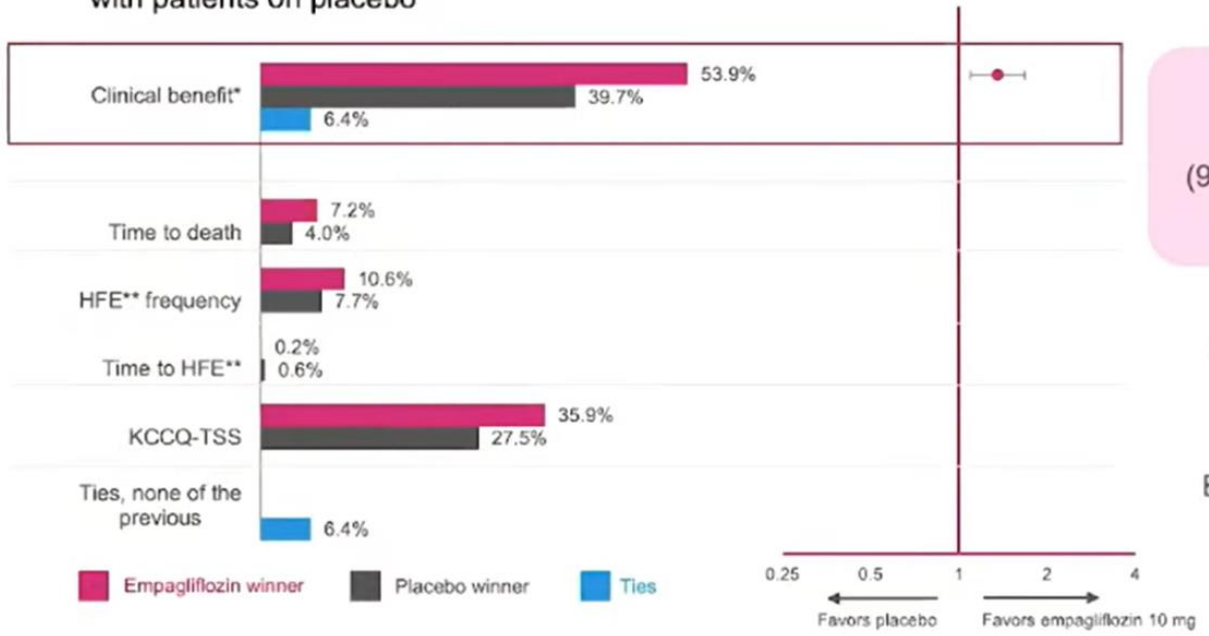
EMPULSE: Empagliflozin vs. Placebo in Improving Outcomes in Acute HF Patients

- Total number of enrollees: 530
- Duration of follow-up: 90 days
- Mean patient age: 71 years
- Percentage female: 33%
- Percentage with diabetes: 47%

CUALQUIER FEVI!!!



- Patients treated with empagliflozin were 36% more likely to experience a clinical benefit* compared with patients on placebo



Stratified win ratio: 1.36
(95% CI: 1.09, 1.68)
p=0.0054

Death:
Empagliflozin: 4.2%
Placebo: 8.3%

HF event:
Empagliflozin 10.6%
Placebo 14.7%

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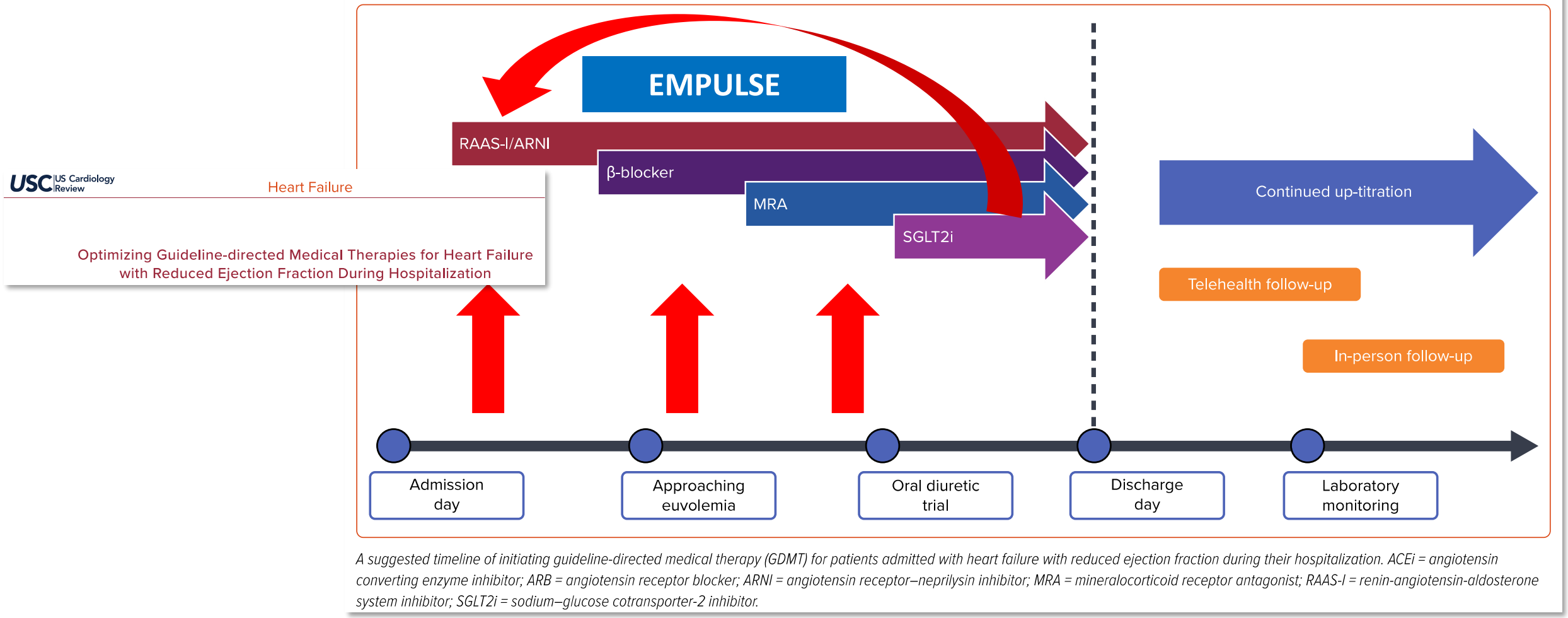
Figure 1: Shifting the Paradigm of Guideline-directed Medical Therapy Initiation



A suggested timeline of initiating guideline-directed medical therapy (GDMT) for patients admitted with heart failure with reduced ejection fraction during their hospitalization. ACEi = angiotensin converting enzyme inhibitor; ARB = angiotensin receptor blocker; ARNI = angiotensin receptor–neprilysin inhibitor; MRA = mineralocorticoid receptor antagonist; RAAS-I = renin-angiotensin-aldosterone system inhibitor; SGLT2i = sodium–glucose cotransporter-2 inhibitor.

