Guideline-directed medical therapy treatment patterns in patients with newly-diagnosed heart failure stratified by left ventricular ejection fraction in the United States

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Introduction

- The 2022 AHA/ACC/HFSA guidelines for the management of heart failure (HF) include novel treatment recommendations including the use of angiotensin receptor/neprilysin inhibitor (ARNi) in HFmrEF and HFpEF, and sodium-glucose co-transporter-2 inhibitors (SGLT2is) across the full LVEF spectrum.
- This study sought to describe the profile of patients with incident HF, stratified by LVEF, as well as treatment with GDMT after diagnosis in a contemporary cohort of real-world patients from the US.

Methods

- Using data from the US Optum® de-identified electronic health record dataset, we identified adult patients aged ≥18 years with a first inpatient or outpatient HF diagnosis (based on ICD-10-CM codes) from January 2020 to December 2023.
- Patients were required to have ≥1 LVEF measurement of 5–95% primarily derived using natural language processing of unstructured physician notes within ±90 days of the first HF code. The index date was the date of first HF diagnosis/index LVEF value, whichever came second.
- Patients were also required to have ≥365 days continuous data before the index date and no previous record of heart transplant/semi-permanent ventricular assist device.
- We stratified patients by index LVEF: HFrEF (≤40%), HFmrEF (41–49%), and HFpEF (≥50%), and followed them from the index date until 31 December 2023 or censorship (death, use of a ventricular assist device, or heart transplant), whichever came first. We evaluated patients' clinical characteristics (in the year before the index date) and GDMT during follow-up.

Results

Patient characteristics

- Among 262,464 adults with incident HF, 27% were newly diagnosed with HFrEF, 12% with HFmrEF, and 61% with HFpEF (**Table 1**).
- Median patient-individual follow-up time (hereafter referred to as follow-up) was 10.2 months for HFrEF and 11.1 months for both HFmrEF and HFpEF.
- Comorbidity burden was high for all LVEF subtypes (**Fig 1**).

Table 1. Baseline characteristics of the HF cohorts stratified by LVEF.

	HFrEF (LVEF ≤40%) N = 70,069	HFmrEF (LVEF 41–49%) N = 32,123	HFpEF (LVEF ≥50%) N = 160,272
Age (yrs), median (Q1, Q3)	68 (58, 78)	70 (60, 80)	73 (63, 82)
Sex (% male)	64.5	63.2	46.7
Race (%)			
White	74.8	78.3	79.5
African–American	17.3	14.6	13.6
Asian	1.5	1.5	1.6
Other/missing	6.4	5.7	5.3
Ethnicity (%)			
Hispanic	4.1	4.4	3.9
Non-Hispanic	83.9	85.4	86.1
Missing	12.0	10.2	10.0

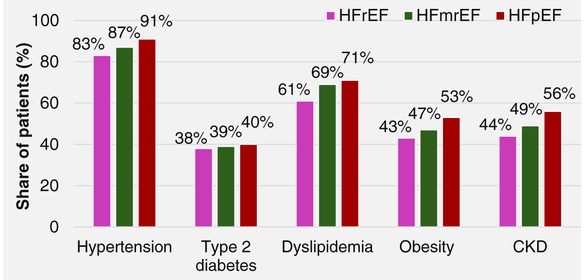

Fig 1. Baseline comorbidities by LVEF in incident HF patients.

Guideline-directed medical therapies

- Among classes of GDMTs, beta blockers were the most widely prescribed (**Fig 2**).
- ARNi was prescribed to around a quarter of HFrEF patients, and a minority of HFmrEF (11.0%) and HFpEF (2.6%) patients (**Fig 2**).
- SGLT2is were prescribed to less than a fifth of HFrEF patients (18.2%), and a minority of HFmrEF (11.5%) and HFpEF (6.9%) patients (**Fig 2**).
- 12% of HFrEF patients, 16% of HFmrEF patients, and 24% of HFpEF patients were not prescribed any GDMT (**Fig 3**).

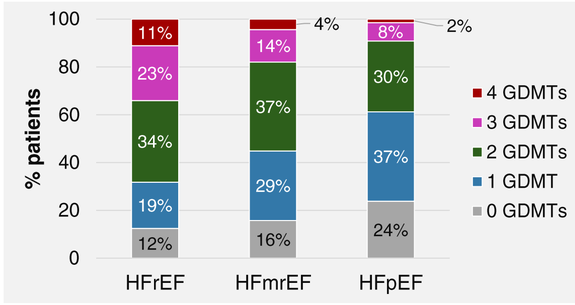

Fig 3. Number of GDMTs prescribed during follow-up by LVEF.

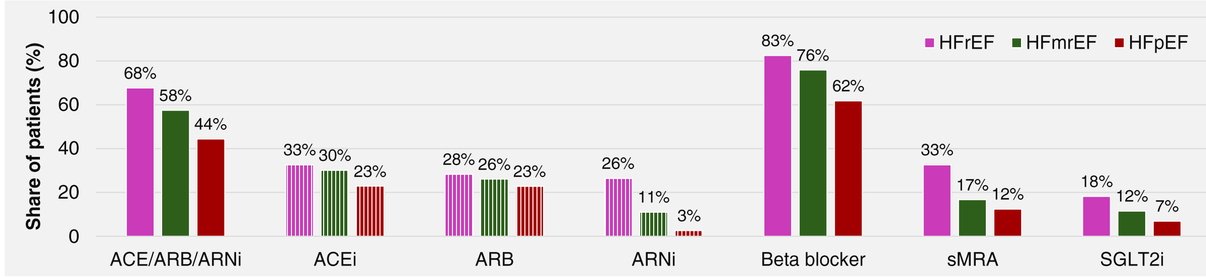

Fig 2. Classes of GDMT prescribed during follow-up by LVEF.

Conclusions

- These findings from real-world US clinical practice suggest that the majority of patients with newly-diagnosed HF have HFpEF, and that cardiovascular, metabolic, and renal comorbidity burden is high across the LVEF spectrum.
- Prescription of GDMTs was low across LVEF subtypes, especially patients with HFmrEF or HFpEF, potentially leaving them at high risk of worse clinical outcomes.
- Further research is needed to understand the reasons behind low prescription of GDMTs in HF, especially among patients with HFmrEF and HFpEF, including potential access/cost barriers, and educational needs of patients and physicians.

CL reports research support from NovoNordisk & Roche Diagnostics; consulting fees from Alnylam Pharma, AnaCardio AB, Applied Therapeutics, AstraZeneca, Bayer, Biopeutics, Boehringer Ingelheim, Boston Scientific, Bristol Myers Squibb, Corteria, CPC Clinical Research, Cytokinetics, Eli Lilly, Impulse Dynamics, Intellia Therapeutics, Janssen Research & Development LLC, Medscape/WebMD Global LLC, Merck, Novartis, Novo Nordisk, Quidel Corporation, Radcliffe Group Ltd., Roche and Us2.ai; and is the co-founder & non-executive director of Us2.ai. GF reports consulting for Abbott, Amgen, AstraZeneca, Bayer, Boehringer Ingelheim, Cytokinetics, Eli Lilly, Johnson & Johnson, Medtronic, Merck, Novartis, & Pfizer. YMF, AH, CS, SH, KR, AM, RK are Bayer employees. SvBM is a former Bayer employee. SG works for Syneos Health, which has received research funding from Bayer.

Presented at the Heart Failure Society of America, 26–29 September 2025, Minneapolis, Minnesota, USA

Acknowledgement: We thank EpiMed Communications for support in the development of this poster, funded by Bayer AG.