ESC
European Society of Cardiology
European Heart Journal (2023) **00**, 1–13
https://doi.org/10.1093/eurheartj/ehad195

ESC GUIDELINES

2023 Focused Update of the 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

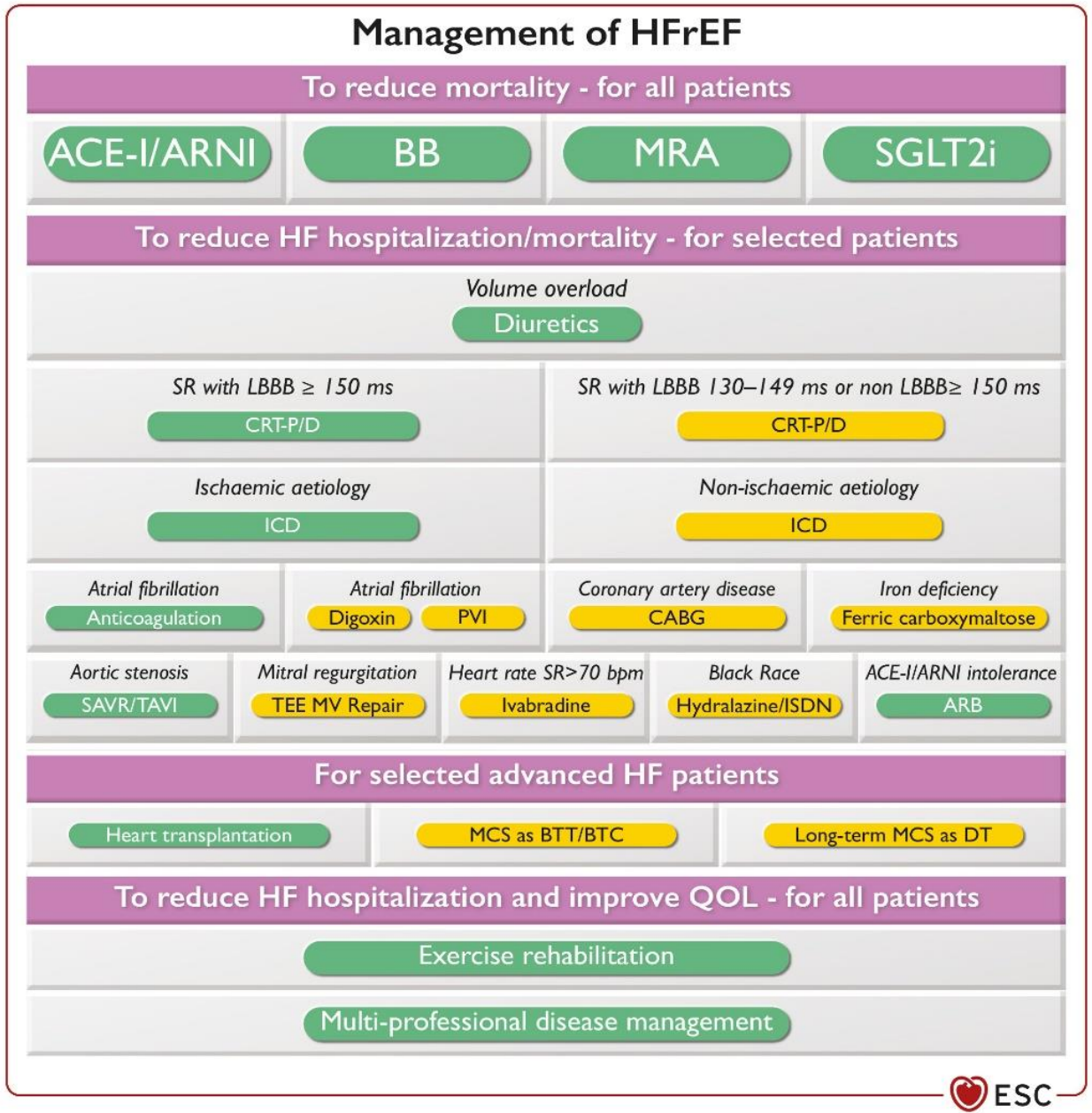
ד"ר בן שדה- רופא בכיר, היחידה לאי ספיקת לב ויתר לחץ דם
ריאתי המרכז הרפואי תל אביב (איכילוב)

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]

- **Considering changing HFmrEF and HFpEF to HfrEF and HFnEF**
- **No consensus (71% vs 75% needed)**