US Cardiology Review 2021;15:e07. **DOI:** https://doi.org/10.15420/usc.2020.29

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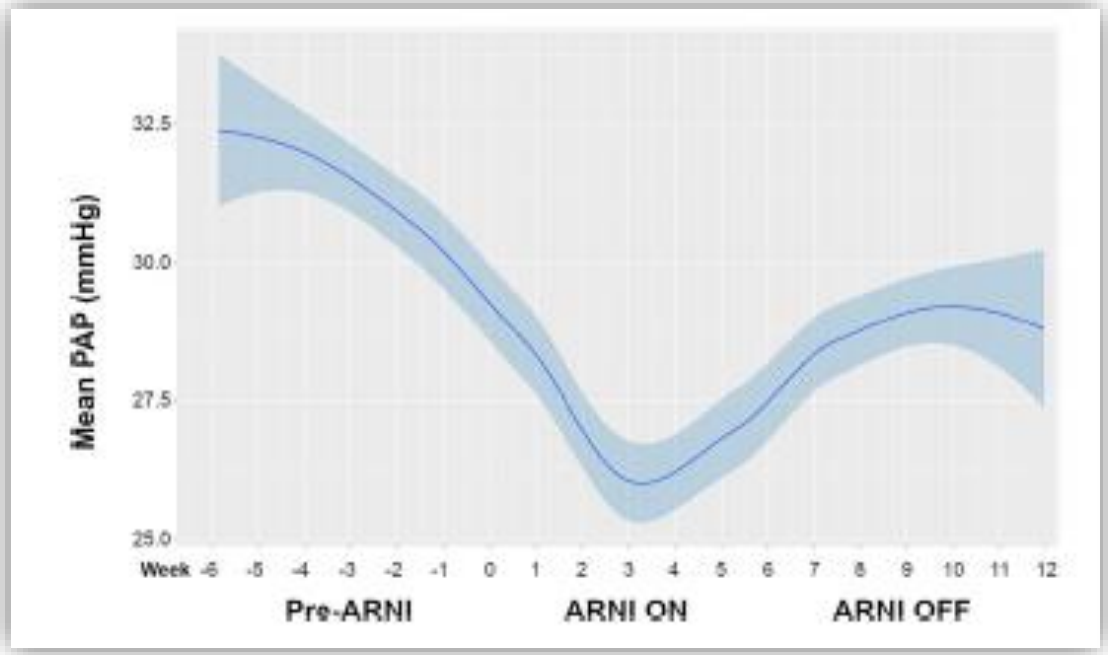
ESC HEART FAILURE
ESC Heart Failure (2022)
Published online in Wiley Online Library (wileyonlinelibrary.com) **DOI:** 10.1002/ehf2.13952

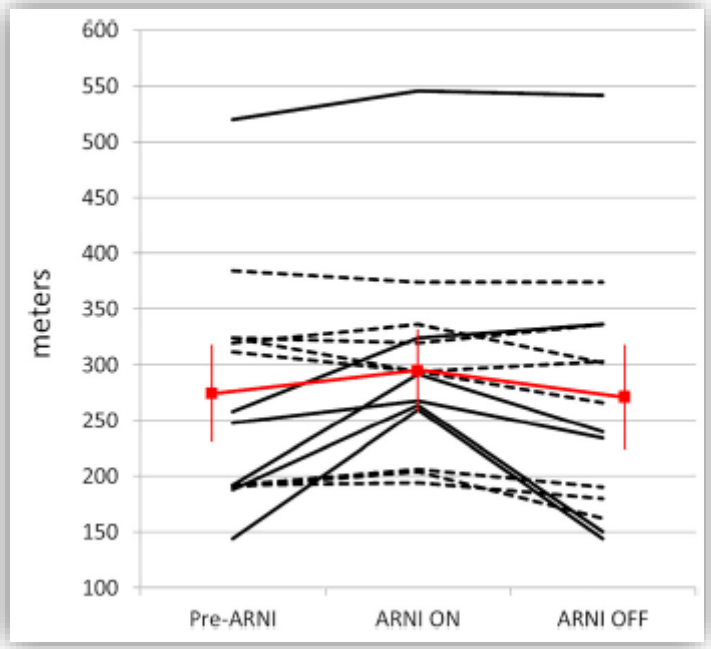
ORIGINAL ARTICLE

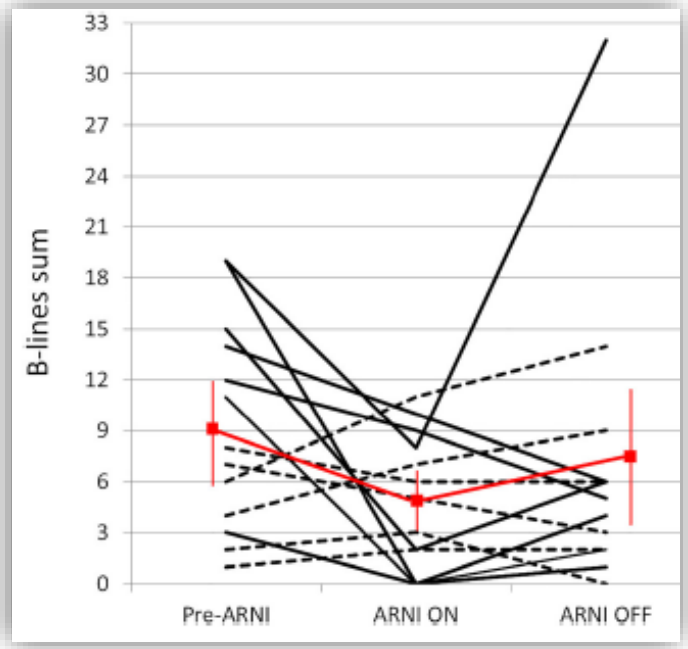
Sacubitril/valsartan affects pulmonary arterial pressure in heart failure with preserved ejection fraction and pulmonary hypertension

Pau Codina[1,2], Mar Domingo[1], Elena Barceló[1,3], Paloma Gastelurrutia[3,4], Daniel Casquete[1], Joan Vila[1], Omar Abdul-Jawad Altisent[1], Giosafat Spitaleri[1], Germán Cediel[1,7], Evelyn Santiago-Vacas[1,7], Elisabet Zamora[1,2,3,7], María Ruiz-Cueto[1], Javier Santesmases[1,2], Rafael de la Espriella[8], Domingo A. Pascual-Figal[7,9,10], Julio Nuñez[7,8], Josep Lupón[1,2,3,7] and Antoni Bayes-Genis[1,2,3,7]*

- 14 pacientes. ICFEP. HTPulm
- implantación cardiomems
- 3 períodos de 6 sem: pre-ARNI, ARNI ON, ARNI OFF







Codina P, Domingo M, Barceló E, Gastelurrutia P, Casquete D, Vila J, Abdul-Jawad Altisent O, Spitaleri G, Cediel G, Santiago-Vacas E, Zamora E, Ruiz-Cueto M, Santesmases J, de la Espriella R, Pascual-Figal DA, Nuñez J, Lupón J, Bayes-Genis A. Sacubitril/valsartan affects pulmonary arterial pressure in heart failure with preserved ejection fraction and pulmonary hypertension. ESC Heart Fail. 2022 May 19. doi: 10.1002/ehf2.13952. Epub ahead of print. PMID: 35588235.

