Meeting Nazionale ITACARE-P 2025

La Cardiologia Riabilitativa e Preventiva come snodo fondamentale della cura della persona con cardiopatia

CENTRO CONGRESSI FRENTANI
Roma, 21-22 novembre 2025

SCOMPENSO CARDIACO OGGI: UN SOLO NOME, DIVERSE FORME CLINICHE

Scompenso cardiaco e comorbidità: gestire la complessità per migliorare la prognosi

Dott. Franco Tarro Genta
Direttore SC Cardiologia Riabilitativa
Istituti Clinici Scientifici Maugeri - Torino

Disclosure: Nessuna

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

ESC European Society of Cardiology
European Heart Journal (2023) **44**, 3627–3639
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

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]

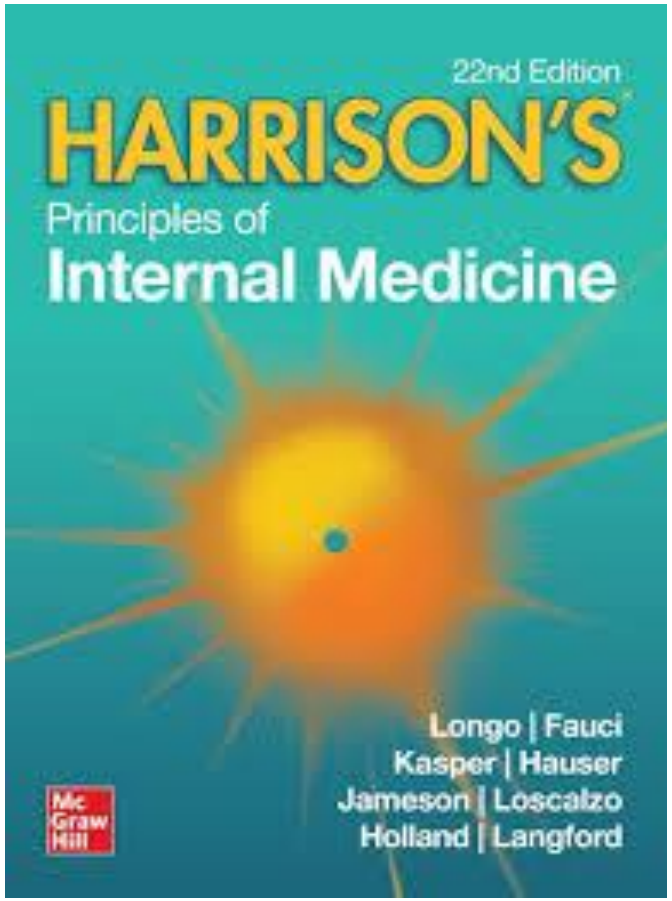
COMORBILITA' (PAG 59-78 ESC GUIDELINES 2021)

A) CARDIOVASCOLARI

1. *ARITMIE E DISTURBI DI CONDUZIONE*
2. *CCS*
3. *VALVULOPATIE*
4. *IPERTENSIONE*
5. *STROKE*

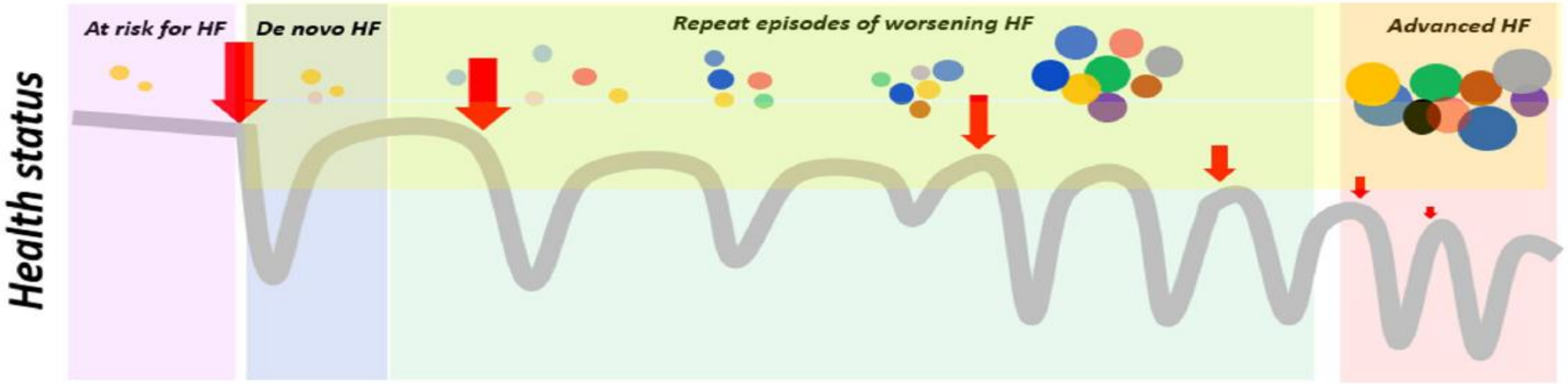
B) NON CARDIOVASCOLARI

1. *DIABETE MELLITO*
2. *TIREOPATIE*
3. *OBESITA'*
4. *FRAGILITA', CACHEXIA, SARCOPENIA*
5. *SIDEOPENIA ED ANEMIA*
6. *INSUFFICIENZA RENALE*
7. *DISORDINI ELETTROLITICI (IPO- IPERKALIEMIA, IPOSODIEMIA, IPOCLOREMIA*
8. *PNEUMOPATIE E «SLEEP-DISORDERED BREATHING»*
9. *DISLIPIDEMIE*
10. *GOTTA E ARTRITE*
11. *DISFUNZIONE ERETTILE*
12. *DEPRESSIONE*
13. *CANCRO*
14. *INFEZIONI*


22nd Edition
HARRISON'S
Principles of
Internal Medicine
Longo | Fauci
Kasper | Hauser
Jameson | Loscalzo
Holland | Langford
Mc Graw Hill


GOLDMAN-CECIL
MEDICINE
Cecil

Trajectory of the HF syndrome



Red arrows denote triggers of worsening HF
Different arrow sizes reflect the fact that at more advanced disease stages, even minor triggers may induce a worsening HF event.

Colored circles represent different comorbidities and risk factors. *Circle size and color intensity reflect disease severity of each condition.*

→ ↑ *Residual congestion* ↑ ↑ →

→ ↓ *Quality of Life* ↓ ↓ ↓ →

Optimal GDMT → *Suboptimal GDMT* → *Intolerance of GDMT*

Polypharmacy *Drug-drug interactions* *Medication worsening HF*

↓ *Eligibility for device therapies, structural interventions, and cardiac surgery* ↓ ↓

Association of non-cardiac comorbidities and sex with long-term *Re*-hospitalization for heart failure☆

European Journal of Internal Medicine 131 (2025) 125–132

DATI AMMINISTRATIVI REGIONE LOMBARDIA 2015-2019

88528 pazienti diagnosi HF

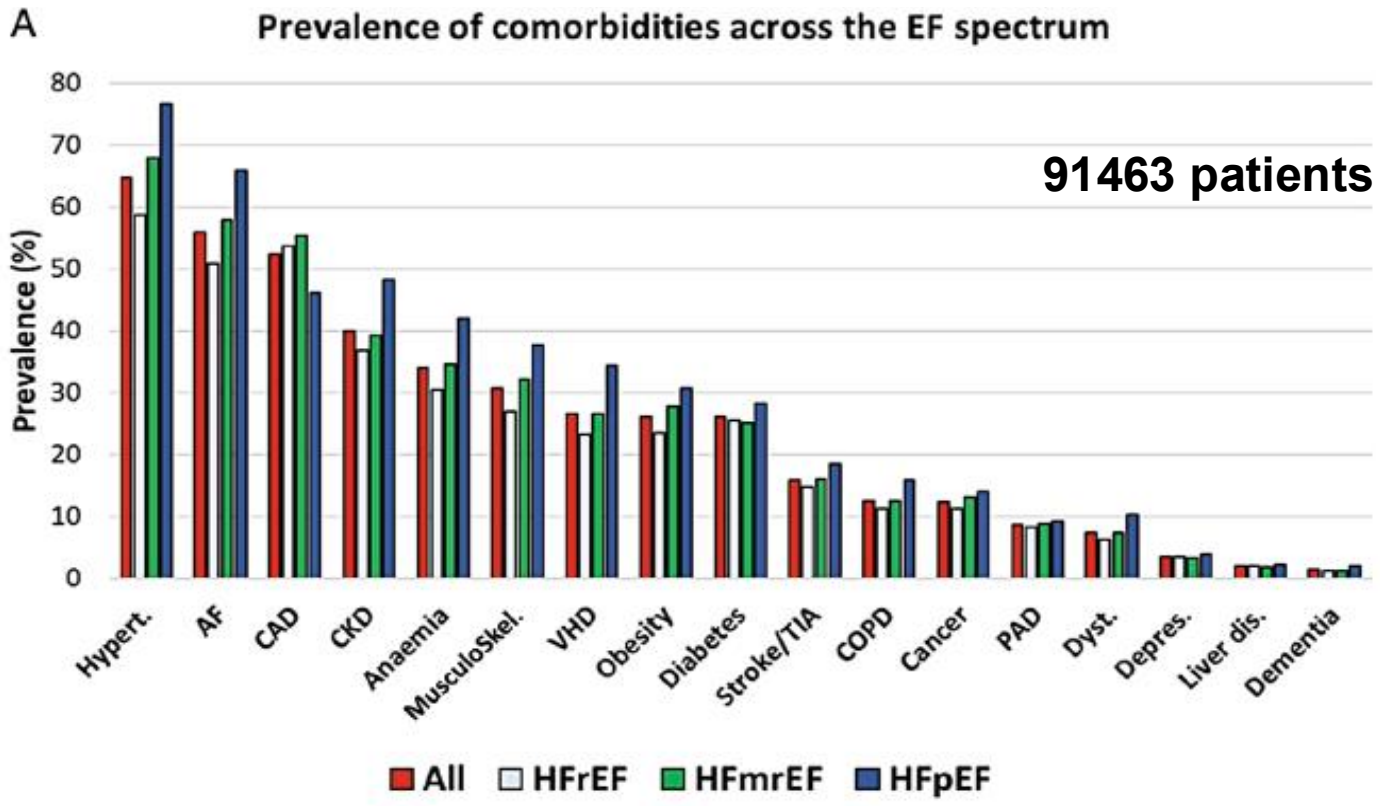
79533 episodi di re-ospedalizzazione

23229 morti

Diseases	Grand Totals	General percentage
Heart Failure	88,528	100.00
AMI	13,476	15.22
Diabetes without complications	16,297	18.41
Diabetes with complications	4389	4.96
Kidney disease	16,907	19.10
Cancer	6618	7.48
COPD	4684	5.29
PVD	6374	7.20
CVD	13,571	15.33
Liver disease	2333	2.64
Dementia	3643	4.12
No associate disease	30,433	34.38

65% co-morbilità

The role of multimorbidity in patients with heart failure across the left ventricular ejection fraction spectrum: Data from the Swedish Heart Failure Registry



European Journal of Heart Failure (2024) 26, 854–868

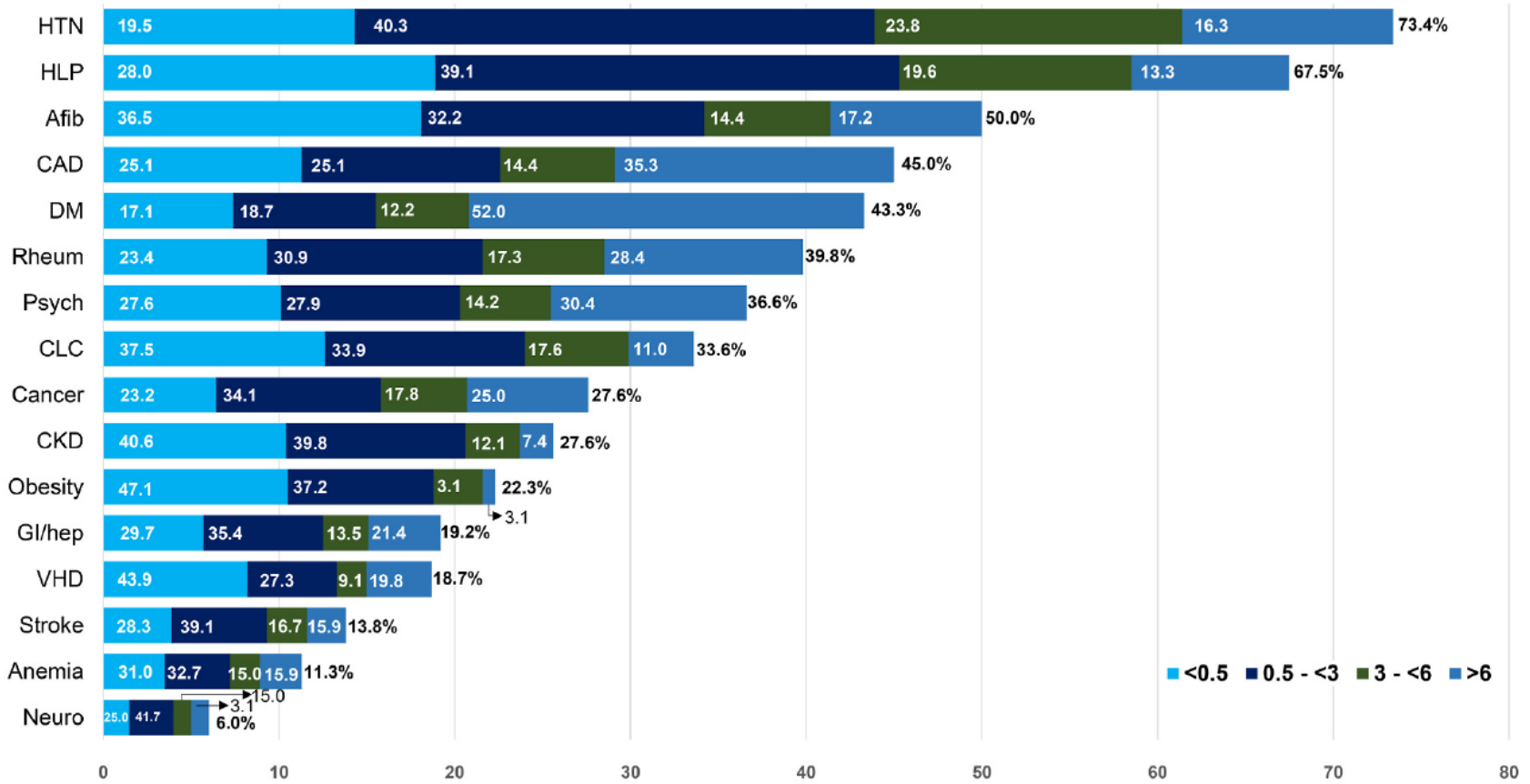


Fig. 3. Prevalence and Exposure Duration of Comorbidities in the Entire Cohort. The figure illustrates the percentage of patients with each comorbidity, stratified by four exposure duration categories: <0.5 years, 0.5 to <3 years, 3 to <6 years, and ≥6 years. Comorbidities are listed in descending order of overall prevalence. **Abbreviations:** Afib, atrial fibrillation/flutter; CAD, coronary artery disease; CKD, chronic kidney disease; CLD, chronic lung condition; DM, diabetes mellitus; HLP, hyperlipidemia; HTN, hypertension; GI/hep, gastrointestinal and hepatic condition; Neuro, non-stroke neurological condition; Psych, psychiatric condition; Rheum, rheumatological condition; VHD, valvular heart disease.