Chronic heart failure

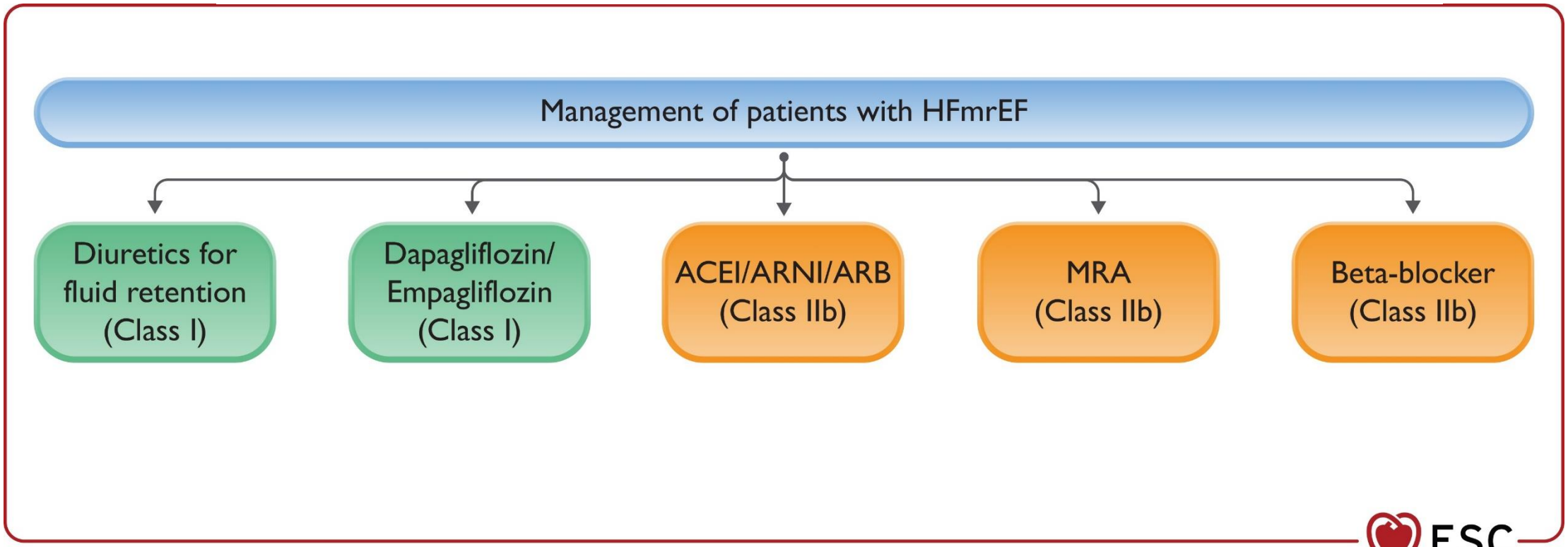


HFpEF and HFmrEF

SGLT2i for everyone with heart failure - Regardless of LVEF

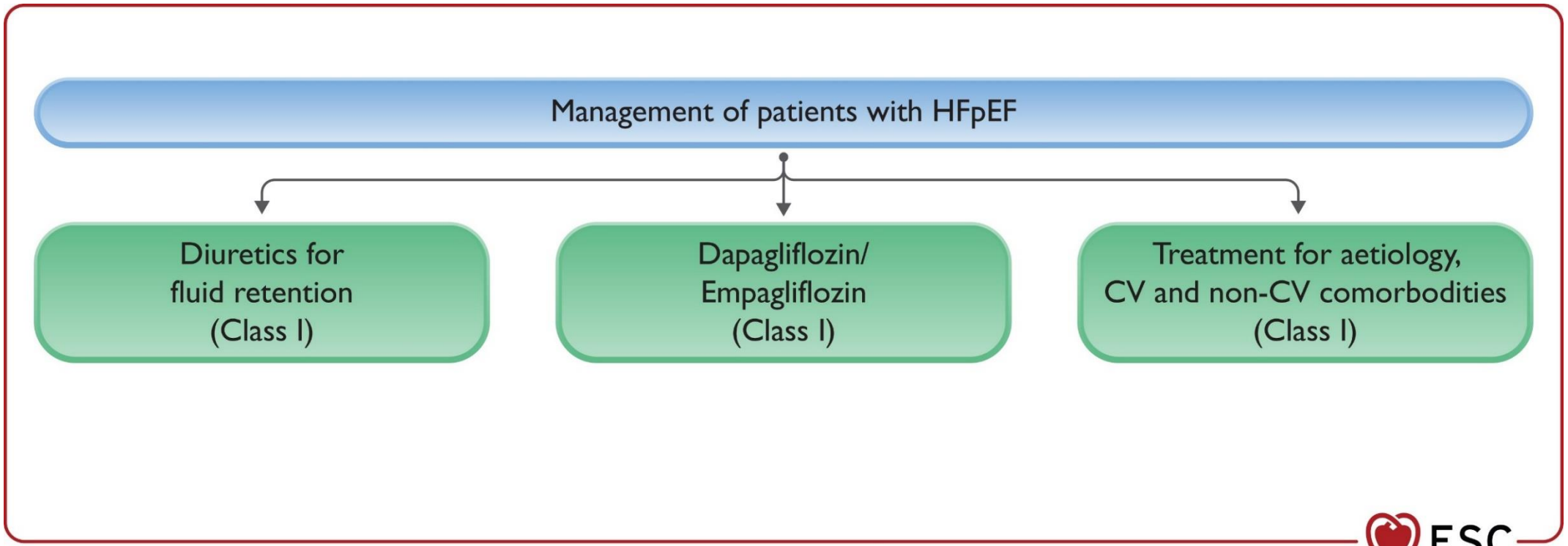
HFmrEF

Recommendation	Class[a]	Level[b]
An SGLT2 inhibitor (dapagliflozin or empagliflozin) is recommended in patients with HFmrEF to reduce the risk of HF hospitalization or CV death.[c] [6,8]	I	A