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UNIDAD DE GESTIÓN CLÍNICA DE MEDICINA INTERNA

Circulation

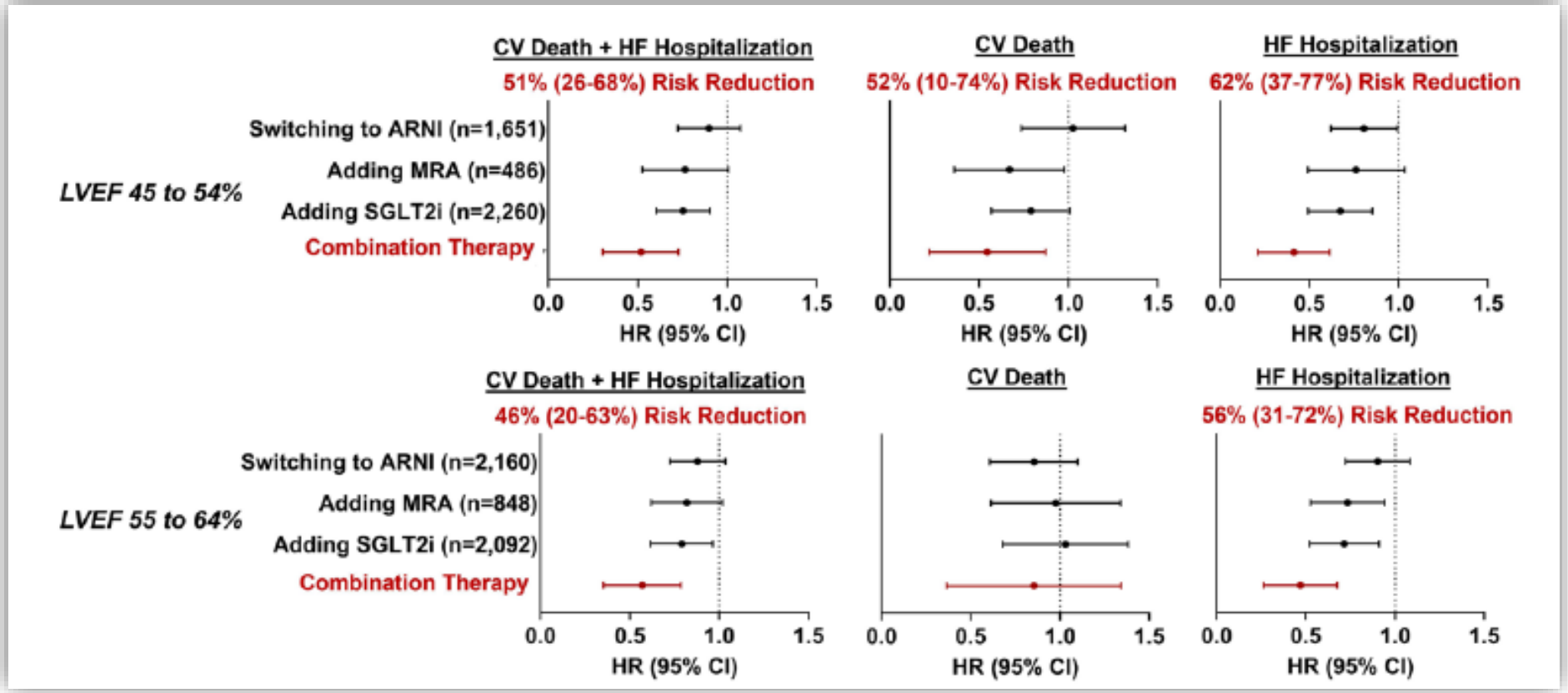
RESEARCH LETTER

Estimating the Benefits of Combination Medical Therapy in Heart Failure With Mildly Reduced and Preserved Ejection Fraction

Muthiah Vaduganathan, MD; Brian L. Claggett, PhD; Riccardo M. Inciardi, MD; Gregg C. Fonarow, MD; John J.V. McMurray, MD; Scott D. Solomon, MD

Conclusion: this cross-trial synthesis may inform the potential benefits of use of combination MRA, ARNI, and SGLT2i among patients with LVEF 40% to 65%.

Estimated treatment effects of combination medical therapy by LVEF category (top) and across the LVEF spectrum



Vaduganathan M, Claggett BL, Inciardi RM, Fonarow GC, McMurray JJV, Solomon SD. Estimating the Benefits of Combination Medical Therapy in Heart Failure with Mildly Reduced and Preserved Ejection Fraction. Circulation. 2022 May 23. doi: 10.1161/CIRCULATIONAHA.121.058929. Epub ahead of print. PMID: 35603667.

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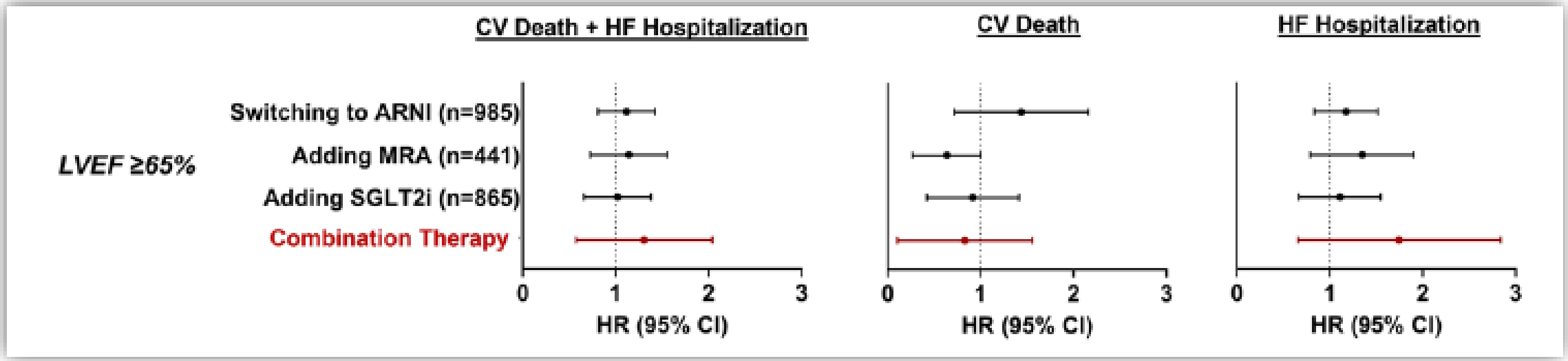

Vaduganathan M, Claggett BL, Inciardi RM, Fonarow GC, McMurray JJV, Solomon SD. Estimating the Benefits of Combination Medical Therapy in Heart Failure with Mildly Reduced and Preserved Ejection Fraction. Circulation. 2022 May 23. doi: 10.1161/CIRCULATIONAHA.121.058929. Epub ahead of print. PMID: 35603667.