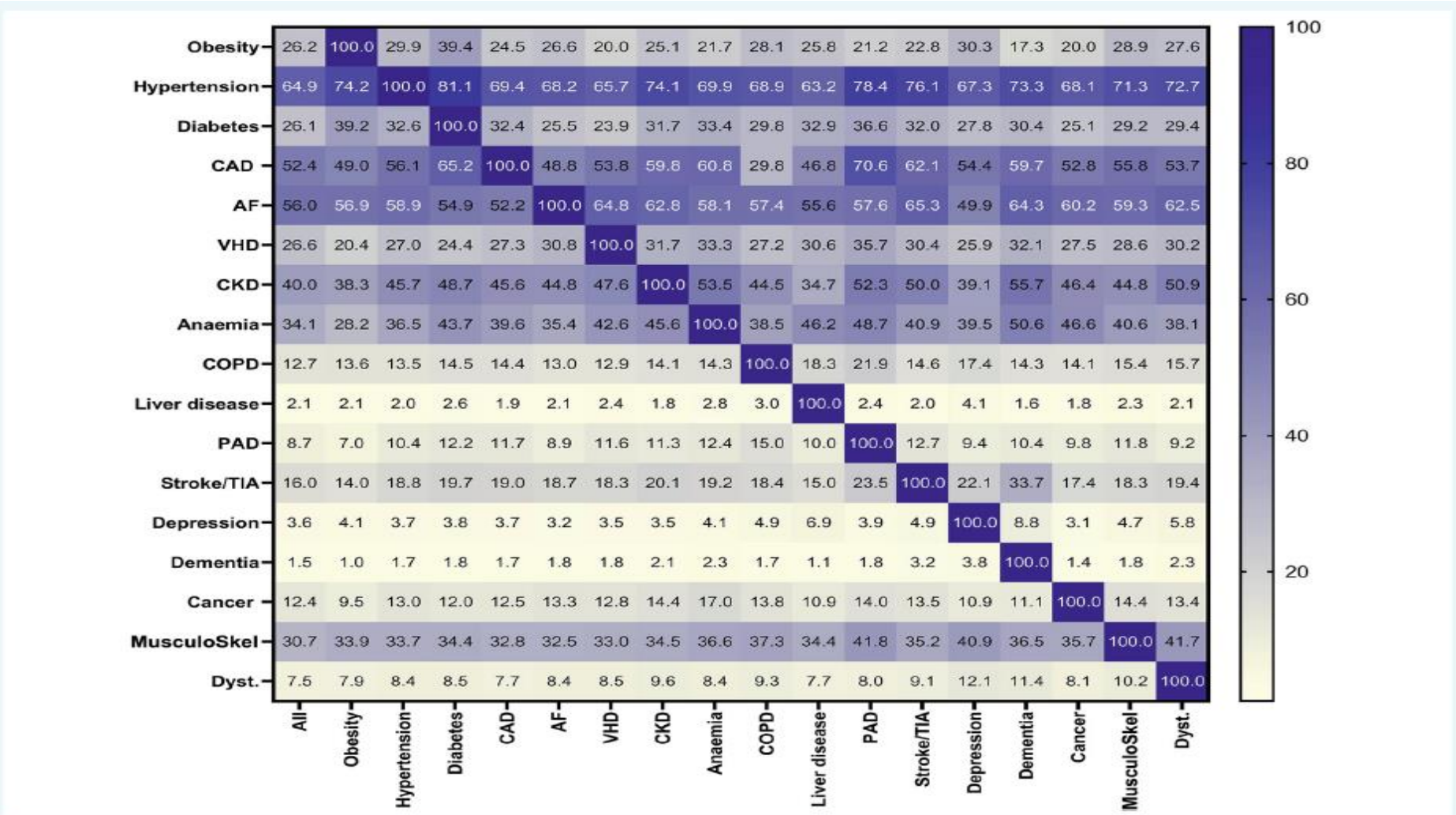


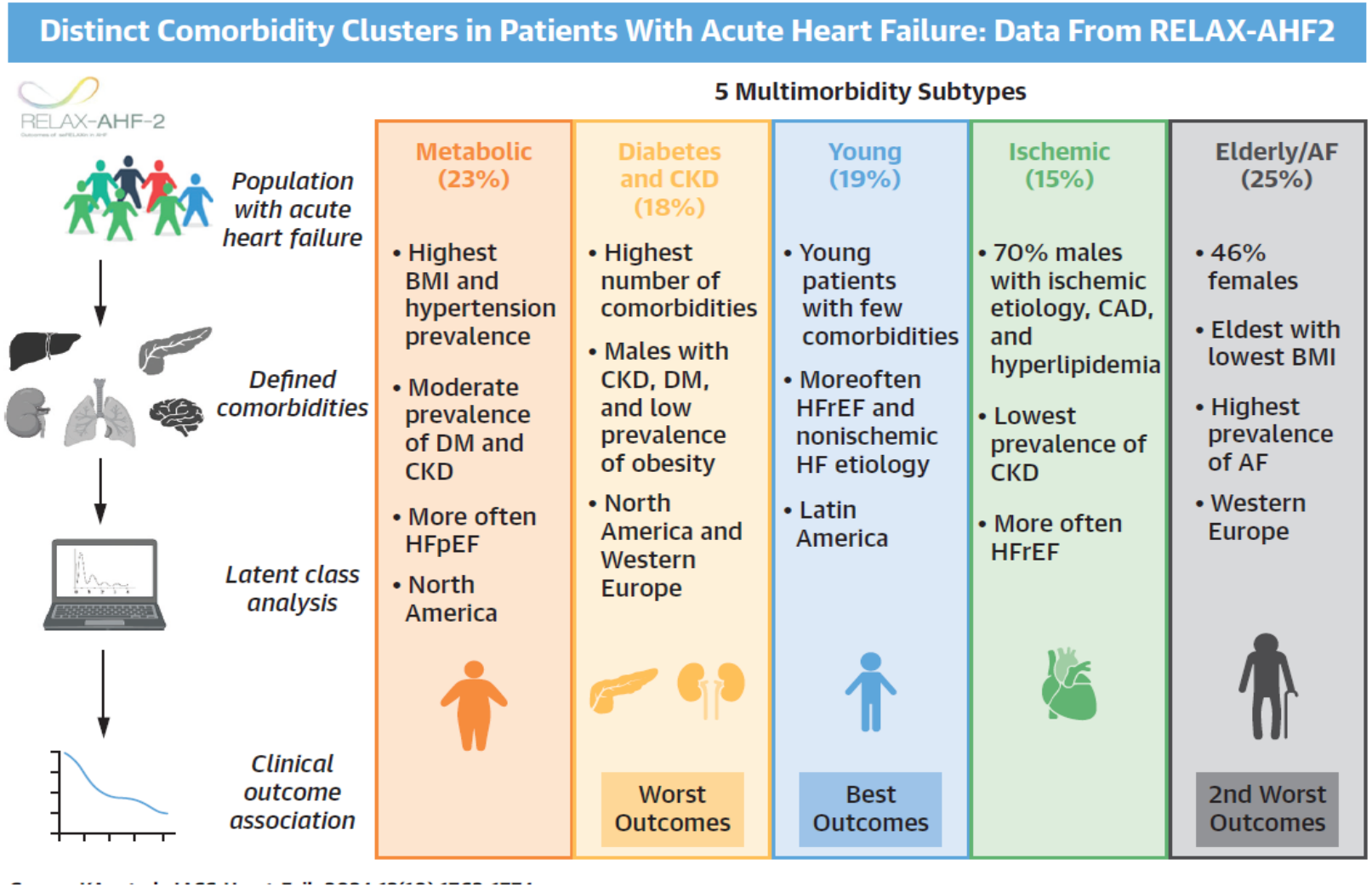
Figure 2 Heatmap for the cross-tabulation among comorbidities. The figure reports the prevalence of each comorbidity (rows) among the overall population and among each other comorbidity (columns). AF, atrial fibrillation; CAD, coronary artery disease; CKD, chronic kidney disease; COPD, chronic obstructive pulmonary disease; Dyst., dysthyroidism; MusculoSkel., musculo-skeletal disease; PAD, peripheral artery disease; VHD, valvular heart disease.

European Journal of Heart Failure (2024) 26, 854–868

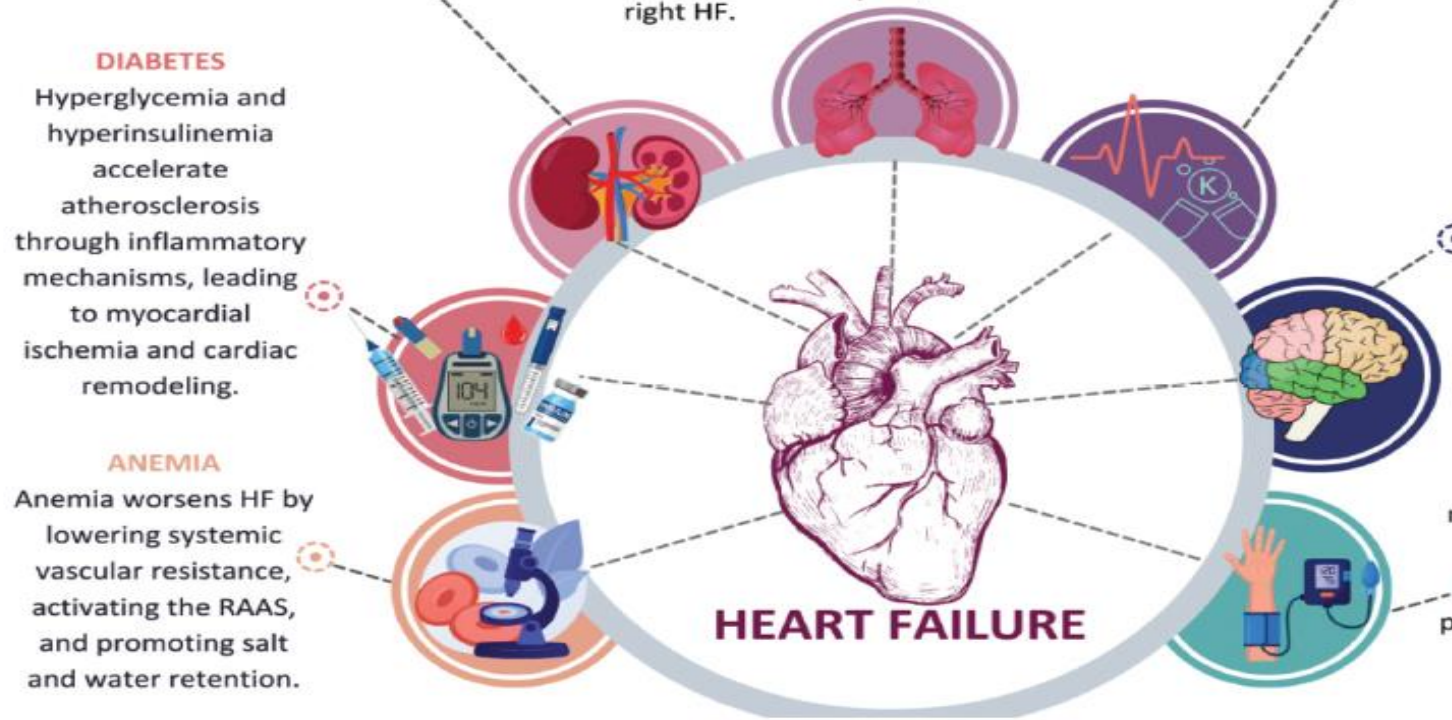
Distinct Comorbidity Clusters in Patients With Acute Heart Failure

Data From RELAX-AHF-2

6545 pazienti con AHF
26% HFpEF



JACC: HEART FAILURE VOL. 12, NO. 10, 2024



RENAL DYSFUNCTION
The RAAS and sympathetic activation contribute to systemic vasoconstriction and fluid retention. These compensatory mechanisms cause fibrogenesis in both the heart and kidney.

COPD
Chronic hypoxemia and inflammation lead to pulmonary hypertension, impairing cardiovascular function and eventually causing right HF.

SLEEP APNEA
The underreported and lack of adequate screening contribute to increased morbidity and mortality.

HYPERKALEMIA
Elevated potassium levels predispose to arrhythmias, increasing the risk of sudden death and overall mortality.

COGNITIVE DYSFUNCTION
Patients with cognitive dysfunction are characterized by a lack of compliance and medication adherence, negatively impacting HF management and prognosis.

HYPERTENSION
Hypertension induces myocardial remodeling and left ventricular hypertrophy, predisposing to diastolic dysfunction.