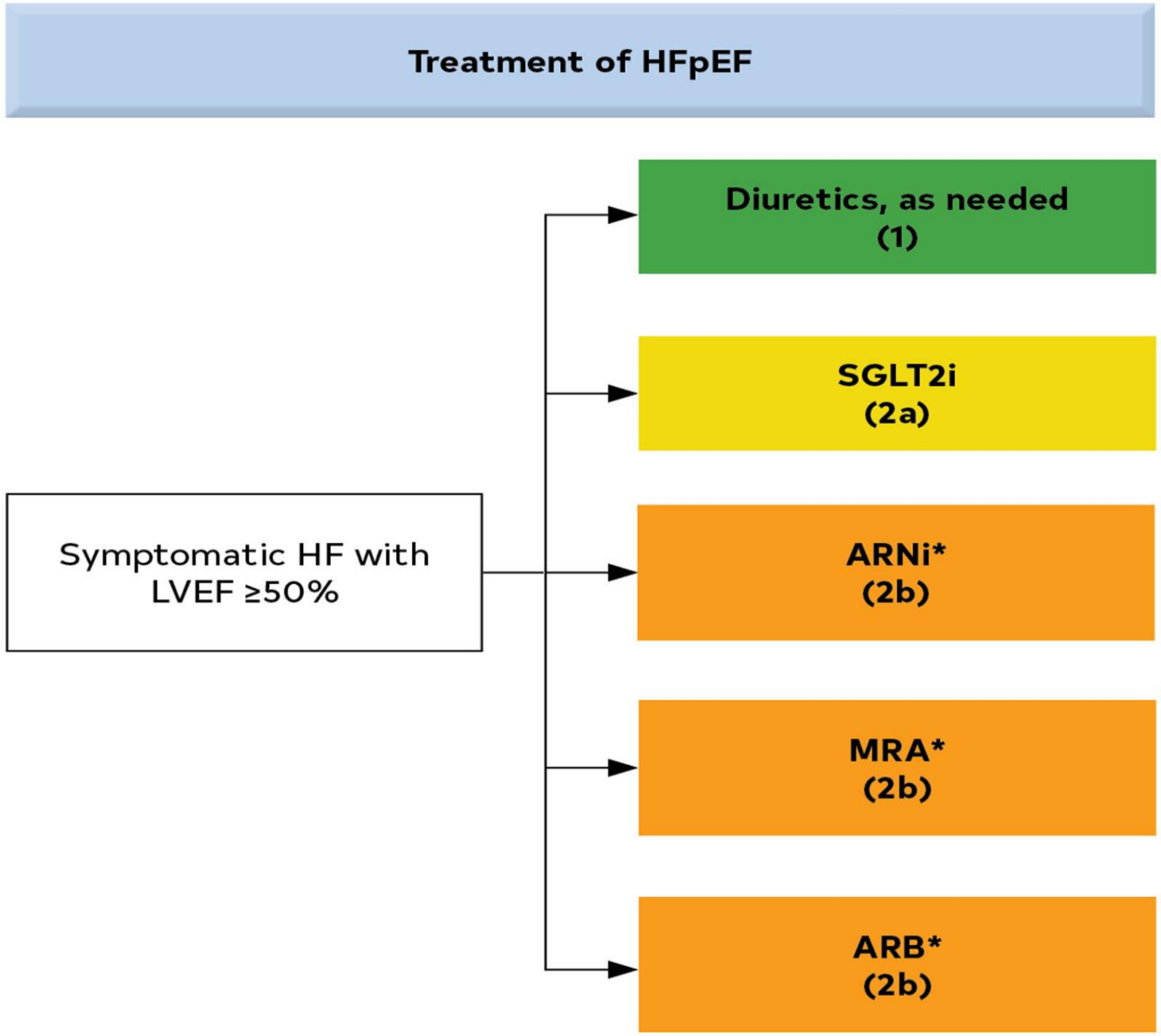


HFpEF

Recommendation	Class[a]	Level[b]
An SGLT2 inhibitor (dapagliflozin or empagliflozin) is recommended in patients with HFpEF to reduce the risk of HF hospitalization or CV death.[c] [6,8]	I	A



ACC Guidelines



Paul A. Heidenreich. Circulation. 2022 AHA/ACC/HFSA Guideline for the Management of Heart Failure

JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY
© 2023 BY THE AMERICAN COLLEGE OF CARDIOLOGY FOUNDATION
PUBLISHED BY ELSEVIER

VOL. 81, NO. 18, 2023

EXPERT CONSENSUS DECISION PATHWAY

2023 ACC Expert Consensus Decision Pathway on Management of Heart Failure With Preserved Ejection Fraction

A Report of the American College of Cardiology Solution Set Oversight Committee

Writing Committee

Michelle M. Kittleson, MD, PhD, FACC, *Chair*
Gurusher S. Panjrath, MBBS, FACC, *Vice Chair*
Kaushik Amancherla, MD
Leslie L. Davis, PhD, ANP-BC, FAAN, FACC
Anita Deswal, MD, MPH, FACC
Dave L. Dixon, PharmD, FACC
James L. Januzzi Jr, MD, FACC
Clyde W. Yancy, MD, MSc, MACC

Solution Set Oversight

Nicole M. Bhave, MD, FACC, *Chair*
Dharam J. Kumbhani, MD, SM, FACC
Gurusher S. Panjrath, MBBS, FACC

JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY
© 2023 BY THE AMERICAN COLLEGE OF CARDIOLOGY FOUNDATION
PUBLISHED BY ELSEVIER