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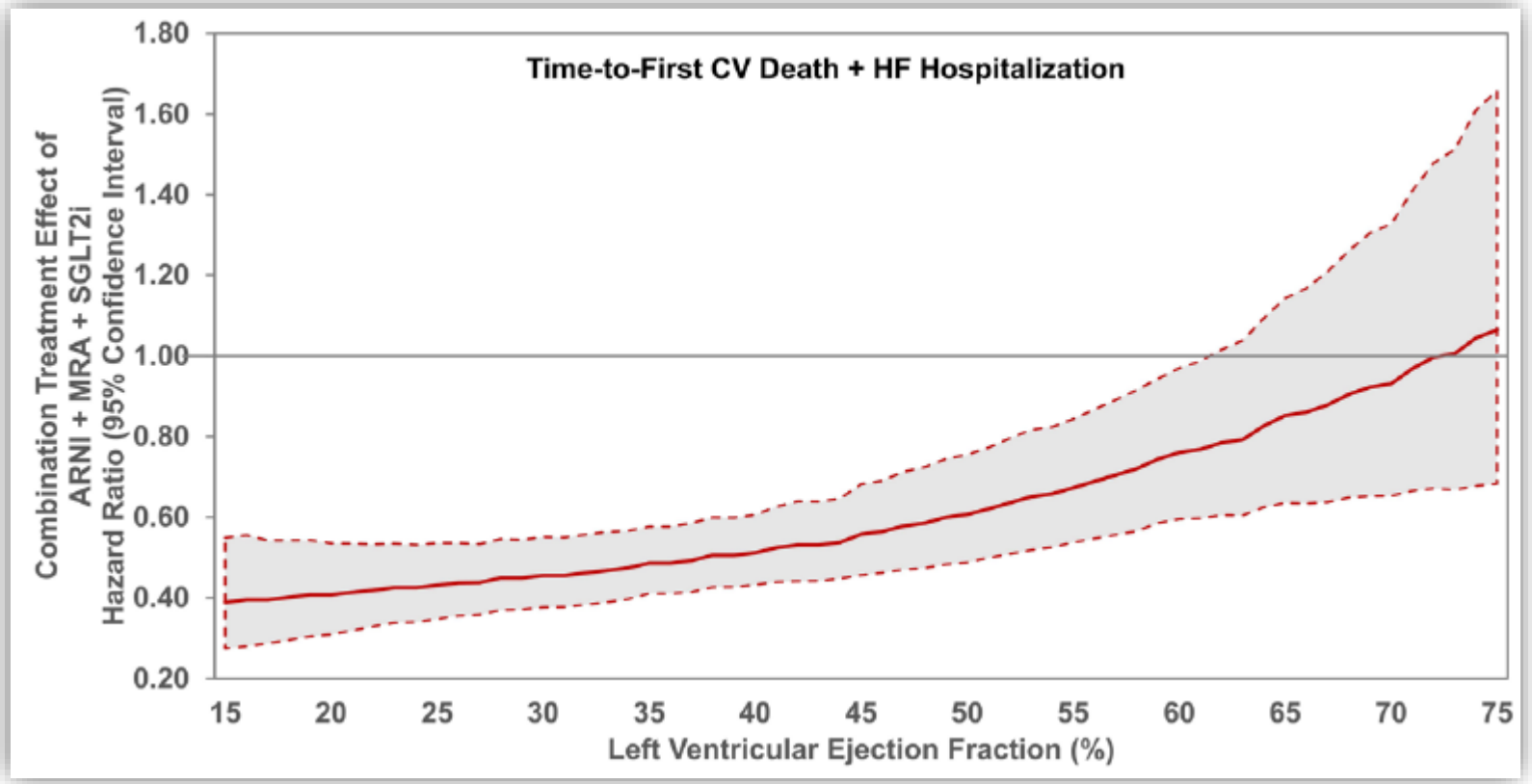

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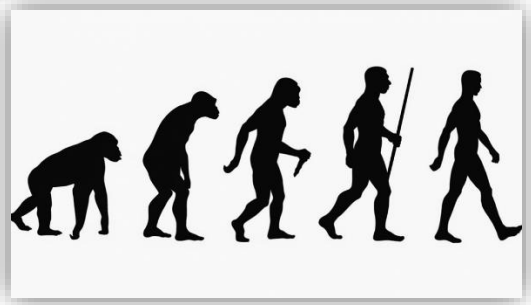
ESC European Society of Cardiology
European Heart Journal (2021) **00**, 1–14
doi:10.1093/eurheartj/ehaa1061
SPECIAL ARTICLE

The year in cardiovascular medicine 2020: heart failure and cardiomyopathies

Héctor Bueno [1,2,3,4,*], **Brenda Moura** [5,6], **Patrizio Lancellotti** [7,8], and **Johann Bauersachs** [9]

Concepto FEVI en evolución?



European Heart Journal (2021) **00**, 1–14
doi:10.1093/eurheartj/ehaa1061

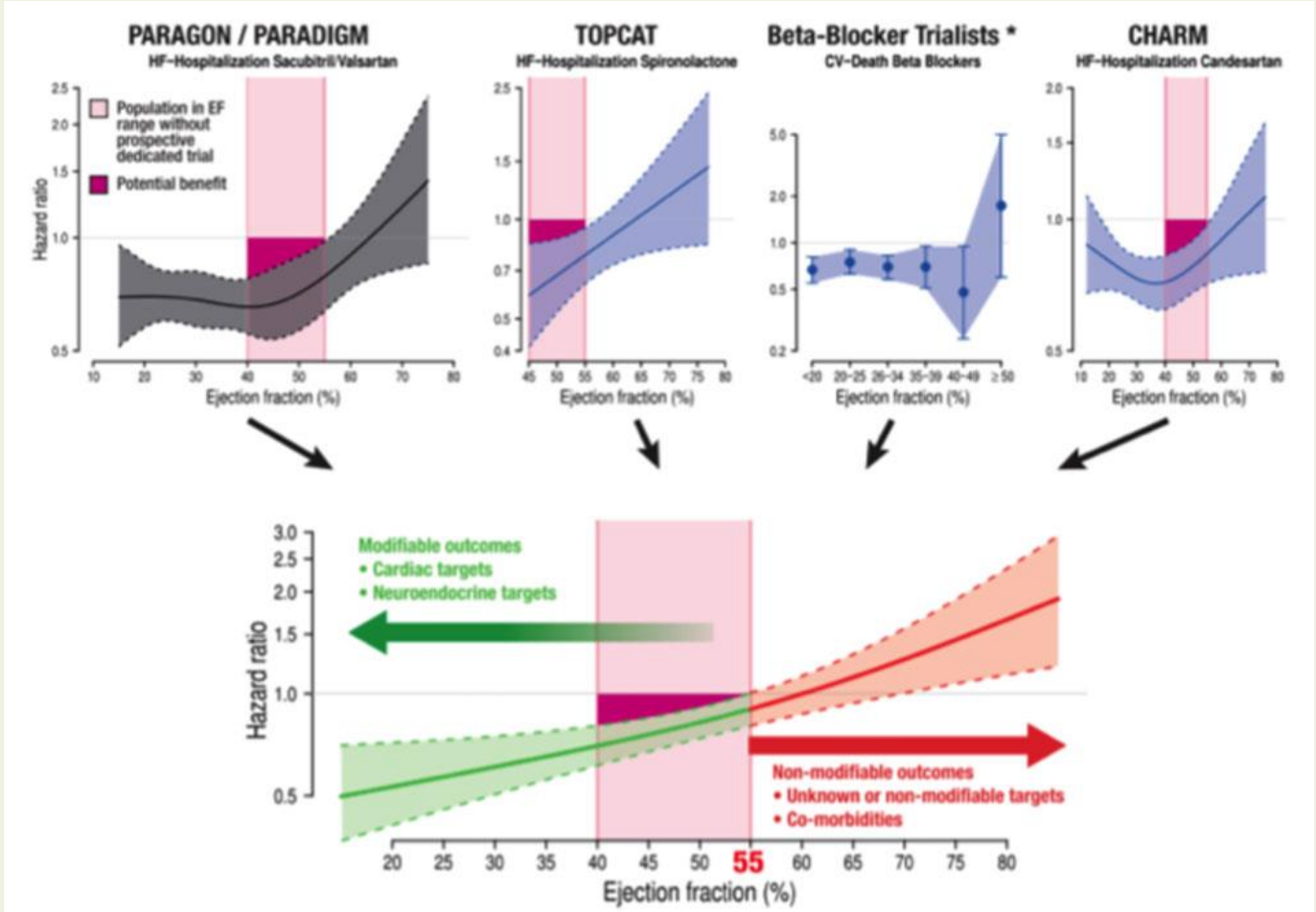
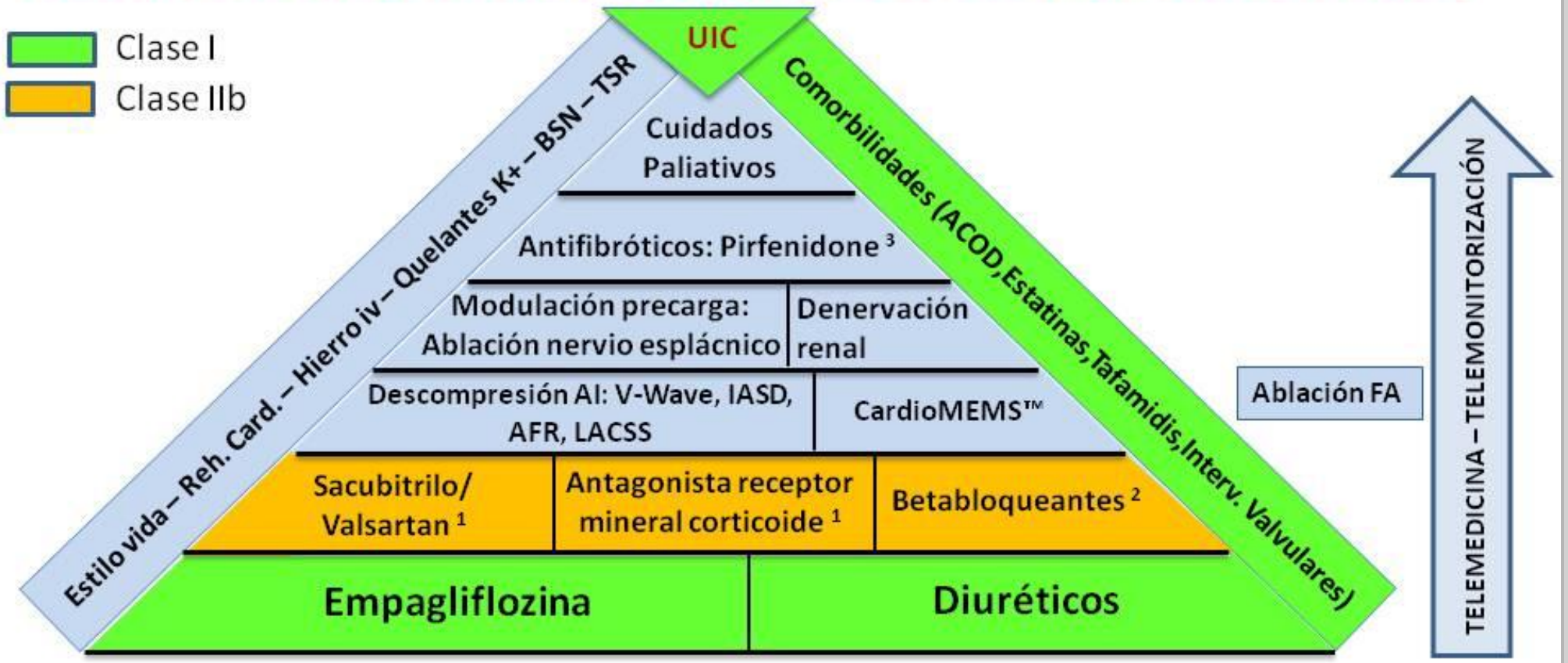