DIABETES
Hyperglycemia and hyperinsulinemia accelerate atherosclerosis through inflammatory mechanisms, leading to myocardial ischemia and cardiac remodeling.

ANEMIA
Anemia worsens HF by lowering systemic vascular resistance, activating the RAAS, and promoting salt and water retention.

Current Cardiology Reviews, 2024, *20*, e090224226837

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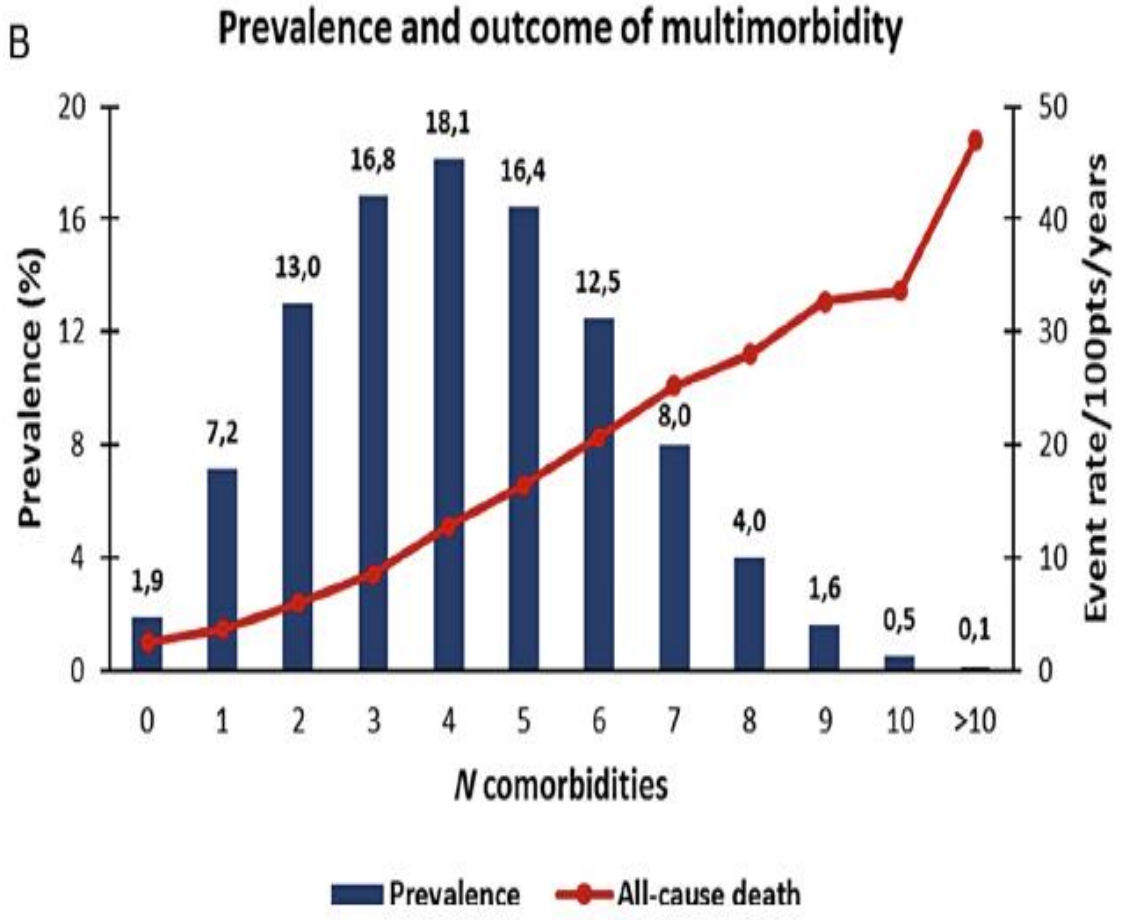
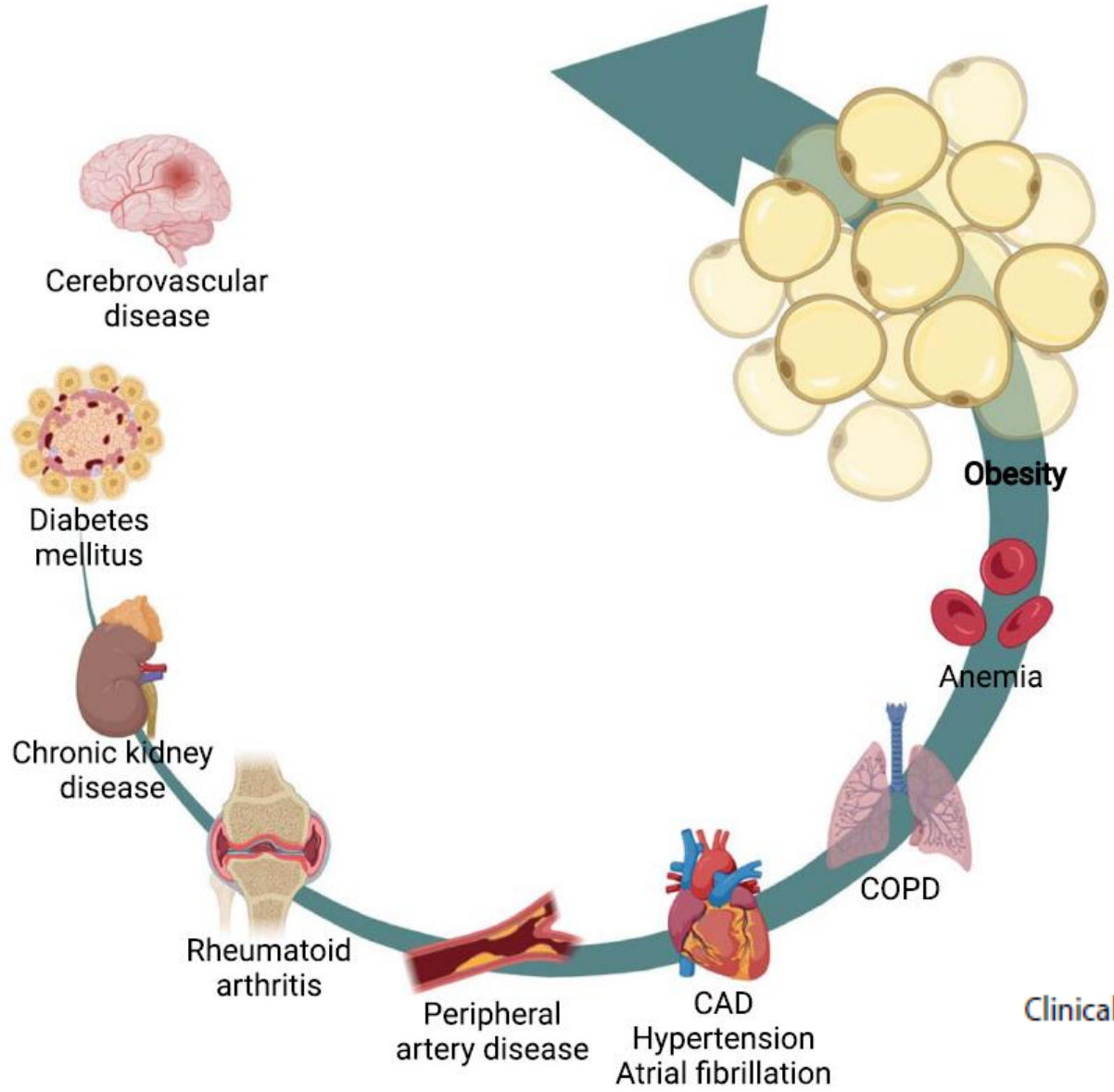


European Journal of Heart Failure (2024) 26, 854–868

Prognostic importance of comorbidities in HF patients 2017 *vs* 2002

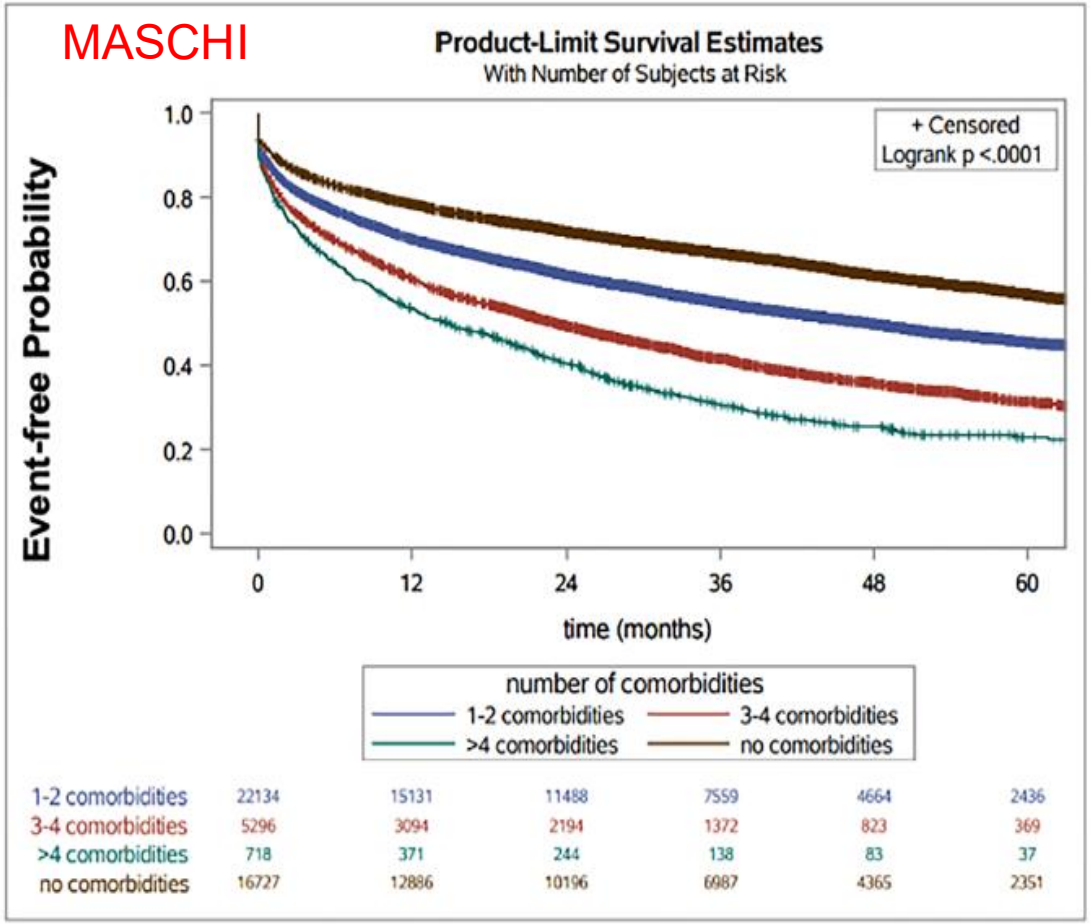


Clinical Research in Cardiology (2023) 112:123–133

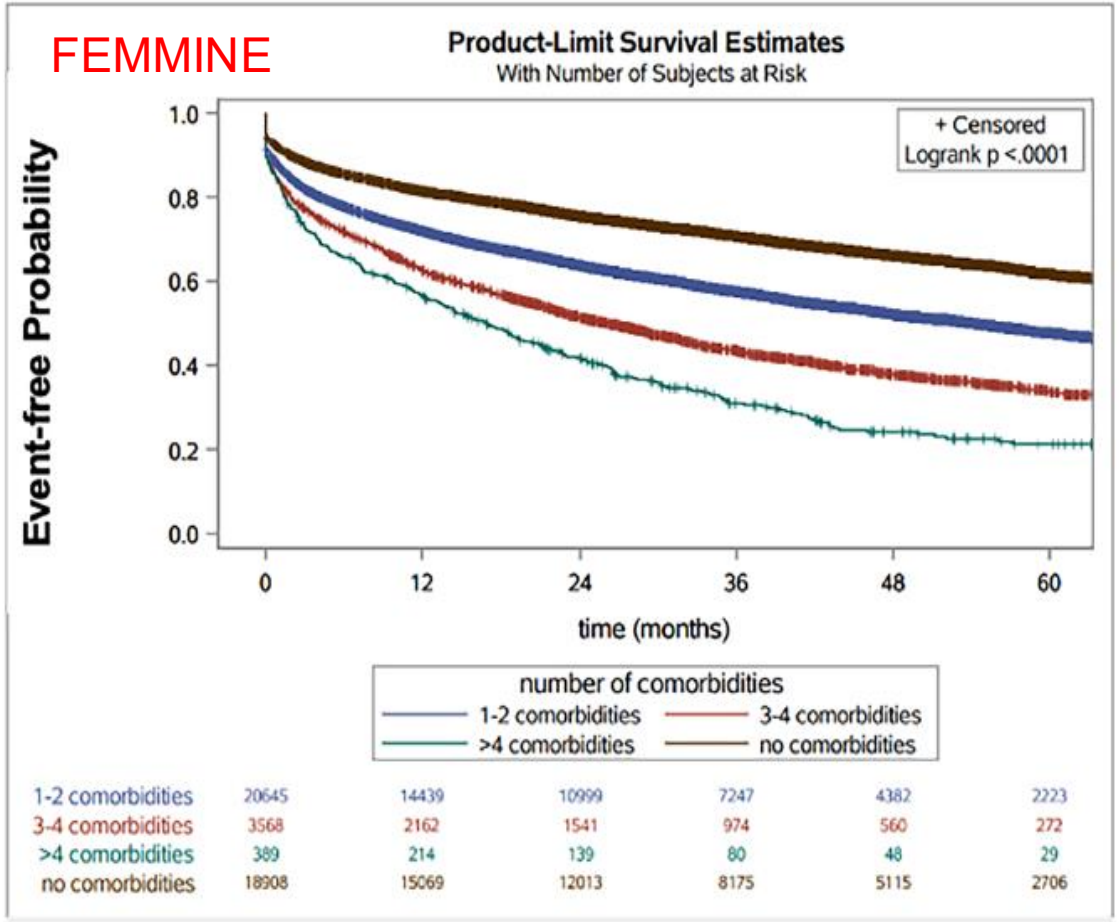
Association of non-cardiac comorbidities and sex with long-term *Re*-hospitalization for heart failure☆