VOL. 81, NO. 18, 2023

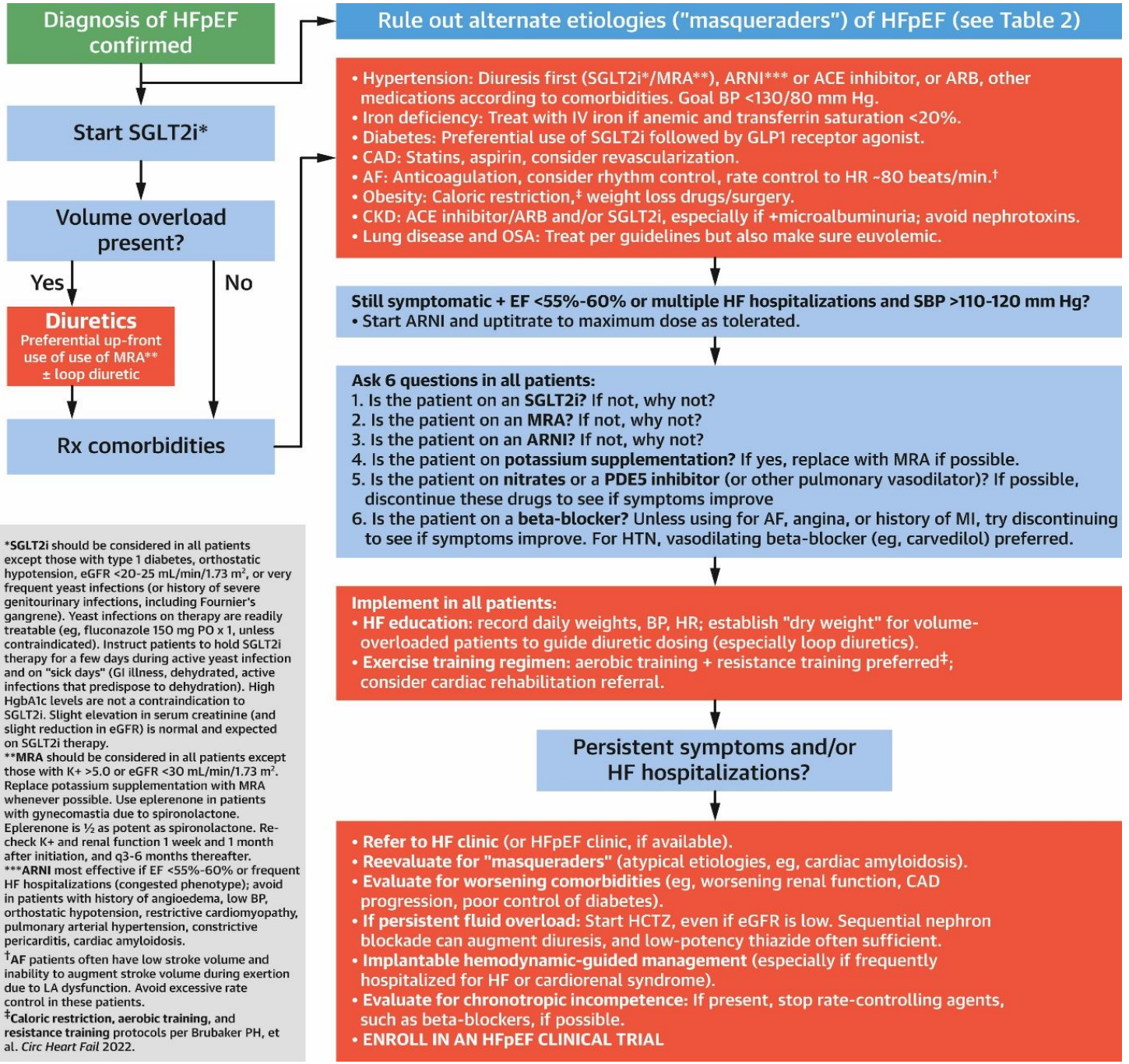
THE PRESENT AND FUTURE

JACC SCIENTIFIC STATEMENT

Heart Failure With Preserved Ejection Fraction

JACC Scientific Statement

Barry A. Borlaug, MD,[a] Kavita Sharma, MD,[b] Sanjiv J. Shah, MD,[c] Jennifer E. Ho, MD[d]



*SGLT2i should be considered in all patients except those with type 1 diabetes, orthostatic hypotension, eGFR <20-25 mL/min/1.73 m^2, or very frequent yeast infections (or history of severe genitourinary infections, including Fournier's gangrene). Yeast infections on therapy are readily treatable (eg, fluconazole 150 mg PO x 1, unless contraindicated). Instruct patients to hold SGLT2i therapy for a few days during active yeast infection and on "sick days" (GI illness, dehydrated, active infections that predispose to dehydration). High HgbA1c levels are not a contraindication to SGLT2i. Slight elevation in serum creatinine (and slight reduction in eGFR) is normal and expected on SGLT2i therapy.
**MRA should be considered in all patients except those with K+ >5.0 or eGFR <30 mL/min/1.73 m^2. Replace potassium supplementation with MRA whenever possible. Use eplerenone in patients with gynecomastia due to spironolactone. Eplerenone is ½ as potent as spironolactone. Re-check K+ and renal function 1 week and 1 month after initiation, and q3-6 months thereafter.
***ARNI most effective if EF <55%-60% or frequent HF hospitalizations (congested phenotype); avoid in patients with history of angioedema, low BP, orthostatic hypotension, restrictive cardiomyopathy, pulmonary arterial hypertension, constrictive pericarditis, cardiac amyloidosis.
†AF patients often have low stroke volume and inability to augment stroke volume during exertion due to LA dysfunction. Avoid excessive rate control in these patients.
‡Caloric restriction, aerobic training, and resistance training protocols per Brubaker PH, et al. *Circ Heart Fail* 2022.

Borlaug BA, Sharma K, Shah SJ, Ho JE. Heart Failure With Preserved Ejection Fraction: JACC Scientific Statement. J Am Coll Cardiol. 2023 May.

Ask 6 questions in all patients:

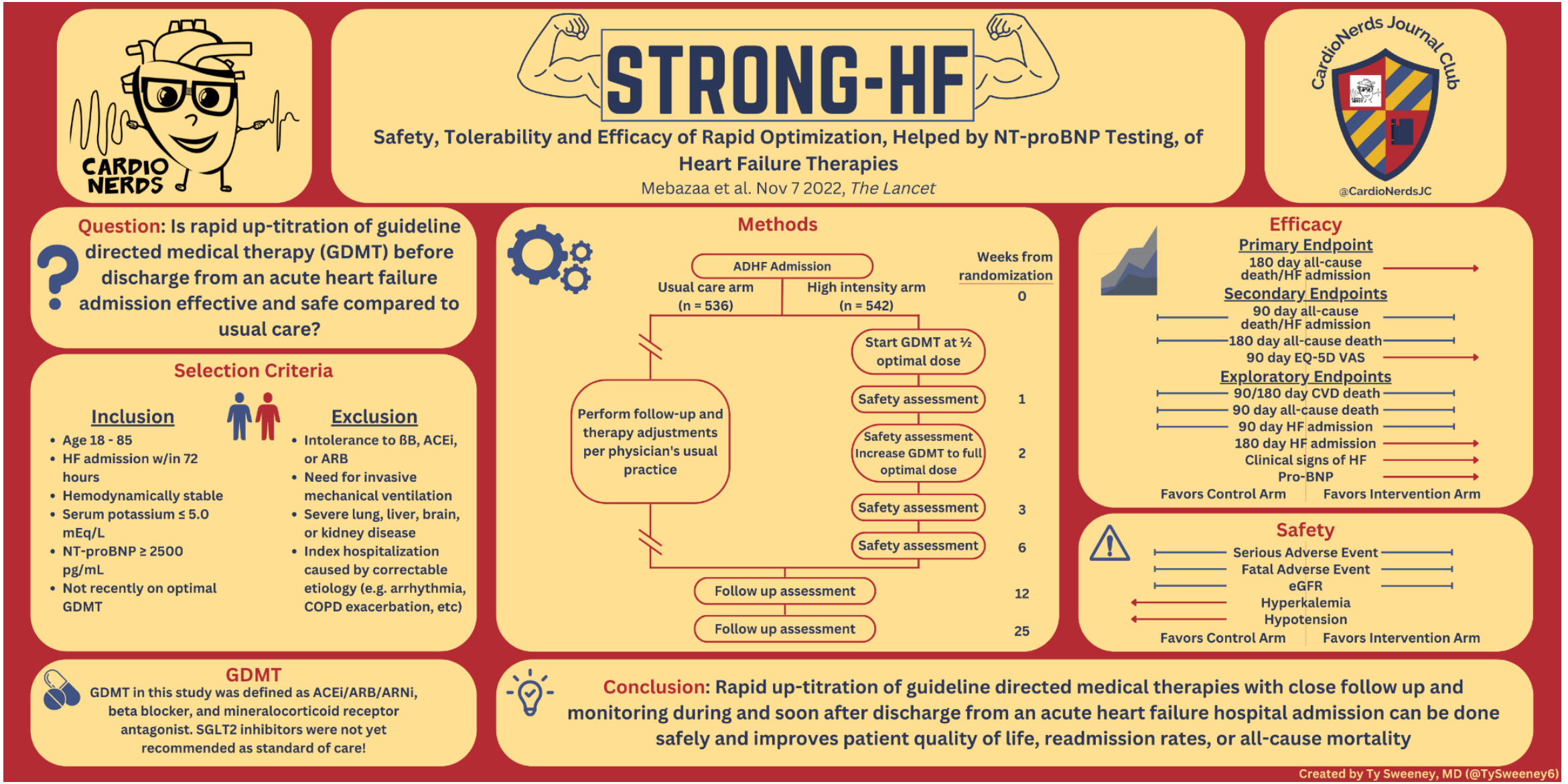
1. Is the patient on an **SGLT2i?** If not, why not?
2. Is the patient on an **MRA?** If not, why not?
3. Is the patient on an **ARNI?** If not, why not?
4. Is the patient on **potassium supplementation?** If yes, replace with MRA if possible.
5. Is the patient on **nitrates** or a **PDE5 inhibitor** (or other pulmonary vasodilator)? If possible, discontinue these drugs to see if symptoms improve
6. Is the patient on a **beta-blocker?** Unless using for AF, angina, or history of MI, try discontinuing to see if symptoms improve. For HTN, vasodilating beta-blocker (eg, carvedilol) preferred.