Figure 2 Results from different trials testing a number of drugs commonly used to treat heart failure, pointing to an extended benefit up to a left ventricular ejection fraction of 55%. For patients with left ventricular ejection fraction >55%, a population group usually presenting several comorbidities, there is still no evidence of a drug improving prognosis. Reprinted from Böhm *et al.*[100]

Alternativas terapéuticas y dispositivos en ICFEp: presente y futuro



1: Recomendación FDA ("LVEF bellow normal"); 2: Si HTA y/o EAC y/o frecuencia cardiaca (RSR) elevada y en ausencia de incompetencia cronotrópica; 3: Estudios Fase II.

ACOD; anticoagulante acción directa ; AI: aurícula izquierda; AFR: Atrial Flow Regulator; BSF: Bloqueo Secuencial Nefrona; EAC: Enfermedad arterial coronaria; FA: fibrilación auricular; IASD: Interatrial Shunt Device Corvia®; LACSS: Levo-Atrial Coronary Sinus Shunt; TSR: Terapia Sustitución Renal; UIC: Unidad de Insuficiencia Cardiaca.

Nicolas Manito
@Dr_Manito

Nuevas perspectivas en pacientes complejos

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GESTIÓN ASISTENCIAL DE LA IC CRÓNICA.

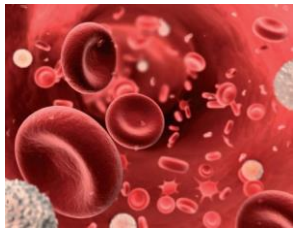
- 1. PRIMERA CONSULTA.
- 2. CONSULTA PROGRAMADA.
- 3. CONSULTA NO PROGRAMADA.
- 4. CONSULTA POSTALTA.
- 5. COORDINACIÓN CON UNIDAD IC AVANZADA Y PALIATIVOS.

ANEXOS DE DIAGNÓSTICO Y TRATAMIENTO.

- ANEXO I DIAGNÓSTICO SINDRÓMICO Y ETIOLÓGICO DE LA IC. ALGORITMO.
- ANEXO II FACTORES DE DESCOMPENSACIÓN. PRINCIPALES COMORBILIDADES Y SU IMPLICACION EN EL DIAGNÓSTICO Y TRATAMIENTO. ALGORITMO.
- ANEXO III. TRATAMIENTO ÓPTIMO. ALGORITMO.
- ANEXO IV. CUIDADOS Y EDUCACIÓN DEL PACIENTE POR ENFERMERÍA. ALGORITMO.

DECÁLOGO.

- DECÁLOGO DE LA ATENCIÓN AL PACIENTE CON IC CRÓNICA.



Nuevas perspectivas en pacientes complejos

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ANEXOS DE DIAGNÓSTI

ANEXO IIa. MANEJO DE ANEMIA/D

ANEMIA
Hb <13 g/dl (hombre)/
Hb<12g/dl (mujer).

DÉFICIT DE HIERRO
Ferritina < 100 µg/L o
Ferritina <300 µg/L
+ ISat<20%.

DIAGNÓSTICO ETIOLÓGI
Déficit nutricional.
Déficit folato / B12.
Enfermedades gastrointesti
- Síntomas/signos guía.
- Indicaciones cribado cáncer colón.

Enfermedades hematológica
- Afectación del resto de se hemáticas.

Anticoagulantes/antiagregant
Insuficiencia renal crónica.

Si / No

TRATAMIEN
*en IRC considerar EPO

TRATAMIENTO CON HIERRO INTRAVENOSO.

*Hierro carboximaltosa es de elección:
- Primera dosis:
  - Hb<13g/dl--- 1000 mg IV en una dosis.
  - Hb>13 g/dl--- 500 mg IV en una dosis.
- Analítica cada 6 semanas hasta alcanzar objetivos: ferritina >300
Hb >13 g/dl (hombre).
- Dosis sucesivas: 500 mg IV

ANEXOS DE DIAGNÓSTICO Y TRATAMIENTO

ANEXO IIb. MANEJO DEL SÍNDROME CARDIORENAL.

IC + DETERIORO DE FUNCIÓN RENAL.

¿Presencia de congestión?

Parámetros clínicos:
- Ingurgitación yugular/Reflujo hepatoyugular.
- Hepatomegalia.
- Edemas declives.