European Journal of Internal Medicine 131 (2025) 125–132

MASCHI



FEMMINE



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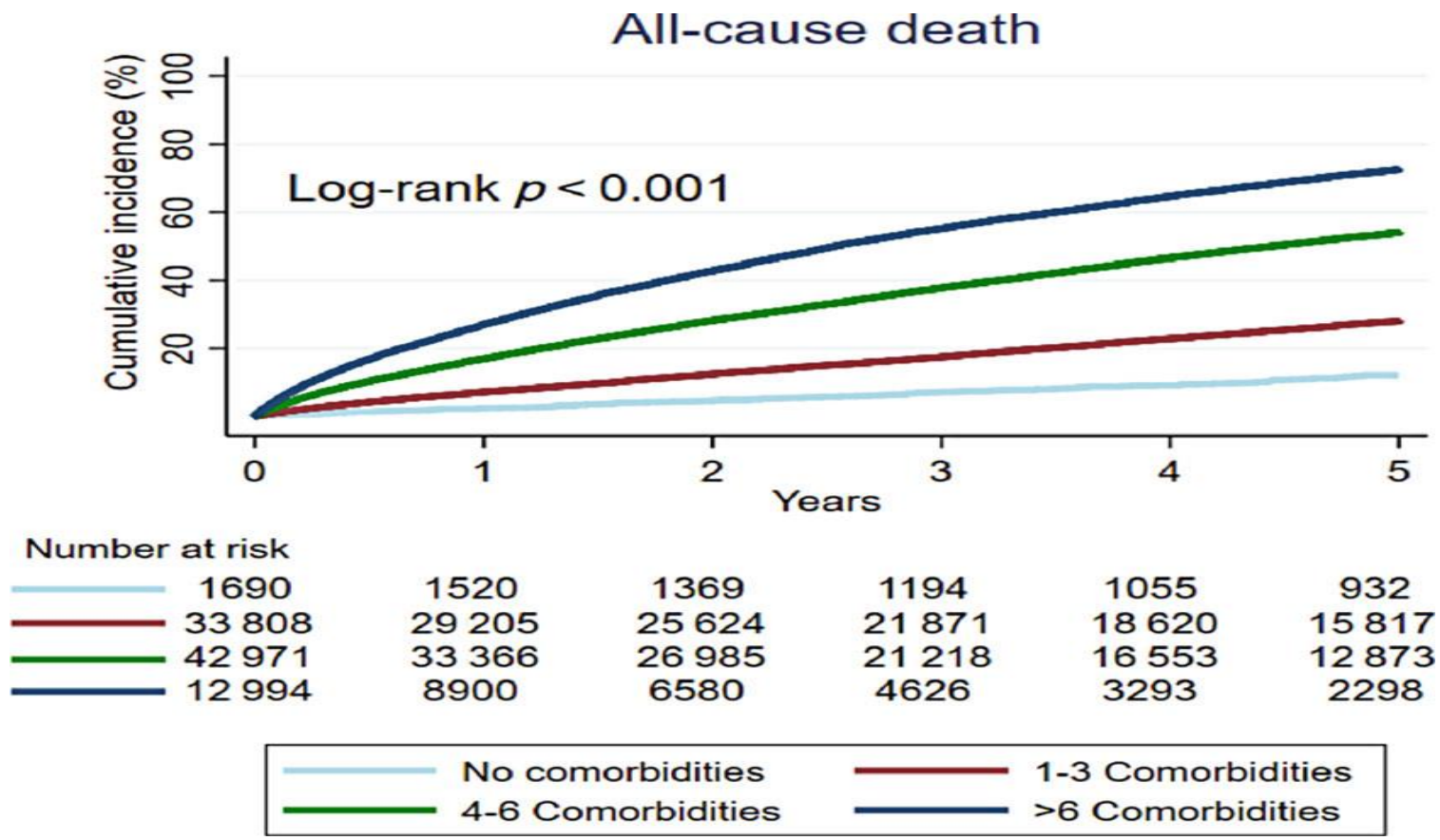

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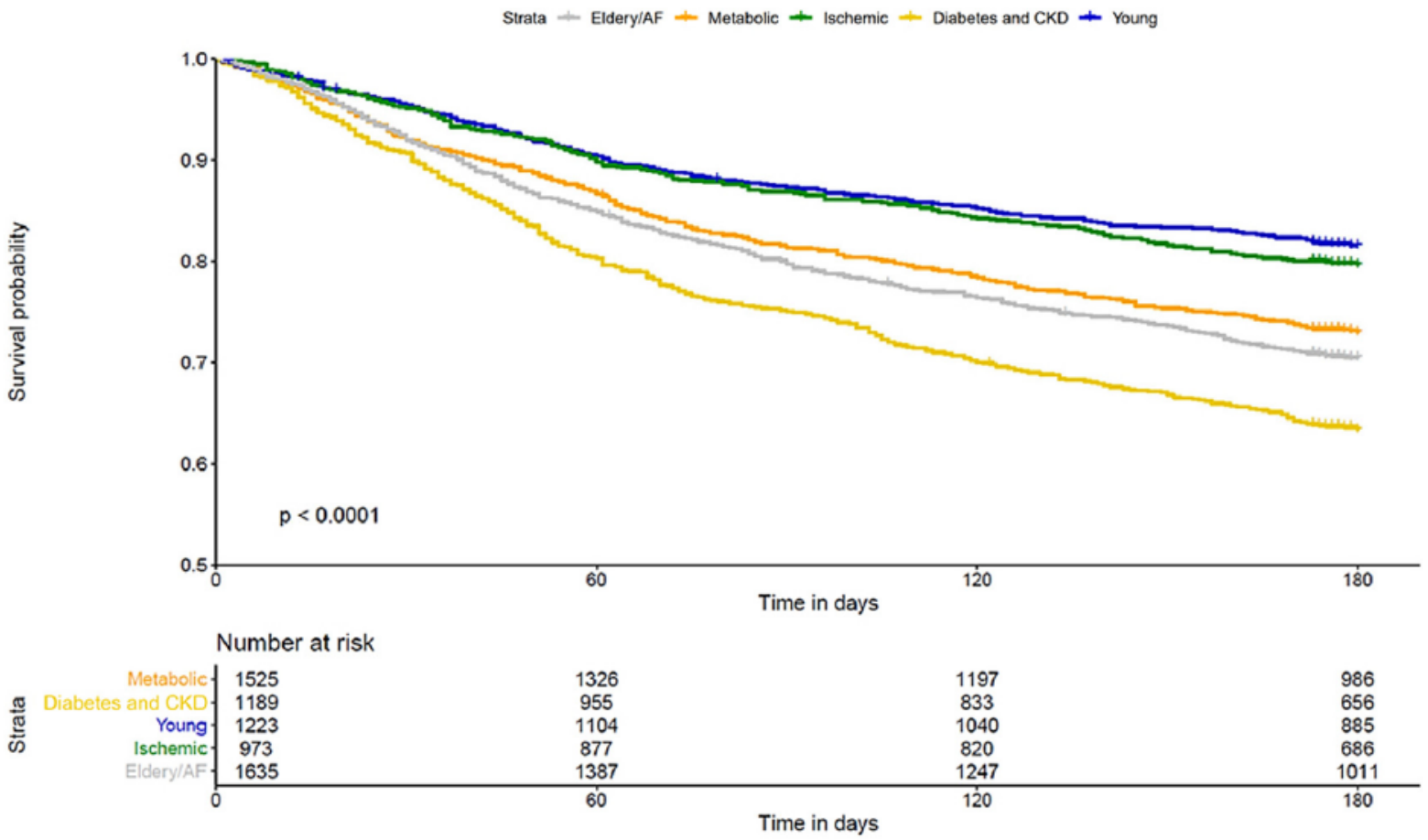
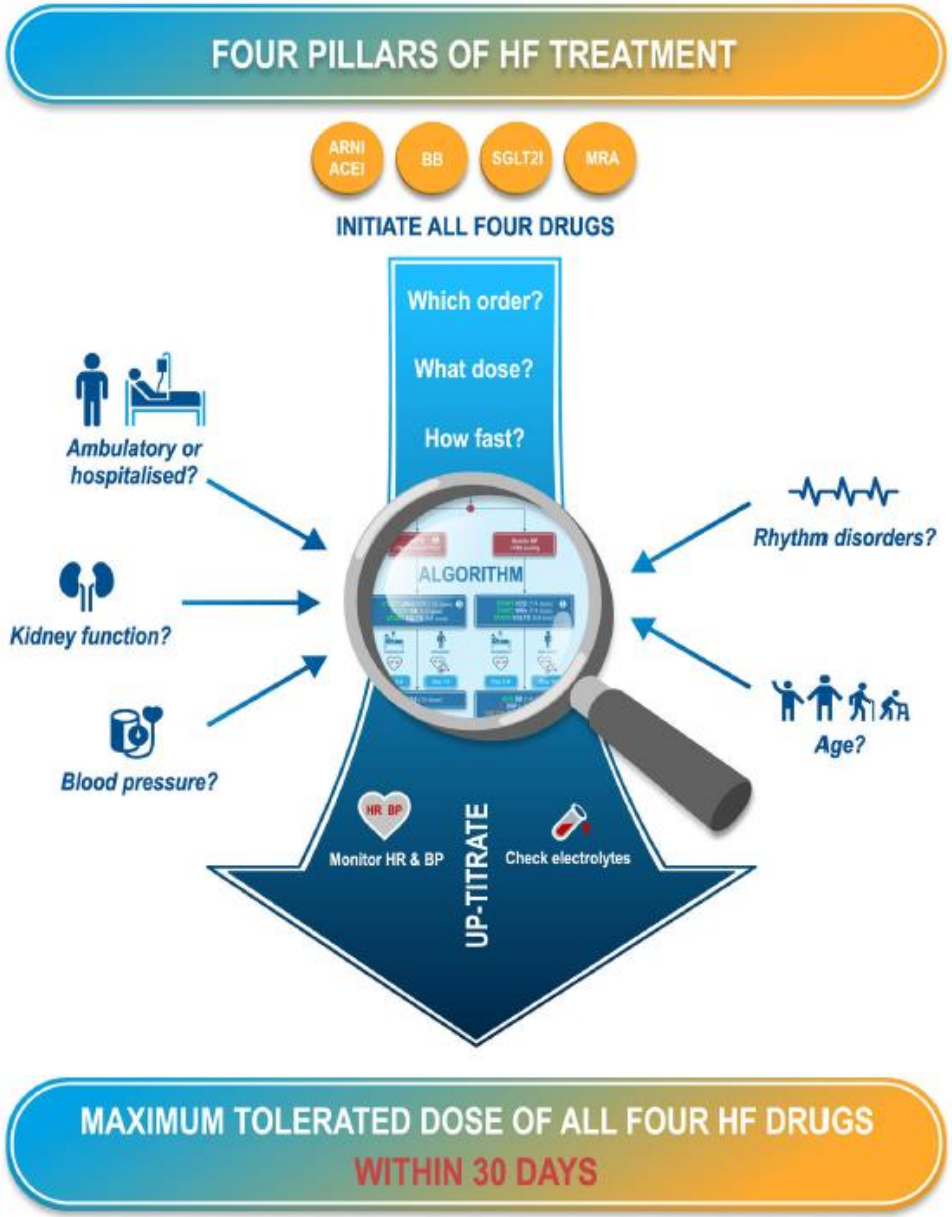
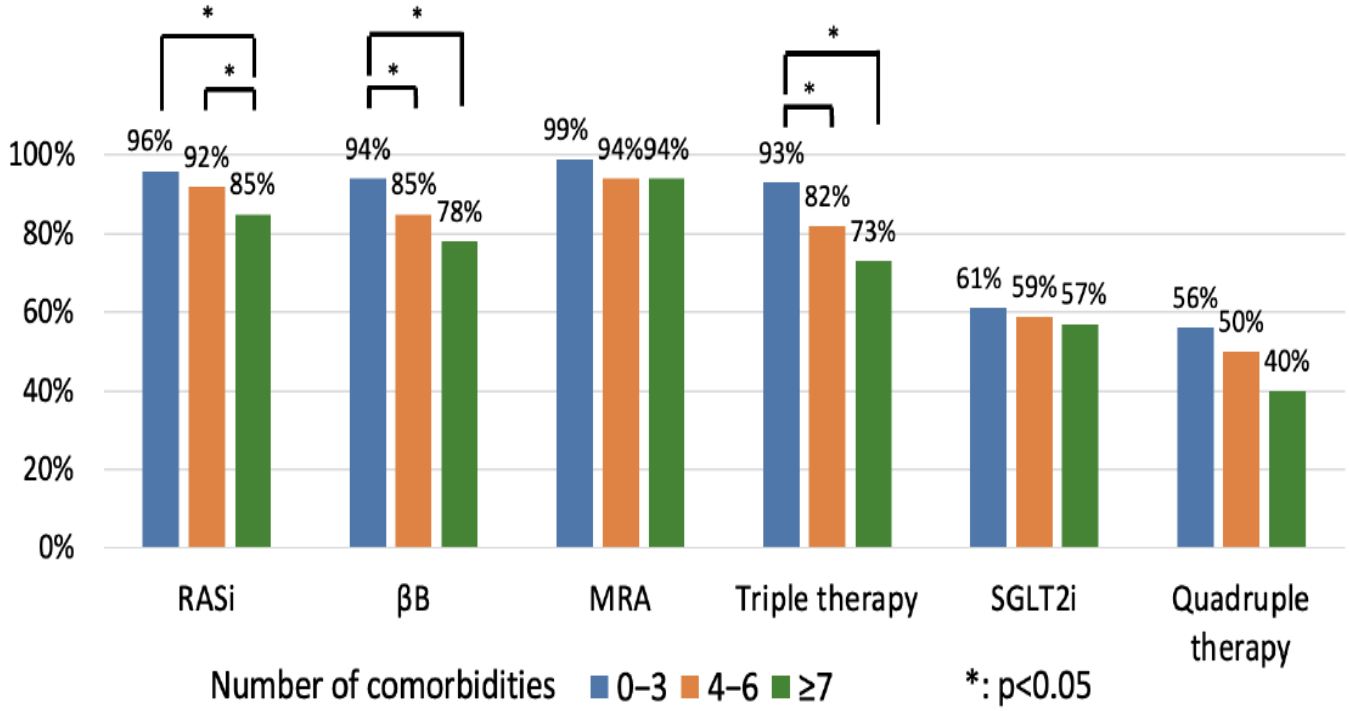