Borlaug BA, Sharma K, Shah SJ, Ho JE. Heart Failure With Preserved Ejection Fraction: JACC Scientific Statement. J Am Coll Cardiol. 2023 May

Acute Heart Failure

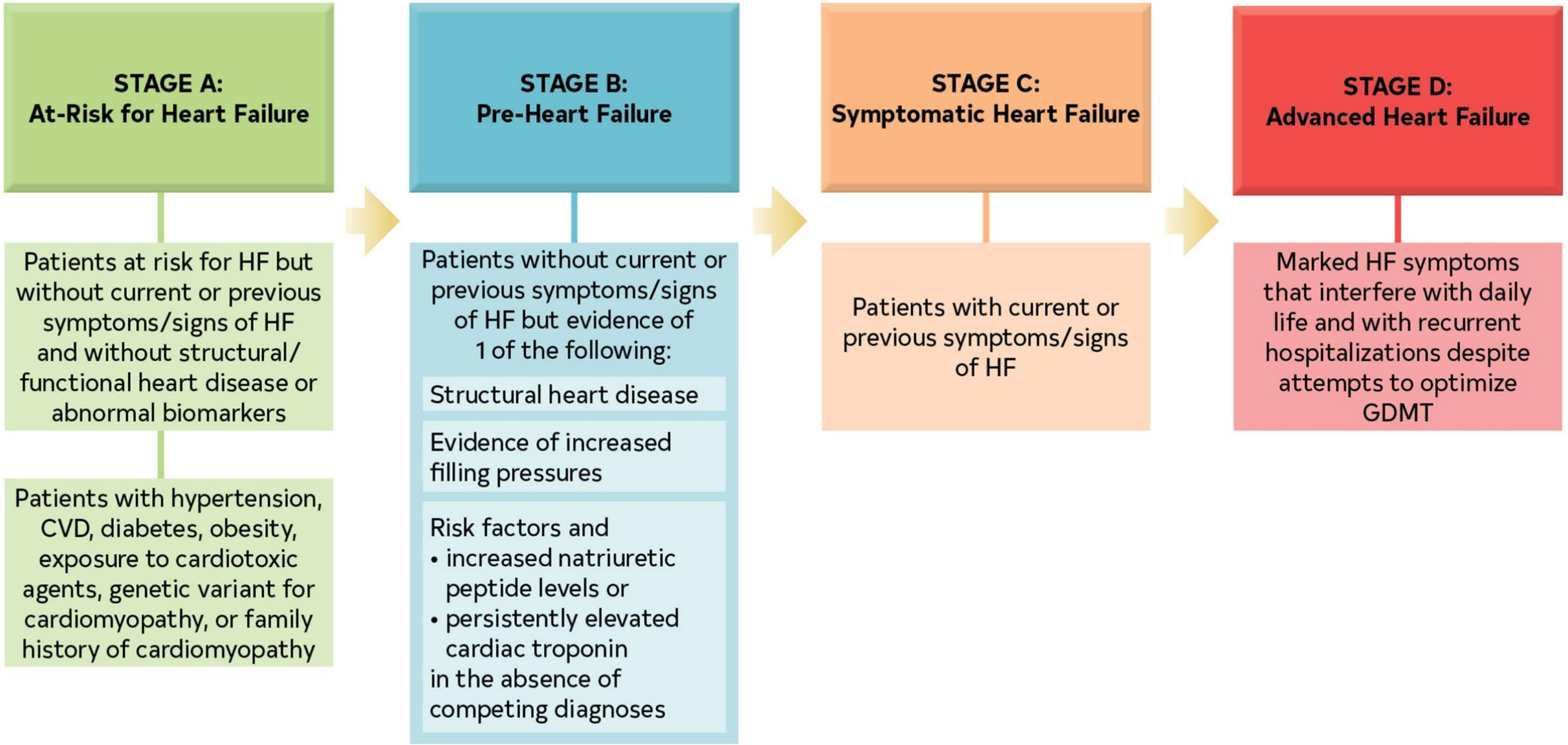
Recommendation	Class[a]	Level[b]
An intensive strategy of initiation and rapid up-titration of evidence-based treatment before discharge and during frequent and careful follow-up visits in the first 6 weeks following a HF hospitalization is recommended to reduce the risk of HF rehospitalization or death.[c,d,e] [16]	I	B