Parámetros analíticos:
- Elevación NT-BNP/BNP >30% respecto a basal.
- Elevación de CA125 > 35 U/ml.
- Hiponatremia.

Parámetros ecográficos:
- Vena cava inferior dilatada >20 mm.
- Colapso vena cava inferior <40%.
- Líneas B de kerley pulmonares.

No / Si

¿Tratamiento con diuréticos de asa?

Si / No

Esquema de escalada secuencial:
1. Duplicar dosis de diurético de asa.
2. Bloqueo secuencial de la nefrona:
   - Añadir antialdosterónicos (AA) si creatinina < 2,5 mg/dl, K+ <4,5 mEq/L y si K+ orina > 50 mEq/l.
   - Añadir tiazidas si K+ orina < 50 mEq/l.
3. Triple terapia: asa + AA + tiazidas.
4. Diurético asa iv o diurético asa + salino hipertónico hospital de día.
4. Valorar Diálisis Peritoneal Domiciliaria.

REDUCIR/ RETIRAR DIURÉTICOS y nefrotóxicos. Revaloración función renal

DIAGNÓSTICO ETIOLÓGICO. Etiologías frecuentes.

Ecografía renal / Proteinuria.

HTA | DM | Vasculo-renal | Nefrotóxicos (AINEs)

OPTIMIZAR TRATAMIENTO.

ANEXOS DE DIAGNÓSTICO Y TRATAMIENTO

ANEXO IIc. DIABETES EN IC.

Diabetes mellitus en IC
(Dieta y ejercicio)
+/- metformina

Iniciar ISGLT2 si no existe:
Fragilidad clínica
Insuficiencia renal FG <45 ml/min/m3

Si Fragilidad clínica
IDPPIV
+/-
Insulina

Si mal control metabólico a pesar de ISGLT2 (Hb glicada >7)*

Si insuficiencia renal FG <45 ml/min/m3

Análogo GLP1 ó IDPPIV ó

ANEXOS DE DIAGNÓSTICO Y TRATAMIENTO

ANEXO IId. FIBRILACIÓN AURICULAR EN IC.

Fibrilación auricular en IC.

Anticoagulación oral (ACOD ó antivitamina K).
Objetivo de control de FC entre 60-110 lpm.

Si FE preservada o intermedia:
Beta bloqueantes cardioselectivos.
Digoxina.
Diltiazem.

Si FE reducida <40%:
Betabloqueantes cardioselectivos.
Digoxina.

Considerar ablación de venas pulmonares si:
FA paroxisitca sintomática.
DAI.
Marcapasos
Resincronizador.

Nuevas perspectivas en pacientes complejos

DH/ANEMIA EN IC IMPORTANCIA

GERENCIA ÁREA SANITARIA IV
HOSPITAL UNIVERSITARIO CENTRAL DE ASTURIAS
UNIDAD DE GESTIÓN CLÍNICA DE MEDICINA INTERNA

2022

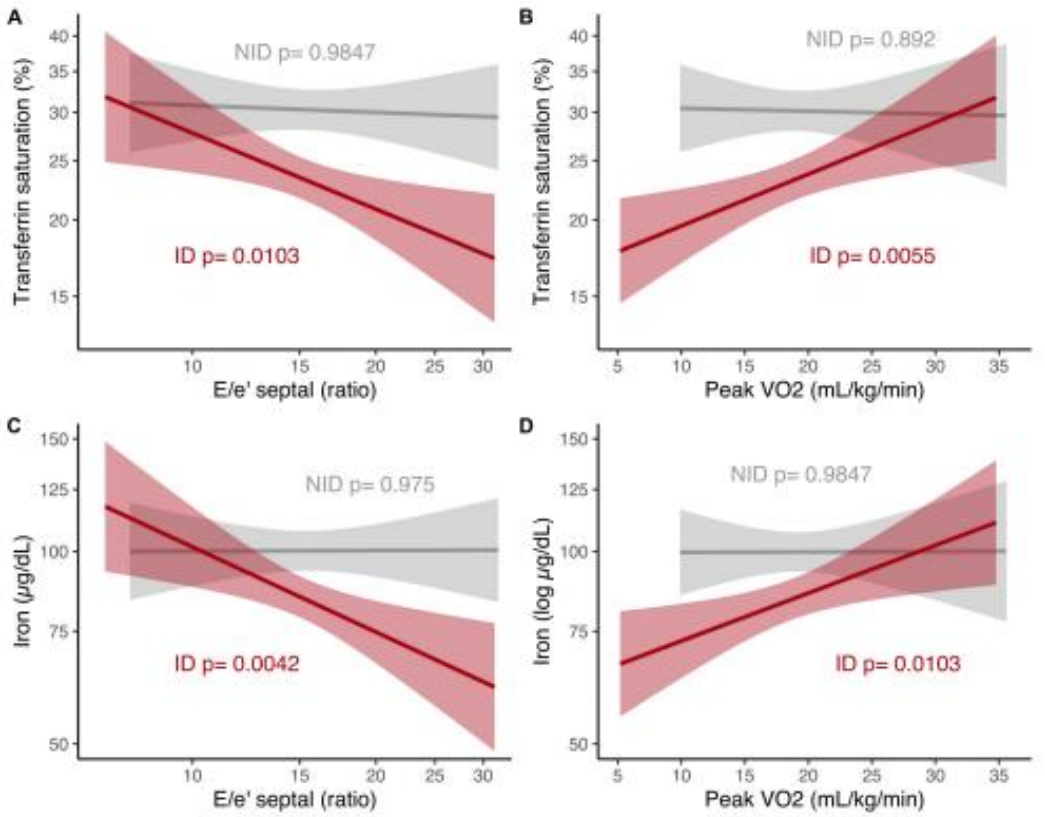
Iron Deficiency Impacts Diastolic Function, Aerobic Exercise Capacity, and Patient Phenotyping in Heart Failure With Preserved Ejection Fraction: A Subanalysis of the OptimEx-Clin Study

Andreas B. Gevaert[1,2], Stephan Mueller[3,4], Ephraim B. Winzer[5], André Duvinage[3,4], Caroline M. Van de Heyning[1,2], Elisabeth Pieske-Kraigher[6,7], Paul J. Beckers[2], Frank Edelmann[6,7], Ulrik Wisløff[8], Burkert Pieske[6,7], Volker Adams[5] Martin Halle[3,4†] and Emeline M. Van Craenenbroeck[1,2†] for the OptimEx-Clin Study Group*

Gevaert AB, Mueller S, Winzer EB, Duvinage A, Van de Heyning CM, Pieske-Kraigher E, Beckers PJ, Edelmann F, Wisløff U, Pieske B, Adams V, Halle M, Van Craenenbroeck EM; OptimEx-Clin Study Group. Iron Deficiency Impacts Diastolic Function, Aerobic Exercise Capacity, and Patient Phenotyping in Heart Failure With Preserved Ejection Fraction: A Subanalysis of the OptimEx-Clin Study. Front Physiol. 2022 Feb 10;12:757268. doi: 10.3389/fphys.2021.757268. PMID: 35222057; PMCID: PMC8866976.

Conclusion: Iron parameters are independently associated with impaired diastolic function and low aerobic capacity in patients with HFpEF and ID. Patient phenotyping in HFpEF is influenced by including ID.

ICFEP



Nuevas perspectivas en pacientes complejos

IC y DM

GERENCIA ÁREA SANITARIA IV
HOSPITAL UNIVERSITARIO CENTRAL DE ASTURIAS
UNIDAD DE GESTIÓN CLÍNICA DE MEDICINA INTERNA

2020

ANEXO IIc. DIABETES EN IC.