JACC: HEART FAILURE VOL. 12, NO. 10, 2024



N. Girerd et al / Rev Esp Cardiol. 2023;76(10):813–820

Therapeutic Consequences and Prognostic Impact of Multimorbidity in Heart Failure: Time to Act



J. Clin. Med. **2025**, *14*, 139

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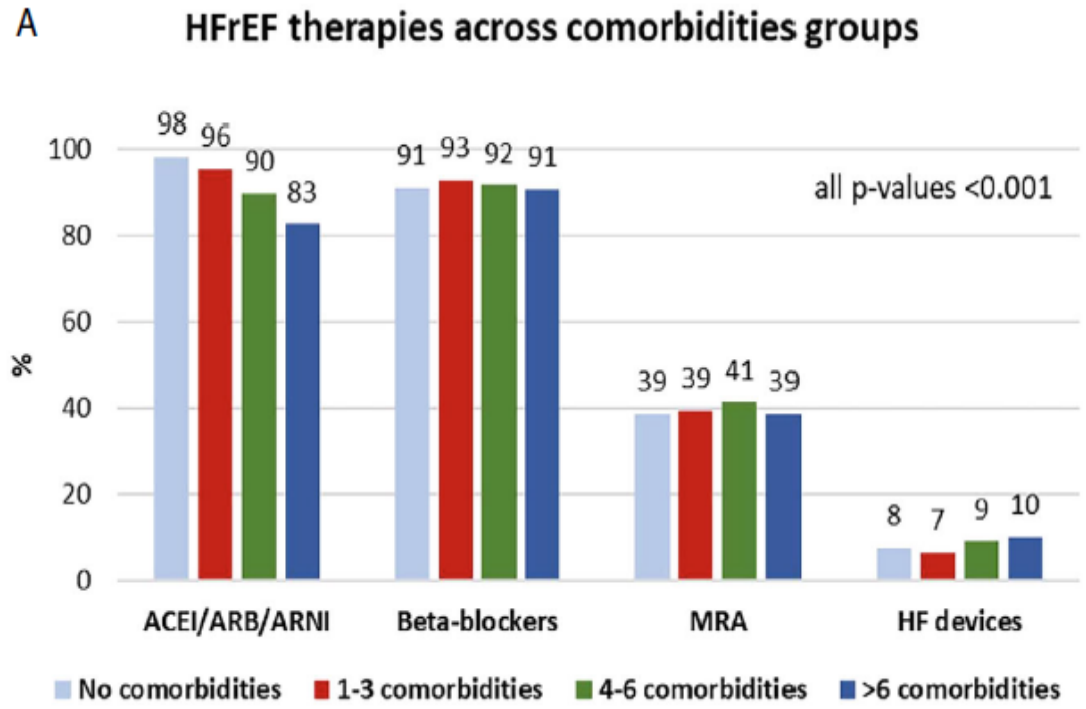

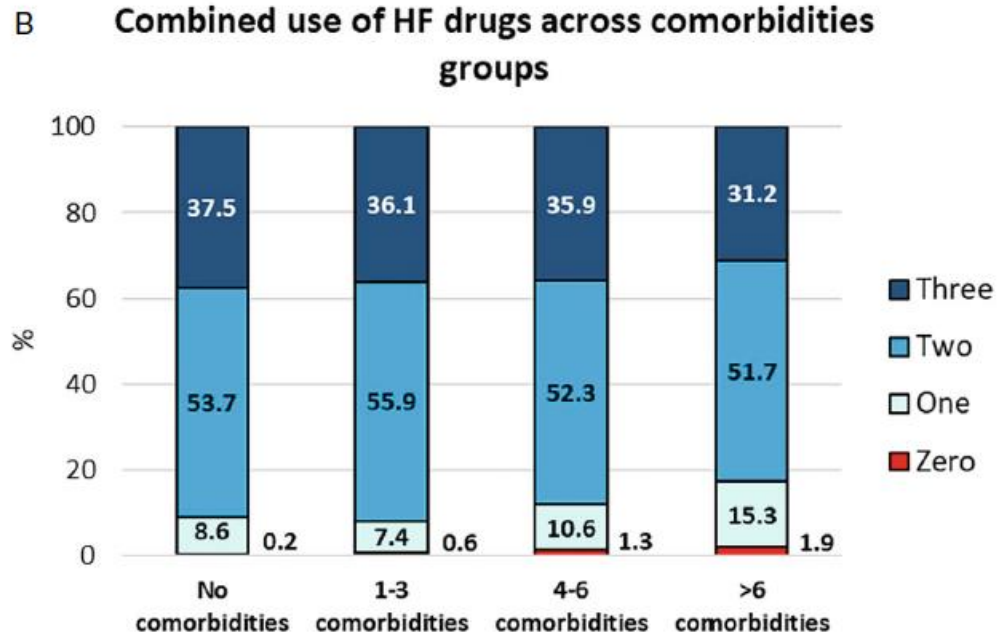

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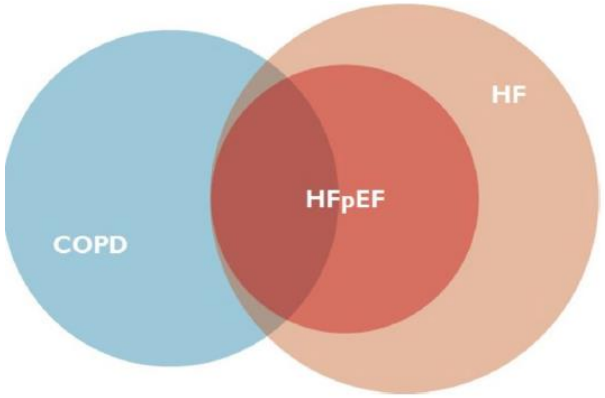
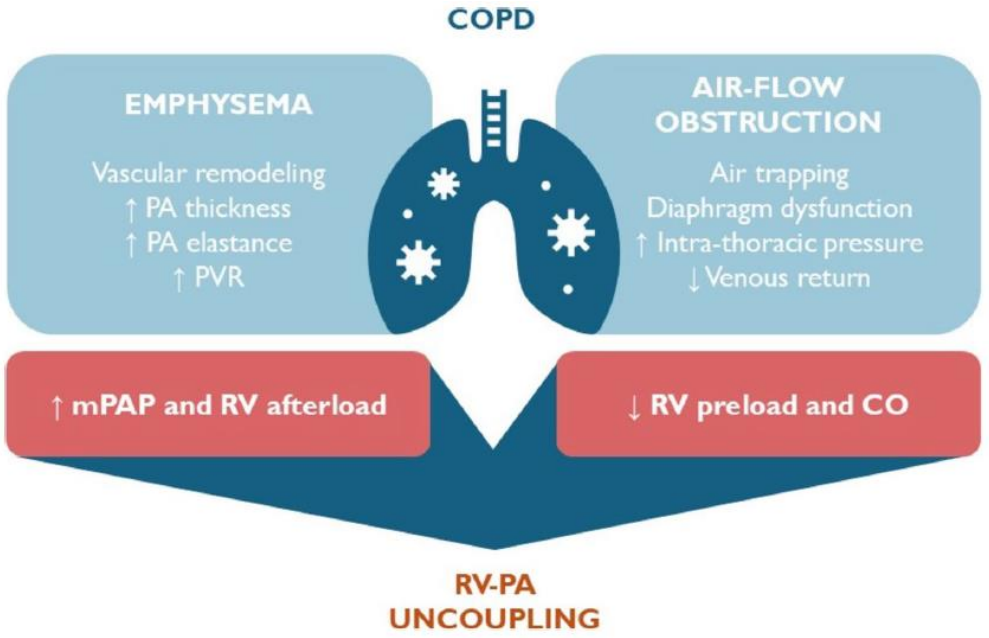
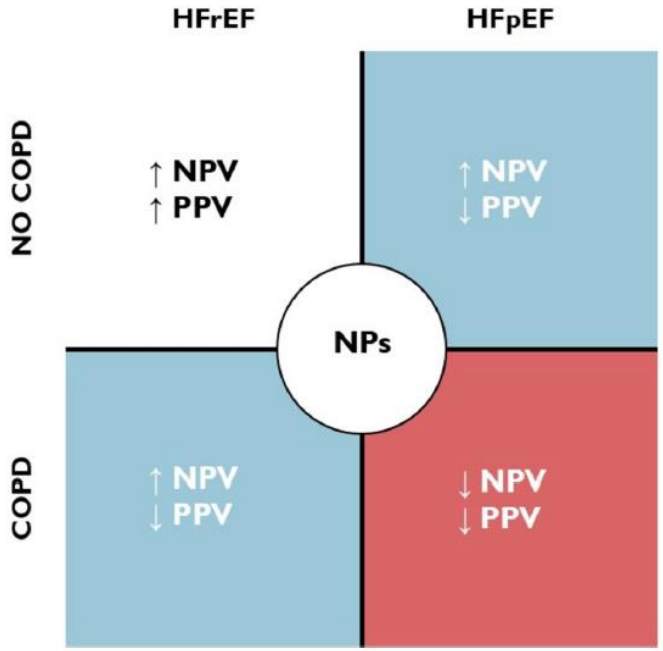
Heart failure and chronic obstructive pulmonary disease. A combination not to be underestimated