Acute Heart Failure



*** Although strong HF was based only on triple therapy, current recommendation also include SGLT2i based on recent evidence (EMPULSE, DELIVER – 1/3 patients on SGLT2i within 1 month of admission)**

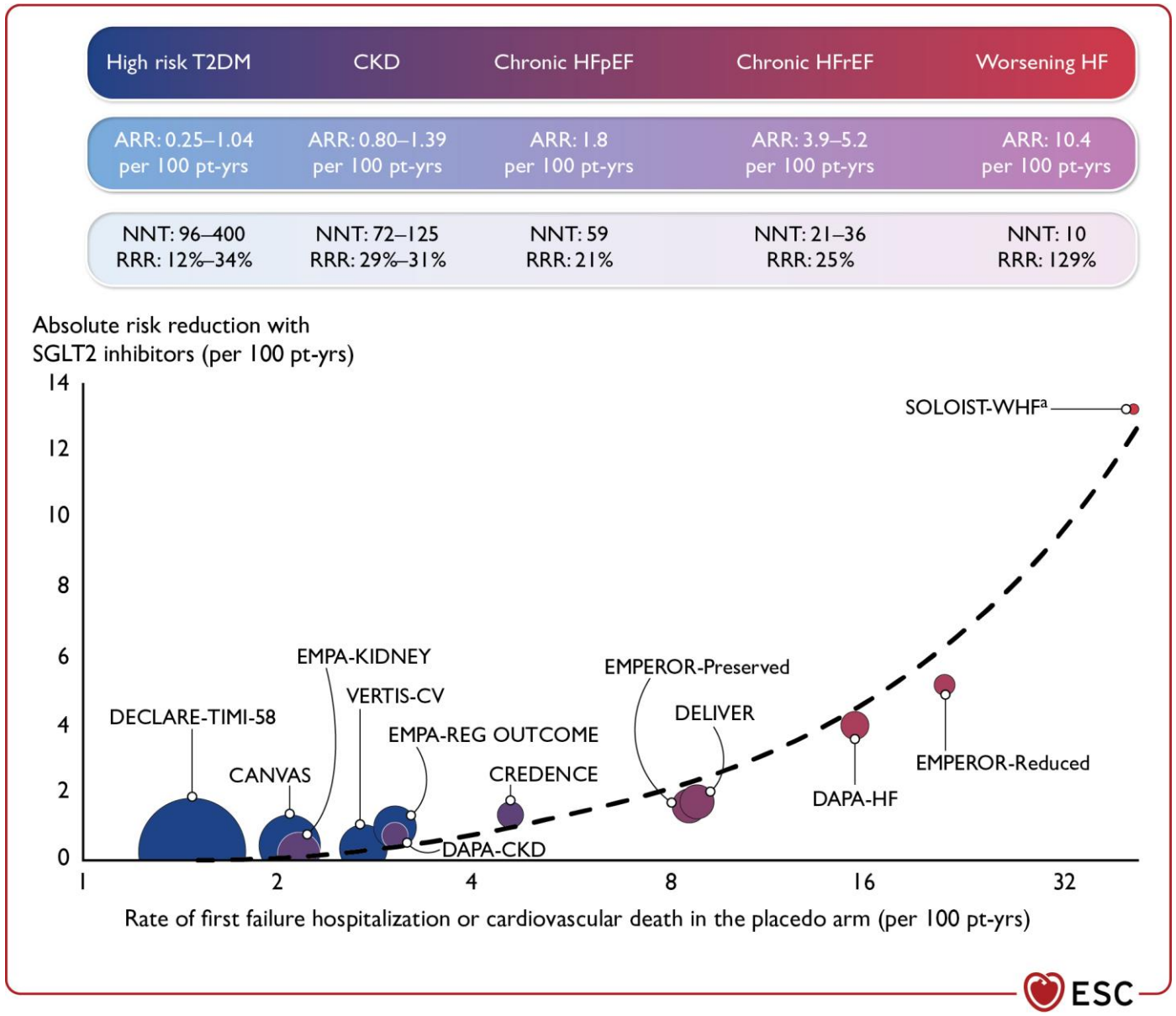
Heart Failure : A Progressive Disease



Heidenreich P, Bozkurt B, Aguilar D, et al.. J Am Coll Cardiol. 2022 May, 79 (17) e263–e421.

Figure 15

Absolute risk reduction with sodium–glucose co-transporter-2 inhibitors in relation to patient risk based on rate of heart failure-related endpoints in the placebo arm of the respective trials



2023 ESC Guidelines for the management of cardiovascular disease in patients with diabetes
(European Heart Journal; 2023 – doi:10.1093/eurheartj/ehad192)

Comorbidities
Prevention of HF in patients with CKD and T2DM

Recommendations	Class[a]	Level[b]
In patients with T2DM and CKD,[c] SGLT2 inhibitors (dapagliflozin or empagliflozin) are recommended to reduce the risk of HF hospitalization or CV death.[5,7,35]	I	A

- **Based on DAPA CKD, EMPA KIDENY AND large meta analysis including CREDENCE and SCORED trials**