2022

Diabetes mellitus en IC
(Dieta y ejercicio)
+/- metformina

Iniciar ISGLT2 si no existe:
Fragilidad clínica
Insuficiencia renal FG <45 ml/min/m3

Si Fragilidad clínica
IDPPIV
+/-
Insulina basal

Si mal control metabólico a pesar de ISGLT2 (Hb glicada >7)*
Análogo GLP1** ó
IDPPIV ó
Insulina basal +/- bolo

Si insuficiencia renal FG <45 ml/min/m3
Análogo GLP1 ó
IDPPIV ó
Insulina basal +/- bolo

* El control glucémico del paciente con diabetes e IC debe individualizarse. El control intensivo de la glucemia no ha demostrado mejorar el pronóstico en la IC.

** Los análogos de GLP1 no han demostrado beneficio en IC con FE reducida. En diabetes y obesidad con FE preservada puede valorarse su uso para el control glucémico y la pérdida de peso.

Paciente con DM2 e Insuficiencia cardiaca

1. ISGLT2 +/- Metformina

FEVI ≤ 40%

(empagliflozina/dapagliflozina)

FEVI > 40% (empagliflozina)

2. arGLP-1 sc/oral*

3. iDPP4

4. Insulinas basales

(Glargina y Degludec)

*Sólo financiados para pacientes con IMC ≥ 30 Kg/m2

Nuevas perspectivas en pacientes complejos

IC y DM

GERENCIA ÁREA SANITARIA IV
HOSPITAL UNIVERSITARIO CENTRAL DE ASTURIAS
UNIDAD DE GESTIÓN CLÍNICA DE MEDICINA INTERNA

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

MANEJO DE LA DM2 EN LA IC

Meta-analyses in of SGLT-2i in 10 RCT with T2 diabetes
Effects in Type 2 diabetes (n= 65 708)
Pooled HR for heart failure hospitalisation 0.69 (0.64-0.74)

Consistent results regardless of type of CV-disease; established CVD or HF!
31% reduced risk for heart failure hospitalisation in type 2 diabetes
HR 0.69 (0.64-0.74)

Courtesy from Robert Ryder, Thomas Crabtree & Robert Ryder, Br J Diabetes 2021;21:ONLINE

www.thelancet.com **Published online November 13, 2020 https://doi.org/10.1016/S0140-6736(20)32339-4**

McDonagh, et al 2021 *European Heart Journal*, 1–128. https://doi.org/10.1093/eurheartj/ehab368

Nuevas perspectivas en pacientes complejos

IC y DM

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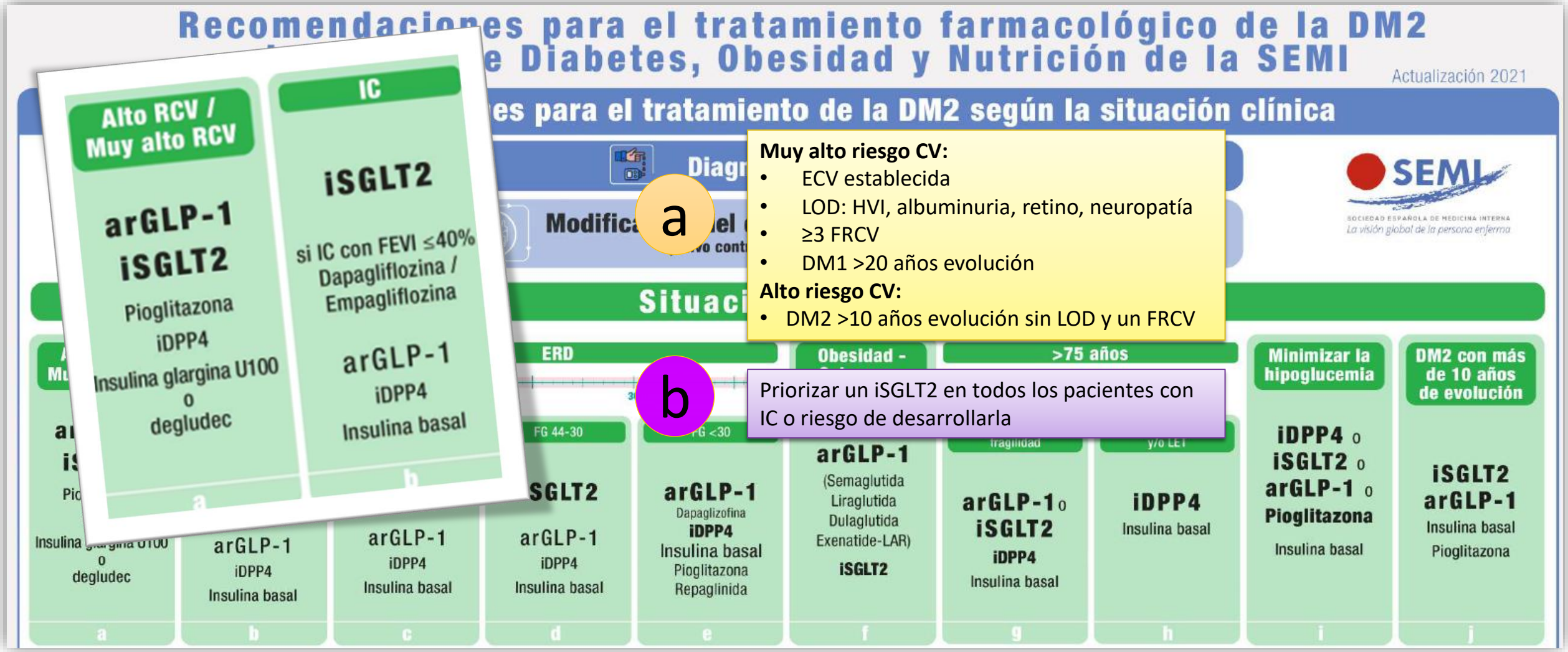


Algoritmo SEMI de Diabetes-Parte_01-04 (fesemi.org)

Nuevas perspectivas en pacientes complejos

ICFEP. PAC COMPLEJOS

GERENCIA ÁREA SANITARIA IV
HOSPITAL UNIVERSITARIO CENTRAL DE ASTURIAS
UNIDAD DE GESTIÓN CLÍNICA DE MEDICINA INTERNA

Programa UMIPIC

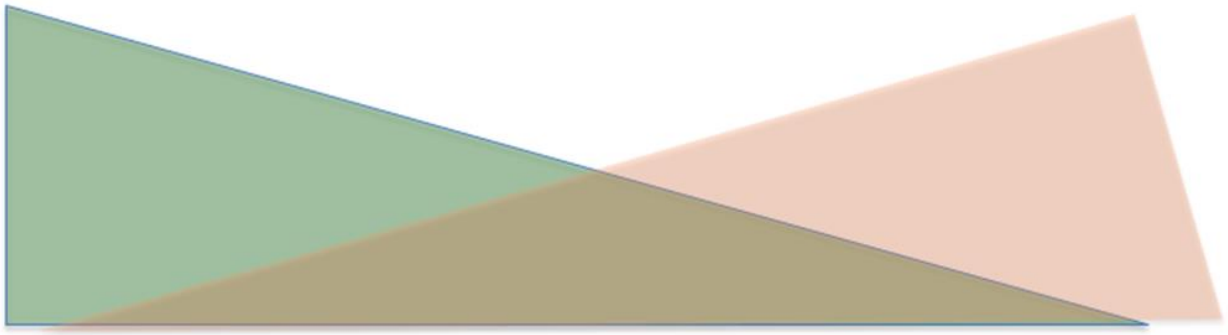
Unidades de Manejo Integral de Pacientes con Insuficiencia Cardiaca