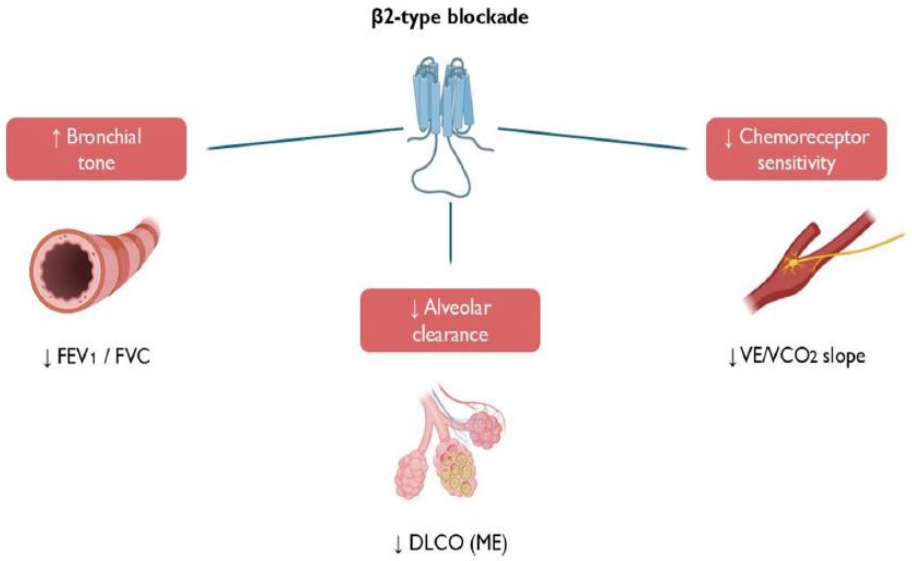


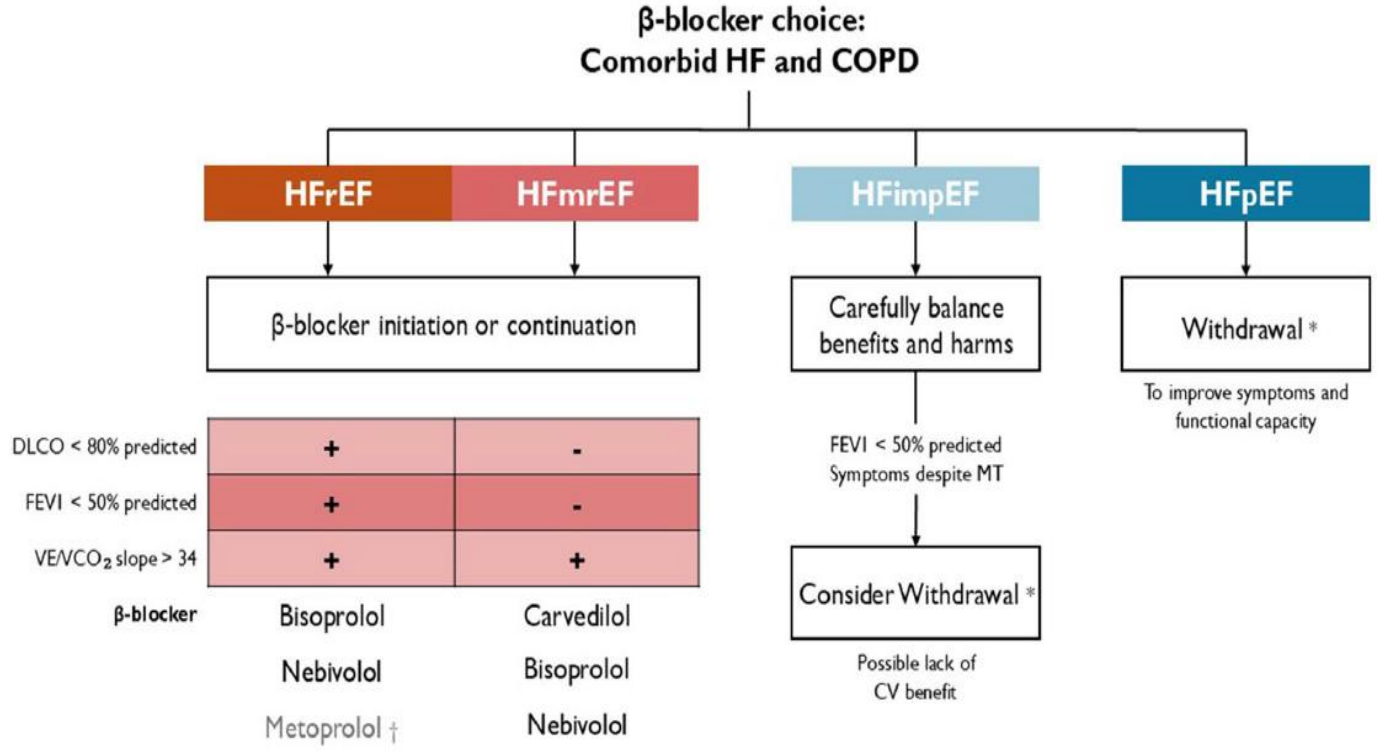




Heart Failure Reviews (2025) 30:1525–1538

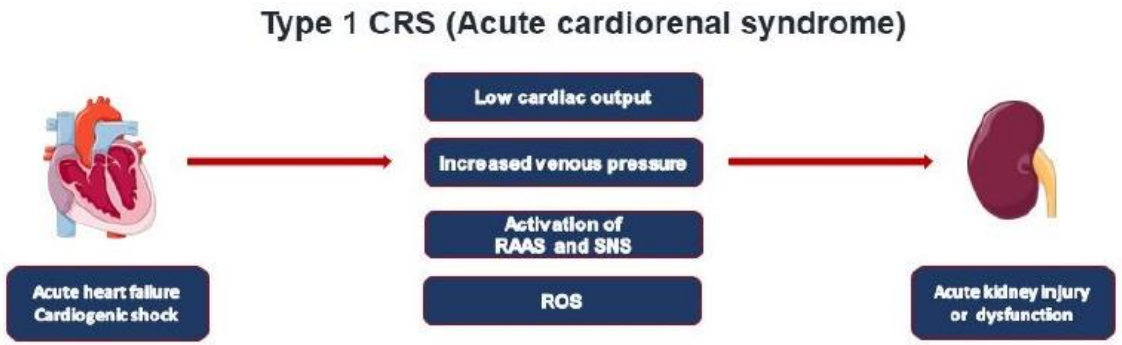
Heart failure and chronic obstructive pulmonary disease. A combination not to be underestimated

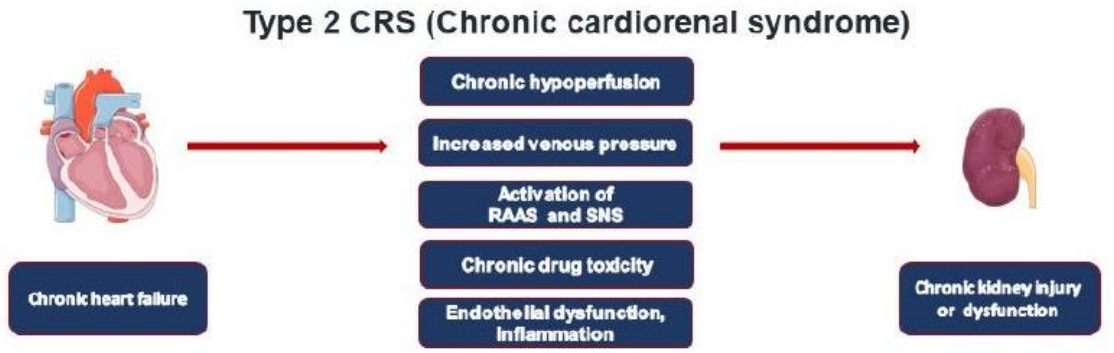


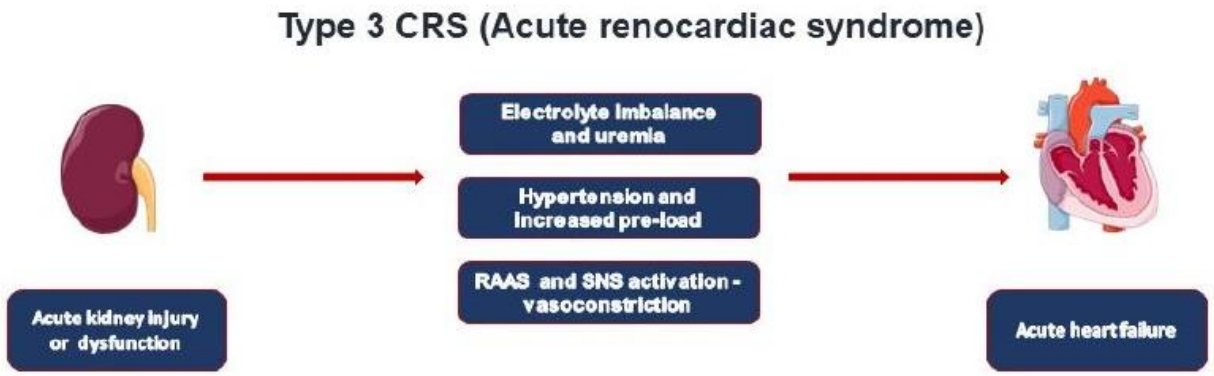


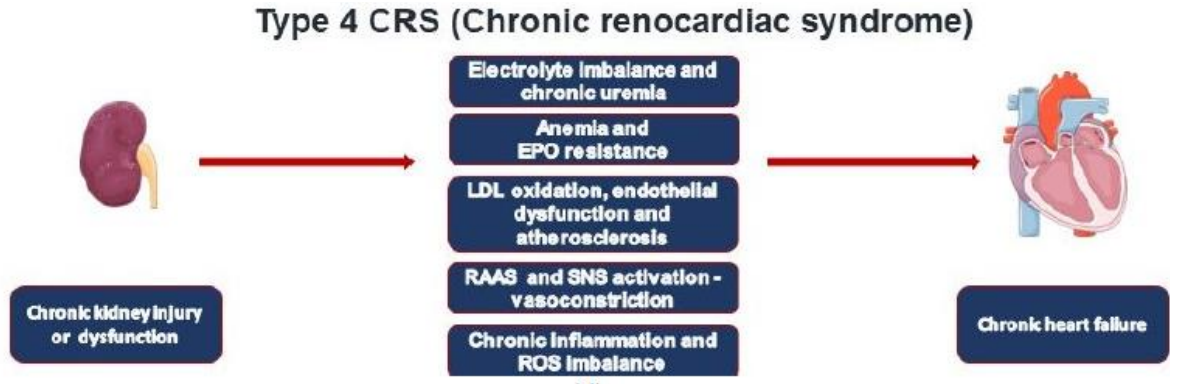
Heart Failure Reviews (2025) 30:1525–1538

CRS Types	Mechanisms	Clinical Conditions
Type 1—Acute cardiorenal syndrome	AHF leading to AKI	AHF, ACS, cardiogenic shock
Type 2—Chronic cardiorenal syndrome	CHF leading to CKD	CHF regardless of cause
Type 3—Acute renocardiac syndrome	AKI leading to AHF	Volume overload, uremic metabolic disturbances, and inflammatory eruption
Type 4—Chronic renocardiac syndrome	CKD leading to CHF	CKD-induced cardiomyopathy resulting in cardiac remodeling and heart failure
Type 5—Secondary cardiorenal syndrome	Systemic disorder leading to cardiorenal dysfunction	Sepsis, diabetes, liver cirrhosis, amyloidosis, M. Fabry

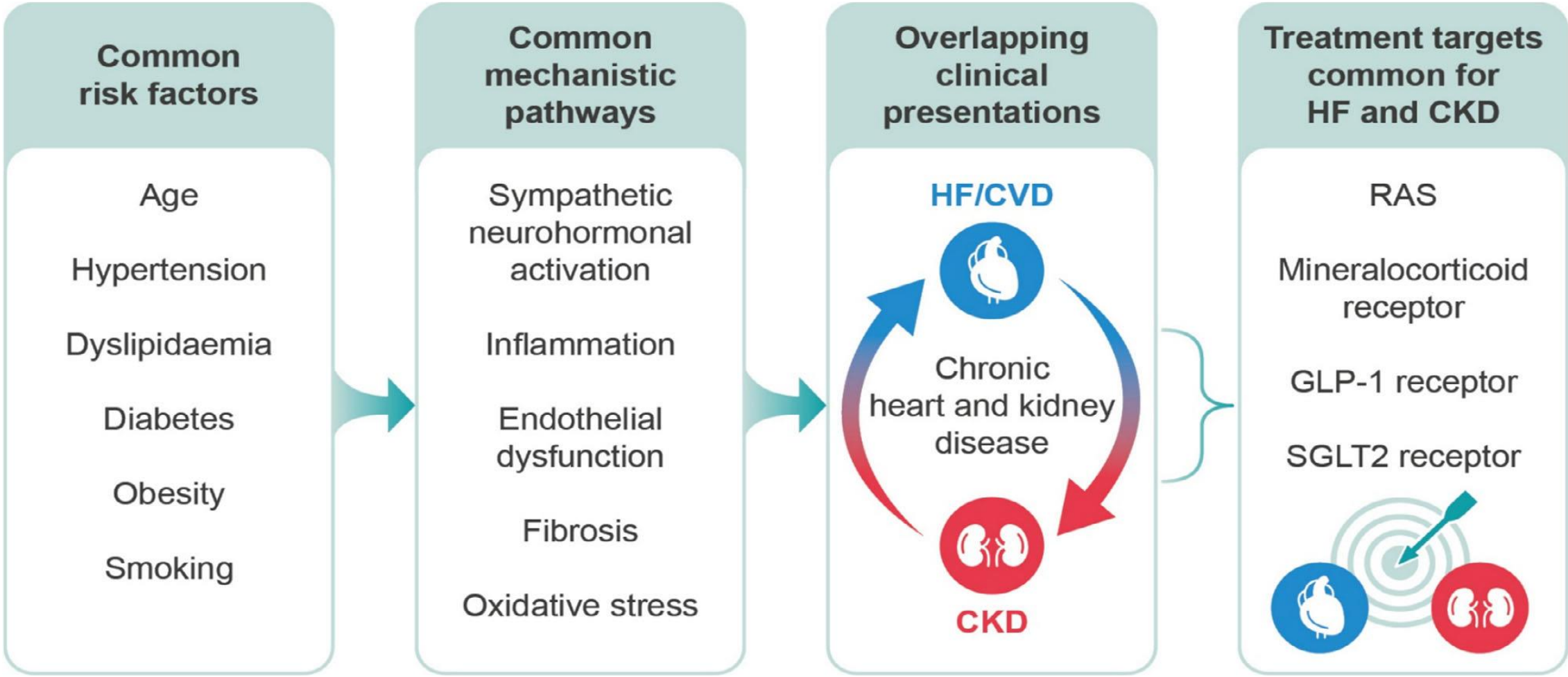








J. Clin. Med. **2022**, 11, 7041



ESC Heart Failure 2025; 12: 3226–3249

Common risk factors

Common mechanistic

TERAPIA DI CKD e HF

- Aumentato rischio di effetti avversi tra farmaci per HF e per CKD (es. iperpotassiemia)
- Ridotta tolleranza a RASis e B-bloccanti
- Diuretico resistenza
- Necessità di frequente adeguamento di posologia a variazione di e-GFR

ESC Heart Failure 2025; 12: 3226–3249

Study cohort (n=334)
Patients with Heart Failure and Multi-morbidity referred from HF MDT to HF Multi-speciality MDT
(Jan 2020 to June 2021)

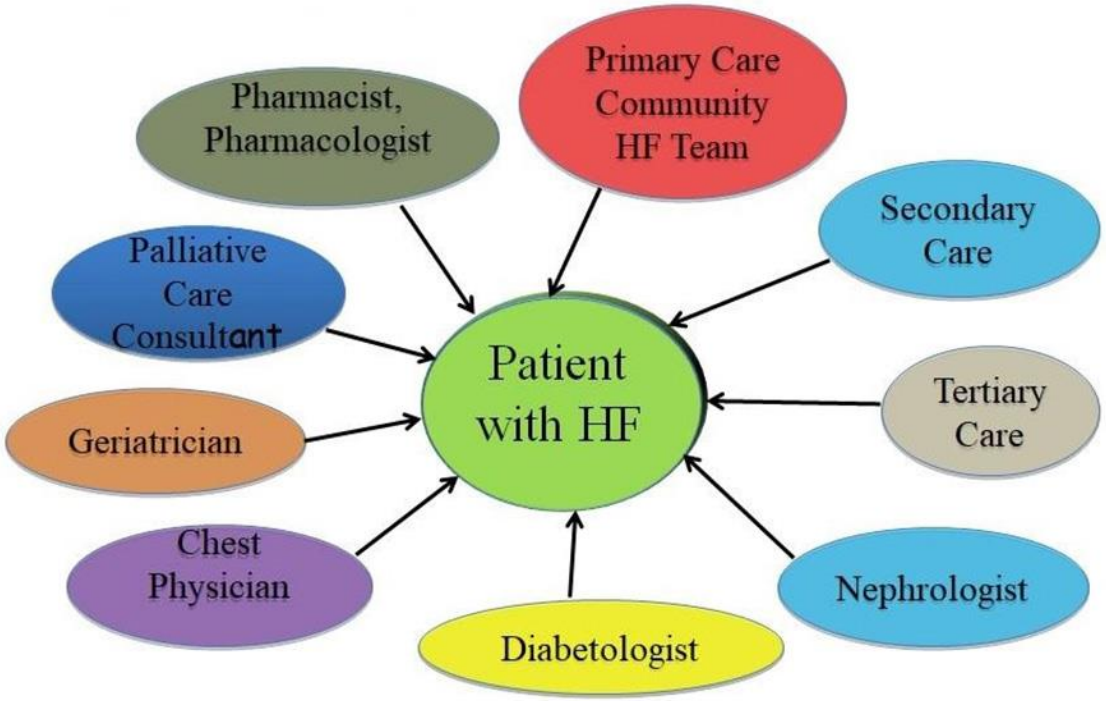
All patients
- Baseline Characteristics
- Charlson Co-morbidity Score
- Rockwood Frailty Score
- Medications and anti-cholinergic burden

Outcomes
(IIF MDT -Pre-multispecialty MDT analysed for a duration matched to post-MDT follow-up duration for each patient)
- All-cause hospitalisations
- Outpatient clinic attendances
- HF MDT interventions

Outcomes
(Post-Multi-speciality MDT meeting)
- All-cause hospitalisations
- Outpatient clinic attendances
- Multispecialty MDT interventions

Cost-analysis

Multispecialty multidisciplinary input into comorbidities along with treatment optimisation in heart failure reduces hospitalisation and clinic attendance



Open Heart 2022;9:e001979.