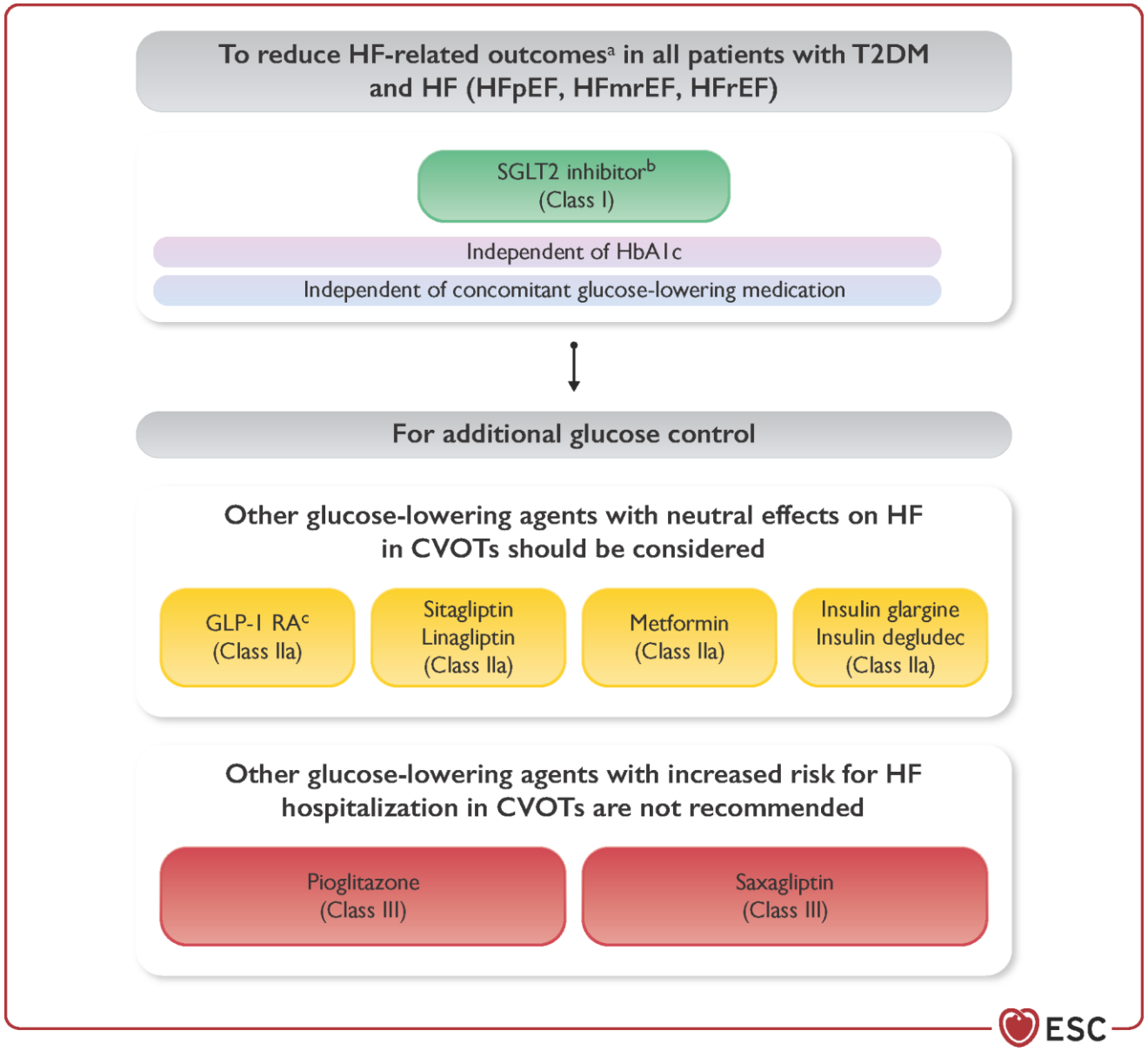
Comorbidities - Iron deficiency

Recommendations	Class[a]	Level[b]
Intravenous iron supplementation is recommended in symptomatic patients with HFrEF and HFmrEF, and iron deficiency, to alleviate HF symptoms and improve quality of life.[c] 12,41,47–49	I	A
Intravenous iron supplementation with ferric carboxymaltose or ferric derisomaltose should be considered in symptomatic patients with HFrEF and HFmrEF, and iron deficiency, to reduce the risk of HF hospitalization.[c] 12,41,43–46	IIa	A

- **Based on the IRONMAN study (sensitivity analysis) and meta analysis**
- **Is it going to change ? HEART-FID study**

Figure 16

Glucose-lowering treatment of patients with heart failure and type 2 diabetes



2023 ESC Guidelines for the management of cardiovascular disease in patients with diabetes
(European Heart Journal; 2023 – doi:10.1093/eurheartj/ehad192)

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Semaglutide in Patients with Heart Failure with Preserved Ejection Fraction and Obesity

M.N. Kosiborod, S.Z. Abildstrøm, B.A. Borlaug, J. Butler, S. Rasmussen, M. Davies, G.K. Hovingh, D.W. Kitzman, M.L. Lindegaard, D.V. Møller, S.J. Shah, M.B. Treppendahl, S. Verma, W. Abhayaratna, F.Z. Ahmed, V. Chopra, J. Ezekowitz, M. Fu, H. Ito, M. Lelonek, V. Melenovsky, B. Merkely, J. Núñez, E. Perna, M. Schou, M. Senni, K. Sharma, P. Van der Meer, D. von Lewinski, D. Wolf, and M.C Petrie, for the STEP-HFpEF Trial Committees and Investigators*

תודה רבה!

ד"ר בן שדה

רופא בכיר, היחידה לאי ספיקת לב ויתר לחץ דם ריאתי

המרכז הרפואי תל אביב (איכילוב)