UMIPIC

Transición de cuidados

http://www.fesemi.org/grupos/cardiaca/umipic/programa/view

Plan de Trabajo:
Descongestión Educación → Optimización SNS/SRAA → Control evolutivo FRCV-comorbilidad



UMIPIC

Atención Primaria

Nuevas perspectivas en pacientes complejos

ICFEP. PAC COMPLEJOS

GERENCIA ÁREA SANITARIA IV
HOSPITAL UNIVERSITARIO CENTRAL DE ASTURIAS
UNIDAD DE GESTIÓN CLÍNICA DE MEDICINA INTERNA

PROGRAMA UMIPIC
RESULTADOS


+Model
RCE-2002; No. of Pages 9
ARTICLE IN PRESS
Revista Clínica Española xxx (xxxx) xxx–xxx
Revista Clínica Española
www.elsevier.es/rce
ELSEVIER
ORIGINAL
Beneficios de un modelo asistencial integral en pacientes con insuficiencia cardíaca y fracción de eyección preservada: Programa UMIPIC
J.M. Cerqueiro-González[a,*], Á. González-Franco[b], S. Carrascosa-García[c], L. Soler-Rangel[d], F.J. Ruiz-Laiglesia[e], F. Epelde-Gonzalo[f], M.F. Dávila-Ramos[g], J. Casado-Cerrada[h], E. Casariego-Vales[i] y L. Manzano[j]

Cerqueiro-González JM, González-Franco Á, Carrascosa-García S, Soler-Rangel L, Ruiz-Laiglesia FJ, Epelde-Gonzalo F, Dávila-Ramos MF, Casado-Cerrada J, Casariego-Vales E, Manzano L. Benefits of a comprehensive care model in patients with heart failure and preserved ejection fraction: The UMIPIC program. Rev Clin Esp (Barc). 2022 Mar 9:S2254-8874(22)00013-3. doi: 10.1016/j.rceng.2021.11.006. Epub ahead of print. PMID: 35279404.

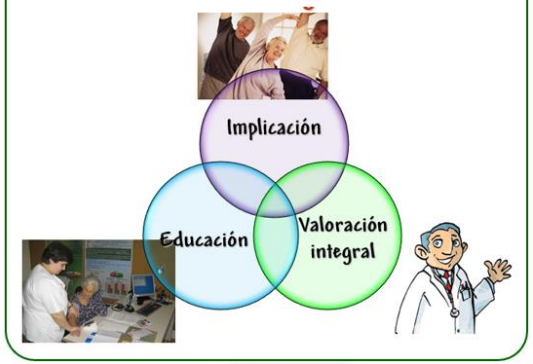
COMPARATIVA
UMIPIC vs RICA en ICFEP

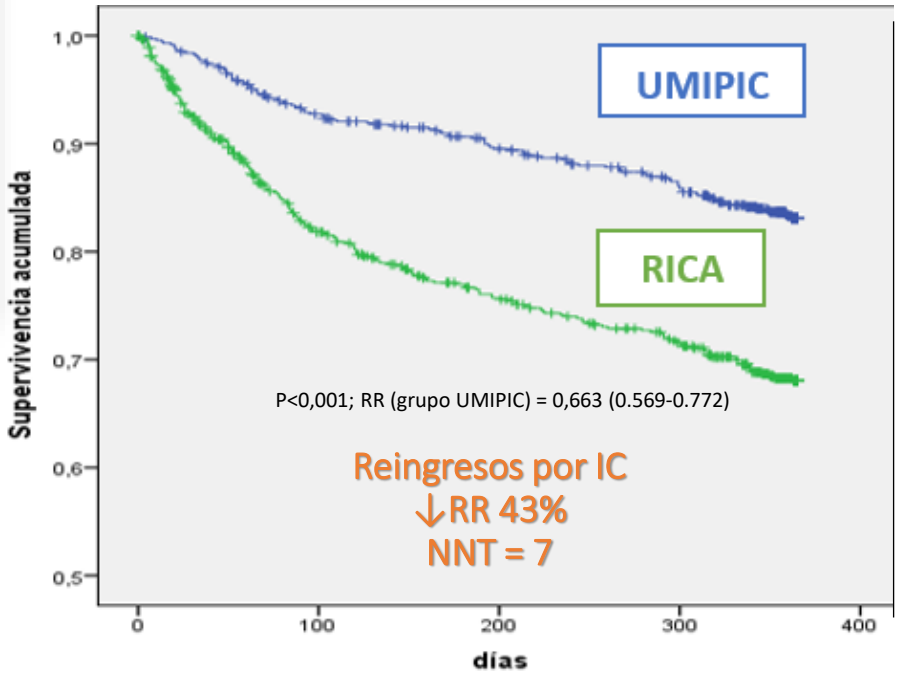
2022

- N = **2041** (UMIPIC 1011, RICA 1390)
- Propensity score: **753** pac en cada brazo
- Edad media: 82.8 años (78.6-86.6)
- Mujeres: 64%

UMIPIC

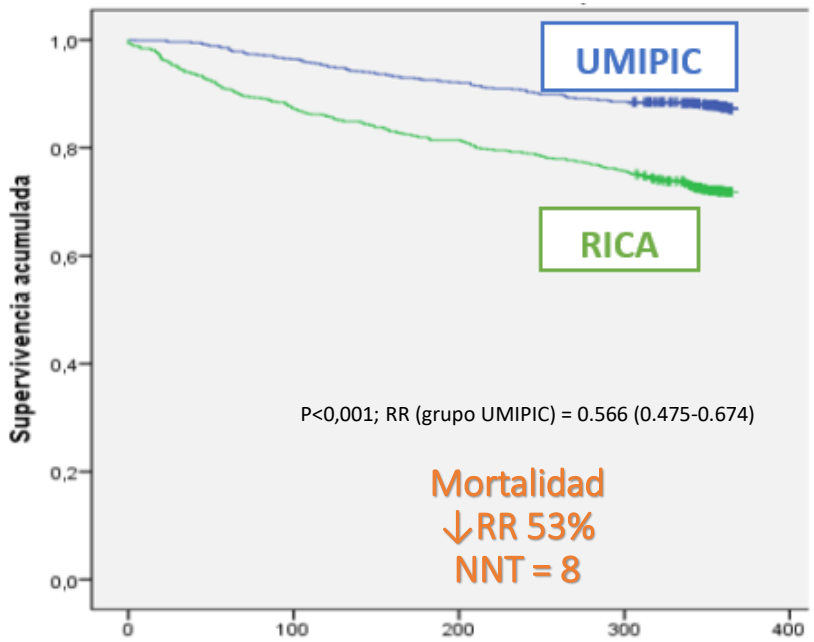
Pilares básicos del programa UMIPIC





P<0,001; RR (grupo UMIPIC) = 0,663 (0.569-0.772)

Reingresos por IC
↓RR 43%
NNT = 7



P<0,001; RR (grupo UMIPIC) = 0.566 (0.475-0.674)

Mortalidad
↓RR 53%
NNT = 8

CONCLUSIONES ICFEP

- **Impacto en IC**: >50%. Comorbilidad
- **FEVI:** ¿variable continua?
- **Empagliflozina:** primer fármaco efectivo

GESTIÓN

Educación

Implicación paciente

Valoración integral

COMORBILIDADES