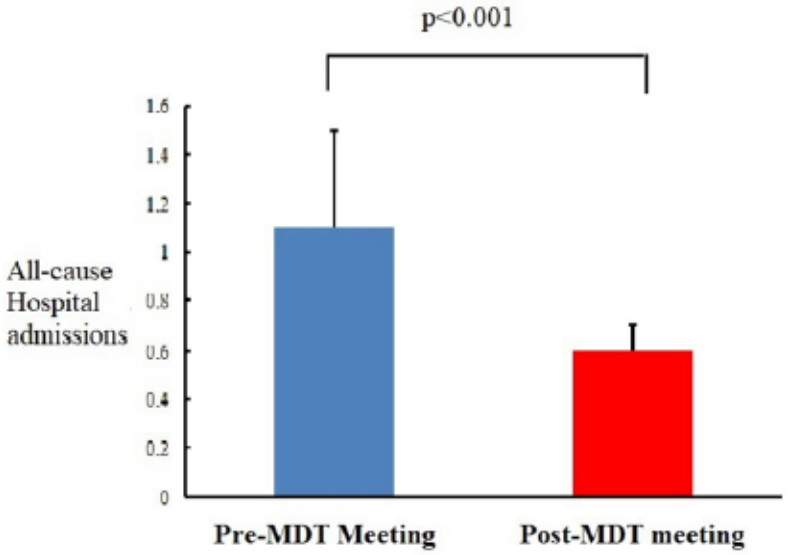


Figure 2 Comparison of all-cause hospitalisations premultispecialty and postmultispecialty MDT meeting. MDT, multidisciplinary team.

Total saving to the healthcare system = £664 550

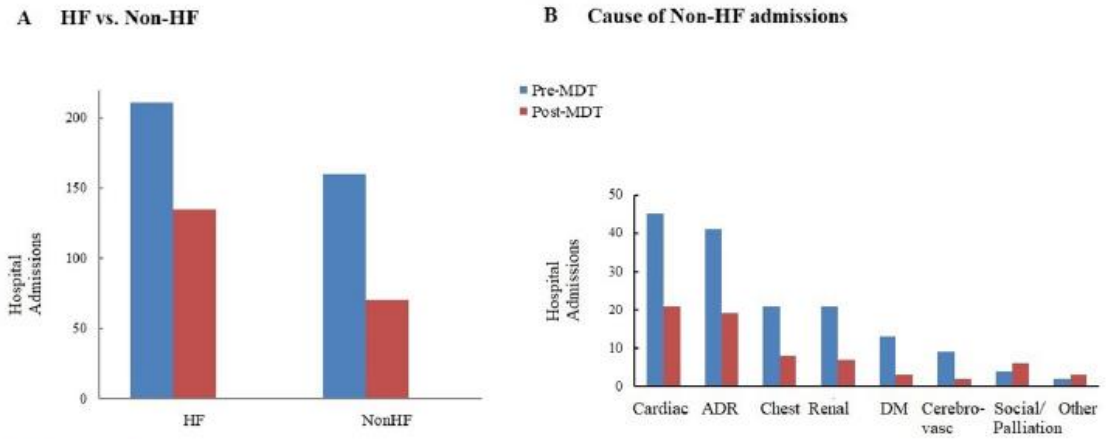


Figure 3 Comparison of hospitalisation premultispecialty and postmultispecialty MDT based on causes. DM, diabetes mellitus; HF, heart failure; MDT, multidisciplinary team; ADR, Adverse Drug Reaction

Open Heart 2022;9:e001979.

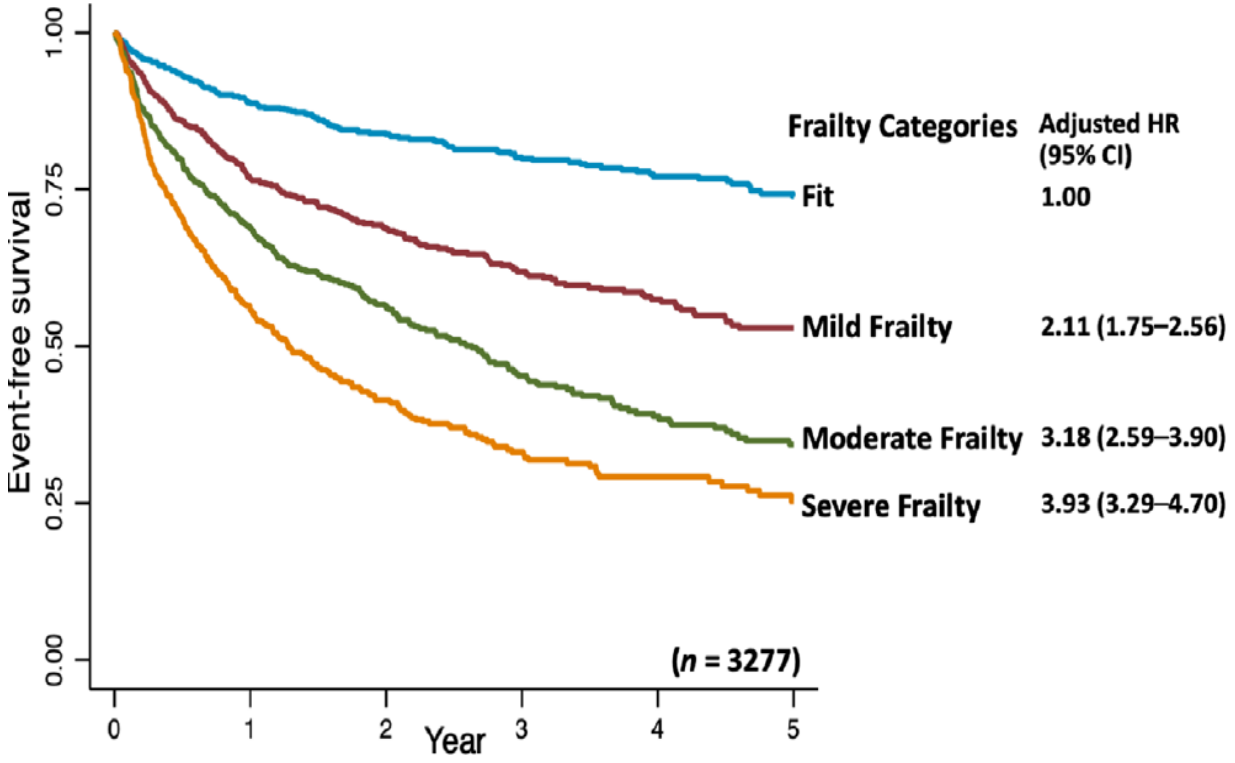
Condition	Medicines optimisation	Premultispecialty MDT	Postmultispecialty MDT	P value
Heart failure	1. Quadruple therapy in HFrEF	65/141 patients (46%)	101/141 patients (71%)	<0.001
	2. ICD	12 patients	14 patients	NS
	3. CRT+-D	13 patients	14 patients	NS
	4. Advanced HF referral	5 patients	6 patients	NS
CKD	1.Initiation of ACEi/ARB in patients with HFrEF and CKD4 (up to eGFR 20 mL/min/1.73 m^2)	4/45 (9%)	32/45 (71%)	<0.001
	2.Potassium binder therapy for hyperkalaemia due to RAASi therapy	2 patients	13 patients	
Type 2 diabetes	1. Stopping or reducing dose of sulphonylureas and starting SGLT2i (42 patients)	HbA1c control		
		68±11 (mmol/mol)	61±9 (mmol/mol)	<0.001
	2. Switching from DPP4 inhibitor to SGLT2i (33 patients)			
	3. Adding SGLT2i to Insulin (19 patients)			

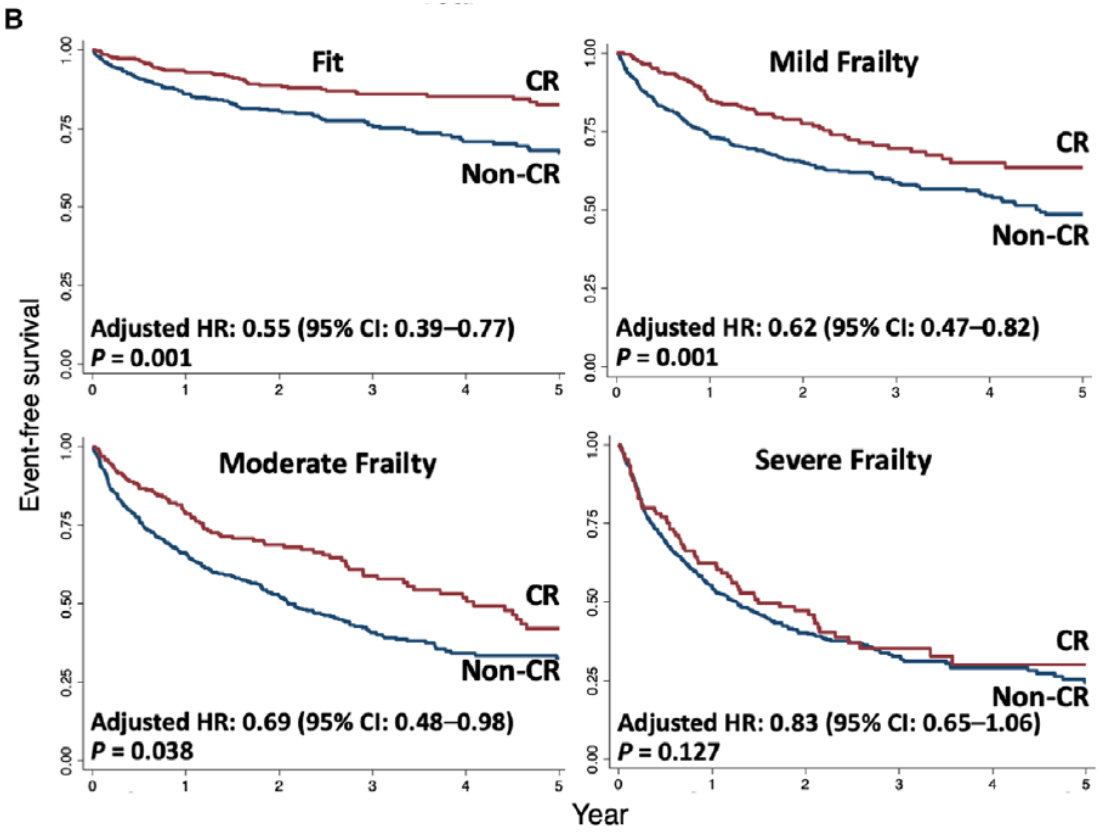
Open Heart 2022;9:e001979.

Adverse drug reactions				
1. Falls	1. Reduction in anticholinergic burden by deprescribing medications such as anti-histamines (17 patients), Nitrate substituted for Ivabradine or ranolazine (6 patients)	ACB 1.85±0.4	1.5±0.3	<0.001
		Hospital admissions		
		41/334 (12%)	18/334 (5%)	0.003
2. Bleeding	2. Switching from dual-antiplatelet to single-anti-platelet therapy or stopping anti-platelet when used in combination with anticoagulant (17 patients)			
3. Delirium/acute confusional state	Reduction in or stopping antimuscarinic drugs such as Oxybutynin (9 patients), anti-histamine (17 patients), opioid analgesia (21 patients), sedative drugs (9 patients) and antispasmodics			
4. Reduction in risk of C.difficile infection	Stopping H2 antagonist of proton pump inhibitor in absence of clear indication (proven peptic ulcer, gastrointestinal bleeding or dyspepsia (41 patients)			
Optimising management of chest conditions	1. Referral for spirometry and optimising inhalers	9/103 (9%)	38/103 (37%)	<0.001
Anaemia	Stopping oral iron, administration of intravenous iron, erythropoietin, folic acid or vitamin B_{12}	Persisting anaemia 81/334 (24%)	18/334 (5%)	<0.001

Open Heart 2022;9:e001979.