Bensa@TLVMC.GOV.IL, 0545953114

UNMET NEED

Advanced heart failure

Valvular disease

Iron in HFPEF

SGLT2i in HFPEF and NORMAL BNP

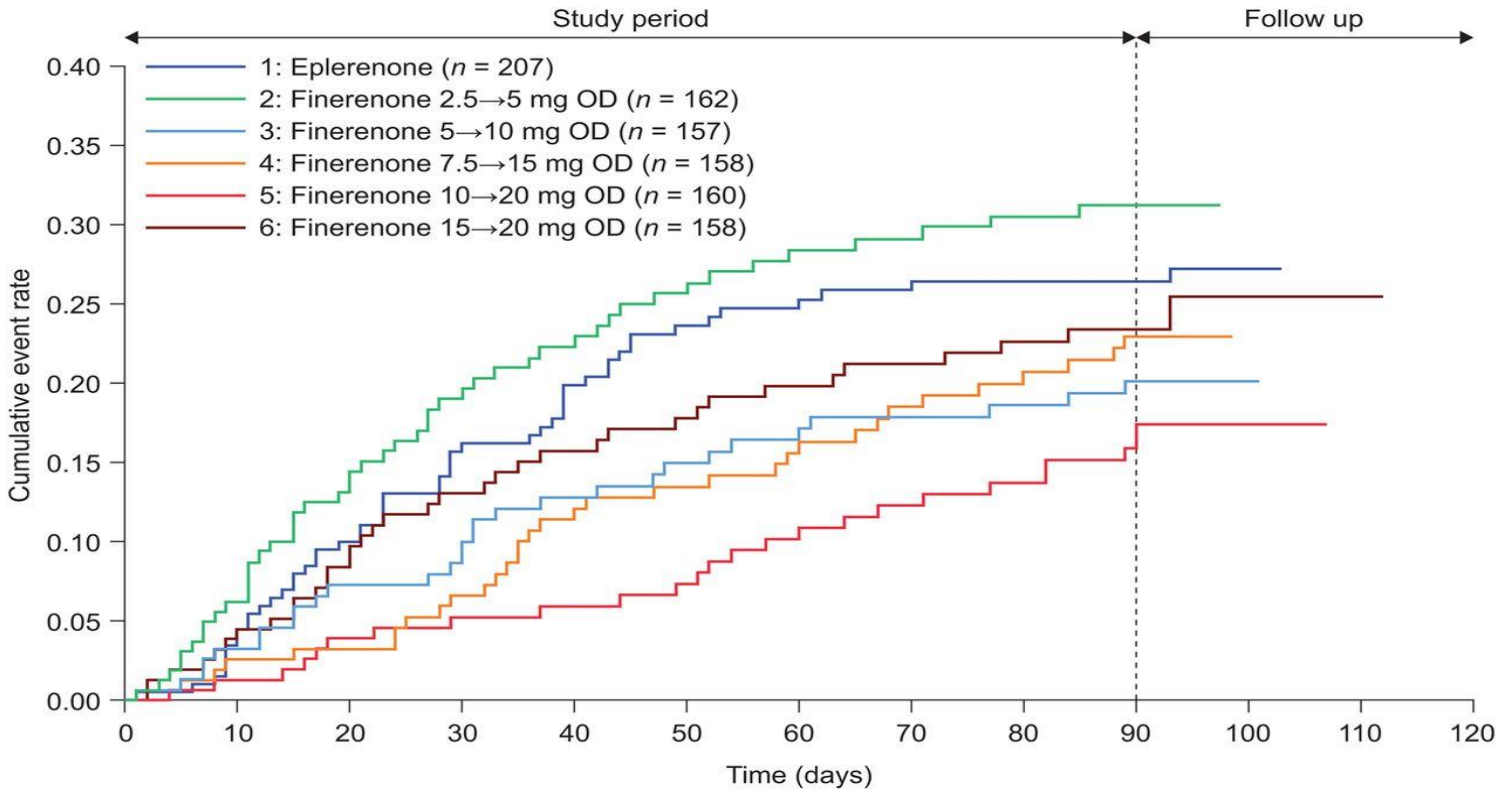
Should we switch from Aldactone to Finerenone patients with DM and CKD – HF patients were not included in the Finerenone studies

ACC Guidelines

TABLE 2 Selected Randomized Controlled Trials in Individuals With HFpEF

	DELIVER[6]	EMPEROR-PRESERVED[7]	TOPCAT*[16]	PARAGON-HF[19]	CHARM-PRESERVED[24]
Size	N = 6,263	N = 5,988	N = 3,445	N = 4,822	N = 3,023
Agent	Dapagliflozin	Empagliflozin	Spironolactone	Sacubitril/valsartan	Candesartan
Median age, y	72	72	69†	73	67
Female sex	44%	45%	52%	52%	40%
Median follow-up, y	2.3	2.2	3.3	2.9	3.1
EF entry criteria	>40%	>40%	≥45%	≥45%	>40%
Mean baseline LVEF	54%	54%	56%†	58%	54%
Proportion with T2DM	45%	49%	33%	43%	29%
HF medical therapy					
Diuretic agent	77%	NR	82%	95%	75%
ACE inhibitor or ARB	73%	81%	84%	86%	19%‡
ARNI	5%	2%	N/A	N/A	N/A
Beta-blocker	83%	86%	78%	80%	56%
MRA	43%	37%	N/A	26%	12%
Primary composite outcome, HR or rate ratio (95% CI)	Worsening HF and CV death: HR: 0.82 (0.73-0.92)	Hospitalization for HF and CV death: HR: 0.79 (0.69-0.90)	Hospitalization for HF, aborted cardiac arrest, CV death: HR: 0.89 (0.77-1.04)	Total hospitalizations for HF and CV death: Rate ratio: 0.87 (0.75-1.01)	Hospitalization for HF and CV death: HR: 0.86 (0.74-1.00)
Hospitalization for HF, HR or rate ratio (95% CI)	HR: 0.77 (0.67-0.89)	HR: 0.71 (0.60-0.83)	HR: 0.83 (0.69-0.99)	Rate ratio: 0.85 (0.72-1.00)	HR: 0.84 (0.70-1.00)
Urgent visit for HF, HR (95% CI)	0.76 (0.55-1.07)	NR	NR	NR	NR
CV death, HR (95% CI)	0.88 (0.74-1.05)	0.91 (0.76-1.09)	0.90 (0.73-1.12)	0.95 (0.79-1.16)	0.95 (0.76-1.18)

ARTS-HF Study
Mortality/morbidity outcomes in patients with worsening chronic heart failure with reduced ejection fraction



Number of patients at risk

1	207	192	176	161	152	139	134	130	126	121	2	0	0
2	162	149	133	122	115	109	103	101	97	90	0	0	0
3	157	147	137	130	122	117	113	111	109	105	1	0	0
4	158	151	145	138	127	123	117	112	107	96	0	0	0
5	160	154	143	139	134	132	126	123	120	107	2	0	0
6	158	148	137	129	124	121	118	111	108	95	2	1	0

Eur Heart J, Volume 37, Issue 27, 14 July 2016, Pages 2105–2114