Multidisciplinary Cardiac Rehabilitation and Long-Term Prognosis in Patients With Heart Failure

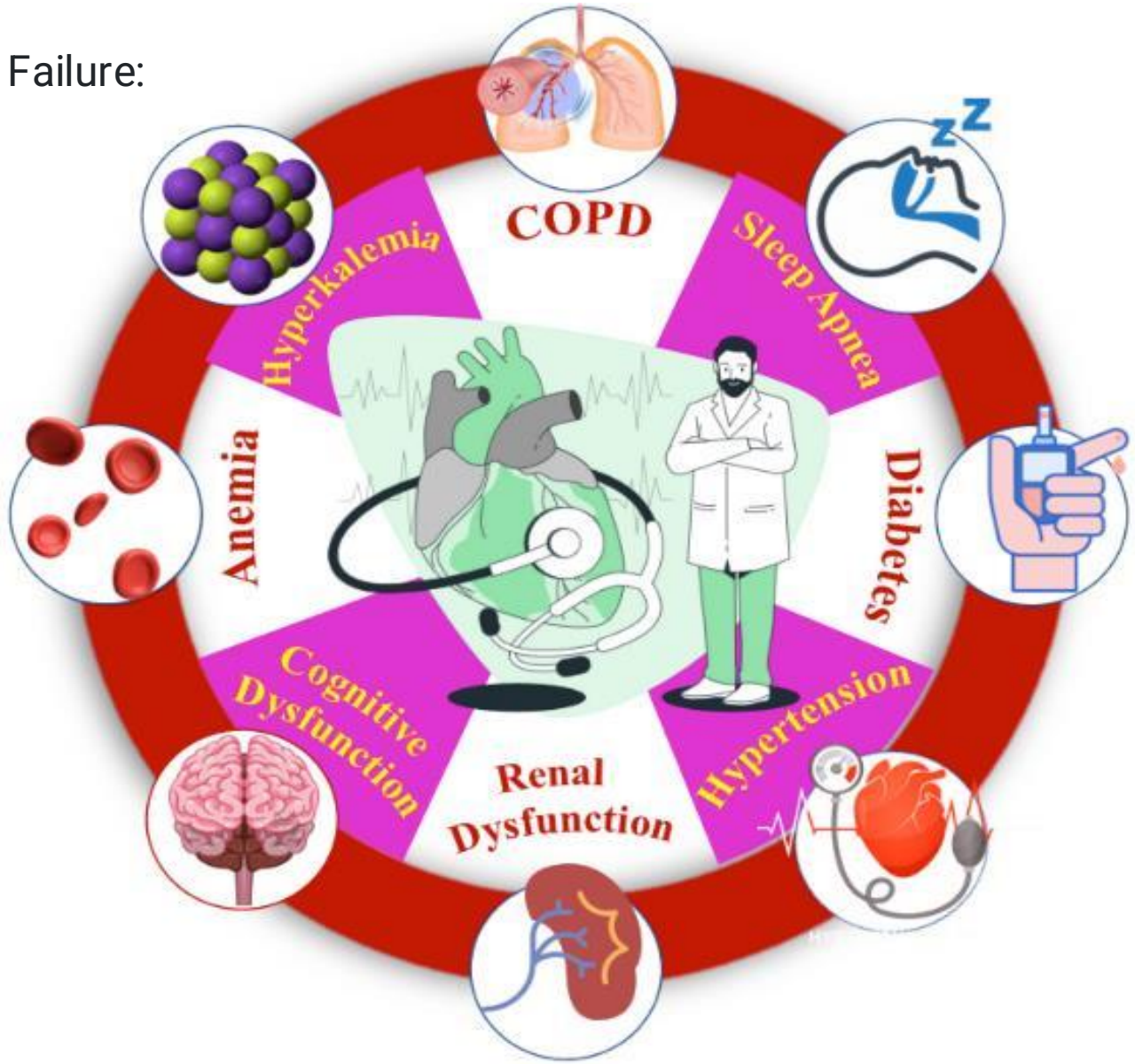




Circ Heart Fail. 2020;

The Interplay of Comorbidities in Chronic Heart Failure: Challenges and Solutions

There is a pressing need for a multidisciplinary, tailored approach to manage HF and its intricate comorbidities.



Comorbidity Wheel: Visualizing the Complex Interplay of Conditions in Chronic Heart Failure Management.

Current Cardiology Review 2024

2024 ACC Expert Consensus Decision Pathway for Treatment of Heart Failure With Reduced Ejection Fraction

Comorbidity	Association With Heart Failure Outcomes	Clinical Trial Evidence for Modulating Comorbidity	Suggested Action
Cardiovascular			
Coronary artery disease	Strong	Strong	■ Revascularize in appropriate patients with HFrEF and suitable coronary anatomy
Atrial fibrillation/ flutter	Strong	Strong	■ Anticoagulate if indicated ■ Consider AF ablation[223] or AV nodal ablation with CRT implantation in selected patients ■ Treat according to the current ACC/AHA/ACCP/HRS Guideline for the Diagnosis and Management of Atrial Fibrillation[224]
Mitral regurgitation	Strong	Intermediate	■ Multidisciplinary management, including structural heart team[225,226] ■ Consider transcatheter intervention in carefully selected patients with symptomatic HF and secondary MR after GDMT optimization[227] ■ Treat according to the current ACC/AHA Guideline for the Management of Patients with Valvular Heart Disease[225] and ACC ECDP on the Management of MR[226]
Aortic stenosis	Strong	Strong	■ Multidisciplinary management, including structural heart team ■ Treat according to current ACC/AHA Guideline for the Management of Patients with Valvular Heart Disease[225]
Hypertension	Uncertain	Strong for prevention	■ Treat according to current ACC/AHA/Multisociety Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults[228]
Dyslipidemia	Uncertain	Strong for prevention	■ Treat according to current AHA/ACC/Multisociety Guideline on the Management of Blood Cholesterol[229] and the ACC ECDP on the Role of Nonstatin Therapies for LDL-Cholesterol Lowering in the Management of ASCVD Risk[230]
Peripheral vascular disease	Moderate	None	■ Treat according to current AHA/ACC Guideline on the Management of Patients With Lower Extremity Peripheral Artery Disease[231]
Cerebrovascular disease	Moderate	Weak	■ Treat according to current ASA/AHA Guideline for the Early Management of Patients with Acute Ischemic Stroke[232]

JACC VOL. 83, NO. 15, 2024
APRIL 16, 2024:1444-1488

2024 ACC Expert Consensus Decision Pathway for Treatment of Heart Failure With Reduced Ejection Fraction

Noncardiovascular			
Diabetes	Strong	Strong	■ Consider consult with endocrinologist ■ Monitor serum creatinine and albuminuria at least yearly ■ Treat with SGLT inhibitor for management of hyperglycemia ■ Treat according to the current ACC ECDP on Novel Therapies for CV Risk Reduction in Patients with T2D[117] and ADA Standards of Medical Care in Diabetes[233]
Chronic kidney disease	Strong	Strong	■ Optimize RAAS inhibitor therapy ■ Use hydralazine/ISDN if an ARNI/ACE inhibitor/ARB cannot be used ■ Treat with SGLT inhibitor if GFR allows ■ Consider nephrology consult
Sleep disordered breathing	Strong	Intermediate; note that in patients with symptomatic HFrEF and central sleep apnea, adaptive servo-ventilation is harmful[234]	■ Refer for sleep study to confirm diagnosis ■ Treat obstructive sleep apnea ■ Consider referral to sleep medicine specialist
Iron deficiency (with or without anemia)	Strong	Intermediate	■ Consider intravenous iron replacement for symptom improvement
Malnutrition	Strong	Intermediate to Strong	■ Poor nutrition may result in worse HF outcomes. In line with the 2019 ACC/AHA Primary Prevention Guidelines, a low salt, plant-forward diet has robust evidence to aid in the management of HFrEF patients, including their common morbidities.[235]
Anemia	Moderate	Weak; note that in patients with HF and anemia, use of erythropoietin-stimulating agents is harmful[236]	■ Evaluate secondary causes ■ Consider transfusion in severe cases
Hyperkalemia	Uncertain; may limit initiation and titration of GDMT	Weak	■ Recommend dietary modifications ■ Consider treating with patiromer or sodium zirconium cyclosilicate
Obesity	Moderate (inverse association)	Weak	■ Data are suggestive of symptomatic benefit from treatment of obesity using glucagon-like peptide receptor agonist-1 in HFpEF[237]; however, additional data needed regarding safety and efficacy of weight-loss agents in HFrEF
Chronic lung disease	Strong	Weak	■ Smoking cessation ■ Optimize therapy ■ Consider pulmonary consultation
Thyroid disorder (hypo or hyper)	Strong	Weak	■ Evaluate and initiate treatment ■ Consider referral to endocrinologist
Viral infection (eg, COVID-19, RSV, or influenza)	Strong	Strong	■ Encourage vaccination per the Standards for Adult Immunization Practice[254]

JACC VOL. 83, NO. 15, 2024
APRIL 16, 2024:1444-1488

Domain	Knowledge gap	Research need	Improving current knowledge
CKD	Optimal thresholds for RAAS/ARNI use in advanced CKD	Prospective data on renal safety and titration limits	Systematic reviews with eGFR < 30 ml/min
Diabetes	Long-term effects of GLP-1RA in HF	Randomized outcome trials in HF irrespective of EF	Secondary analyses of the persistence of benefit Narrative reviews
Obesity	Clarification of beneficial vs. pathologic adiposity ("obesity paradox") Effects of GLP-1RA in patients with HFrEF The role of inflammation beyond CR-P (IL6, other novel biomarkers)	Mechanistic and phenotyping studies RCTs in HFrEF Inclusion of IL6 and other novel biomarkers in new RCTs	Consensus documents Narrative and systematic reviews
COPD	Role of pulmonary rehabilitation in HF-COPD overlap Effects of COPD medication, particularly beta-2-sympathoadrenergic medication, on the cardio-vascular system	Integrated cardiopulmonary trials	Consensus documents HF specialists and neurologists
Iron Deficiency	Optimal dosing, duration, and mode of administration of iron replacement therapies	Long-term safety, benefits on quality of life, and mortality data	Review of several definitions of iron deficiency Consensus documents
Multimorbidity	Interaction of > 3 non-cardiac comorbidities on GDMT response	Multidimensional predictive models	Secondary analyses from RCTs Propensity matching score analyses from registries
Trial Design	Underrepresentation of severe comorbidities/ multimorbidity in clinical trials investigating HF therapies	Pilot pragmatic RCTs reflecting real-world complexity	State-of-the-art manuscripts
Disease-Network-Based approaches	Need to capture a broad spectrum of comorbidities with a changing trajectory during HF progression	To create a phenotype algorithm for each comorbidity	Disease-network-based analyses from electronic health records or administrative data

Current Heart Failure Reports (2025) 22:36

CONCLUSIONI

Le Comorbidità presentano una elevata prevalenza nello scompenso cardiaco lungo tutto lo spettro di frazione di eiezione

Le Comorbidità incrementano nel tempo dalla prima diagnosi di scompenso cardiaco

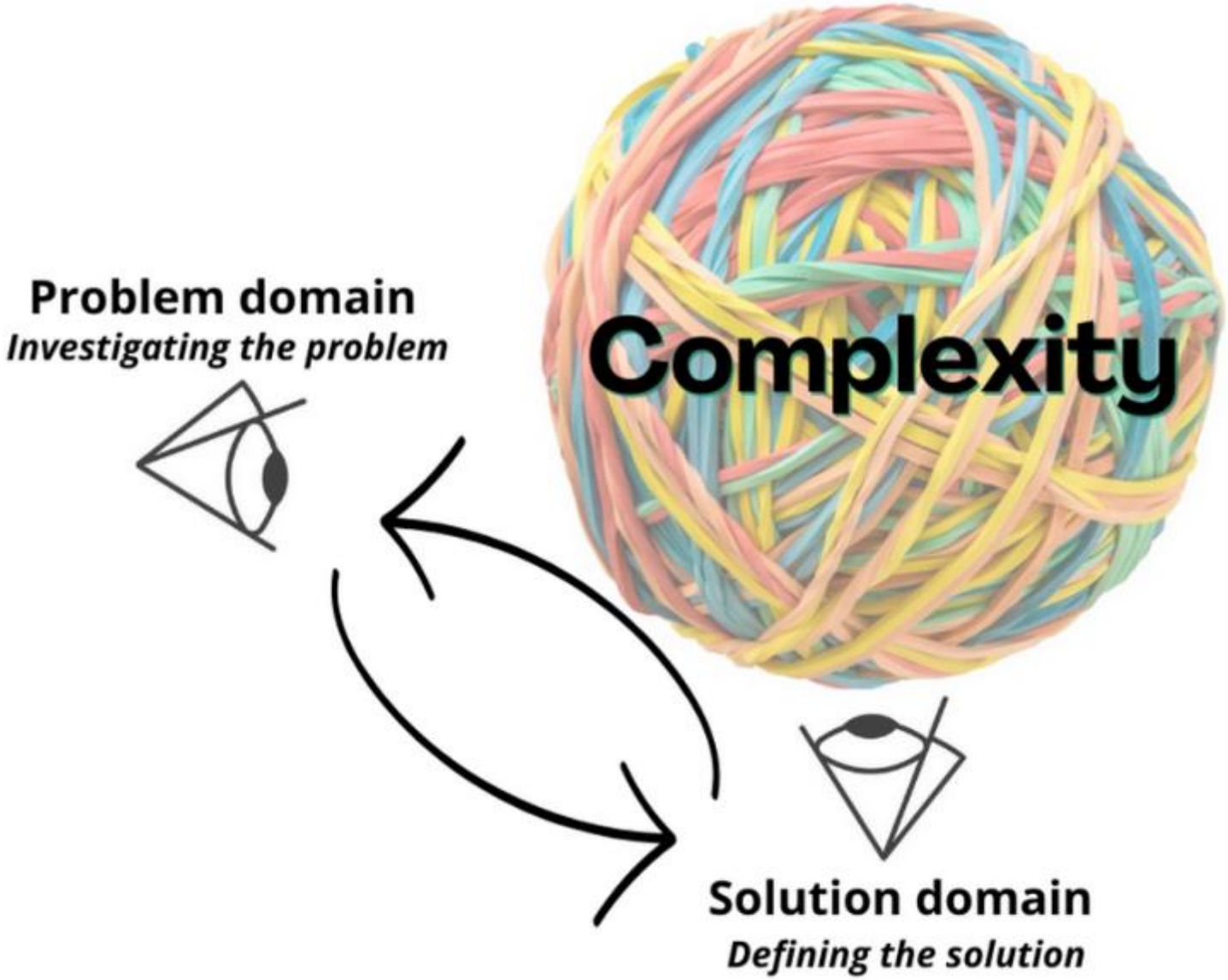
Le Comorbidità possono rendere difficile la diagnosi di scompenso cardiaco o l'identificazione di suo peggioramento

Le Comorbitità peggiorano tutti gli outcome del paziente dalla qualità della vita, al rischio di re-ospedalizzazioni alla mortalità totale e cardiovascolare con un effetto cumulativo con l' incremento del numero di comorbilità e con effetti moltiplicativi in presenza di alcune associazioni di alcune comorbidità (**CKD- DM per es**)

Le Comorbidità peggiorano la probabilità di adeguata terapia antiscompenso e di raggiungere i target di GDMT

La strategia di valutazione polispecialistica in team con rivalutazioni frequenti riduce drammaticamente i rischi di undertreatment e di fallimento terapeutico (effetti collaterali, scarsa compliance ecc)

Permangono GAP da affrontare e risolvere con studi futuri



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GRAZIE PER L'ATTENZIONE