Characteristics and treatment of prevalent heart failure in the US: a cross-sectional analysis of annual trends from 2014–2023

HSD22

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BACKGROUND & OBJECTIVE

- The global burden of heart failure (HF) is growing, given an ageing and highly comorbid population.[1]
- While some disease-modifying agents have been used to treat HF with reduced ejection fraction (HFrEF) for decades, others – including sodium-glucose cotransporter-2 inhibitors (SGLT2is) and angiotensin receptor/neprilysin inhibitor (ARNi) – were introduced more recently for use in HFrEF and HF with mildly reduced or preserved ejection fraction (HFmrEF/HFpEF).[2]
- Our study describes the characteristics, comorbidity profile and treatment of prevalent HF patients in the US, stratified by left ventricular ejection fraction (LVEF) subtype, over time from 2014–2023.

METHODS

- We performed a cross-sectional analysis of Optum® de-identified electronic health records to identify adult patients with prevalent HF for each year separately from 2014–2023. To do this, we used ICD-9-CM/ICD-10-CM diagnosis codes, LVEF measurements (extracted using natural language processing), National Drug Codes, Current Procedural Terminology 4 codes, and Healthcare Common Procedure Coding System codes.
- Patients were included in annual cohorts if they were ≥18 years of age on 1 January and had ≥1 HF diagnosis and ≥1 LVEF value (from 5–95%) during the respective cross-sectional year.
- Sociodemographics, comorbidities and treatments were described for each annual cohort of HF patients, subsequently stratified by LVEF subtype: HFrEF (LVEF ≤40%), HFmrEF (LVEF 41–49%) and HFpEF (LVEF ≥50%) for each calendar year.

RESULTS

Patient characteristics

- The share of prevalent HF patients attributable to HFmrEF and HFpEF (as compared to HFrEF) increased steadily over time from 2014–2023 (HFmrEF: 13% to 15.0%; HFpEF: 52% to 57%), while HFrEF decreased (38% to 30%) (**Fig 1**).
- For each LVEF subtype, the mean age of patients increased over time (**Fig 2A**). The proportion of males was relatively stable over time for HFrEF (66.0% to 67.1%) and HFmrEF (65.6% to 67.1%) and increased over time for HFpEF (42.6% to 45.9%).
- Across years, the share of HF patients with type 2 diabetes (T2D), chronic kidney disease (CKD), hypertension, dyslipidaemia, and anaemia was generally higher among patients with HFpEF than those with HFrEF/HFmrEF (**Fig 2B–F**).

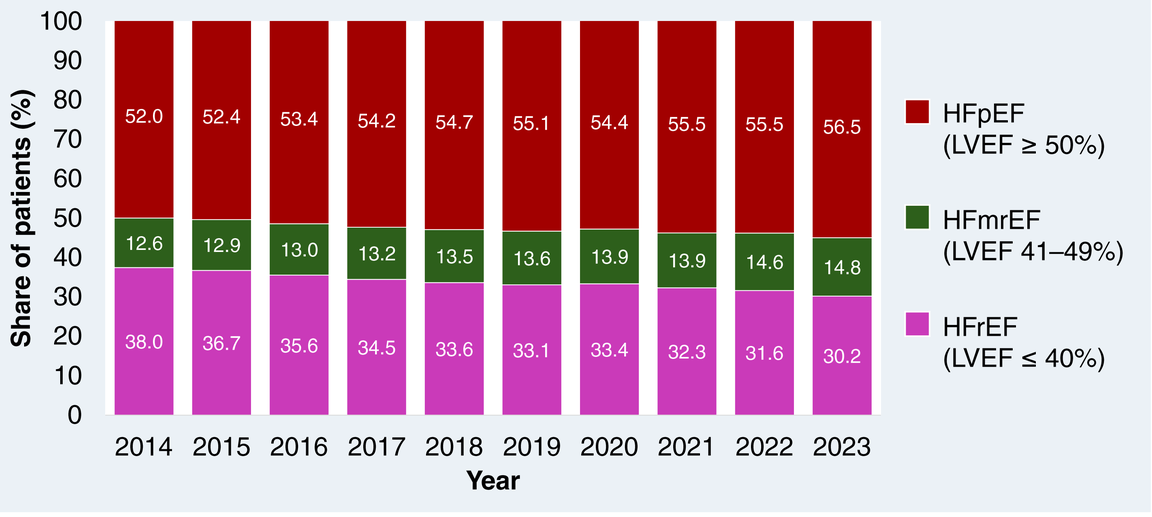

Fig 1. Annual distribution of LVEF subtypes among prevalent HF patients from 2014–2023.

Heart failure treatments over time

- Diuretics, beta blockers and renin-angiotensin-aldosterone system (RAAS) inhibitors were prescribed to >50% of patients across study years (**Fig 3**).
- The share of patients prescribed a mineralocorticoid receptor antagonist (MRA) was low (range 17.2% to 23.1% across study years) (**Fig 3**).
- Following recent approvals, the share of patients prescribed an SGLT2i increased from <3% in 2020 to 19% in 2023 (**Fig 3**).
- During a period when both were available for use across all HF subtypes, clear differences in the share of patients prescribed SGLT2is and ARNi were observed across LVEF subtypes in 2023:
  - **SGLT2is:** HFrEF: 35%, HFmrEF: 18%, HFpEF: 5%
  - **ARNi:** HFrEF: 31%, HFmrEF: 20%, HFpEF: 12%.

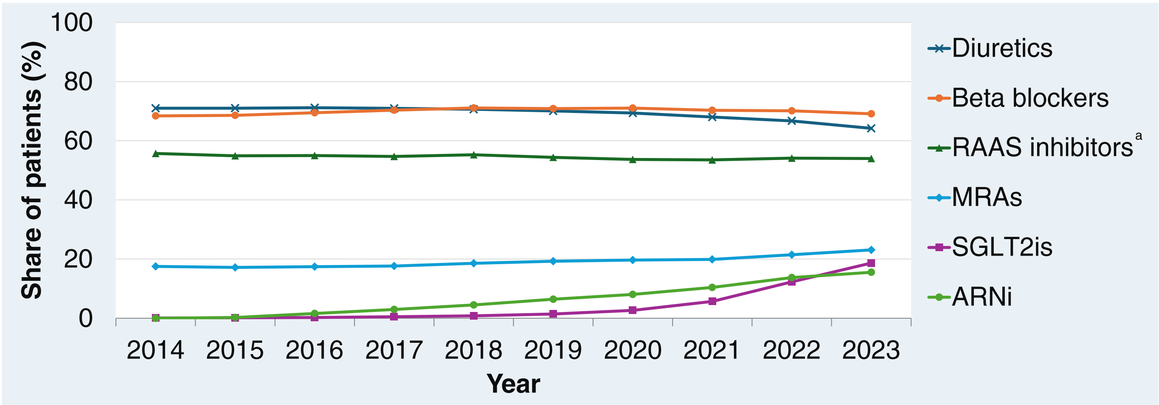

Fig 3. Prescription rates for approved treatments in patients with prevalent HF (based on drug classes defined in 2022 HF treatment guidelines). [a] Angiotensin-converting enzyme inhibitors / angiotensin receptor blockers / ARNi.

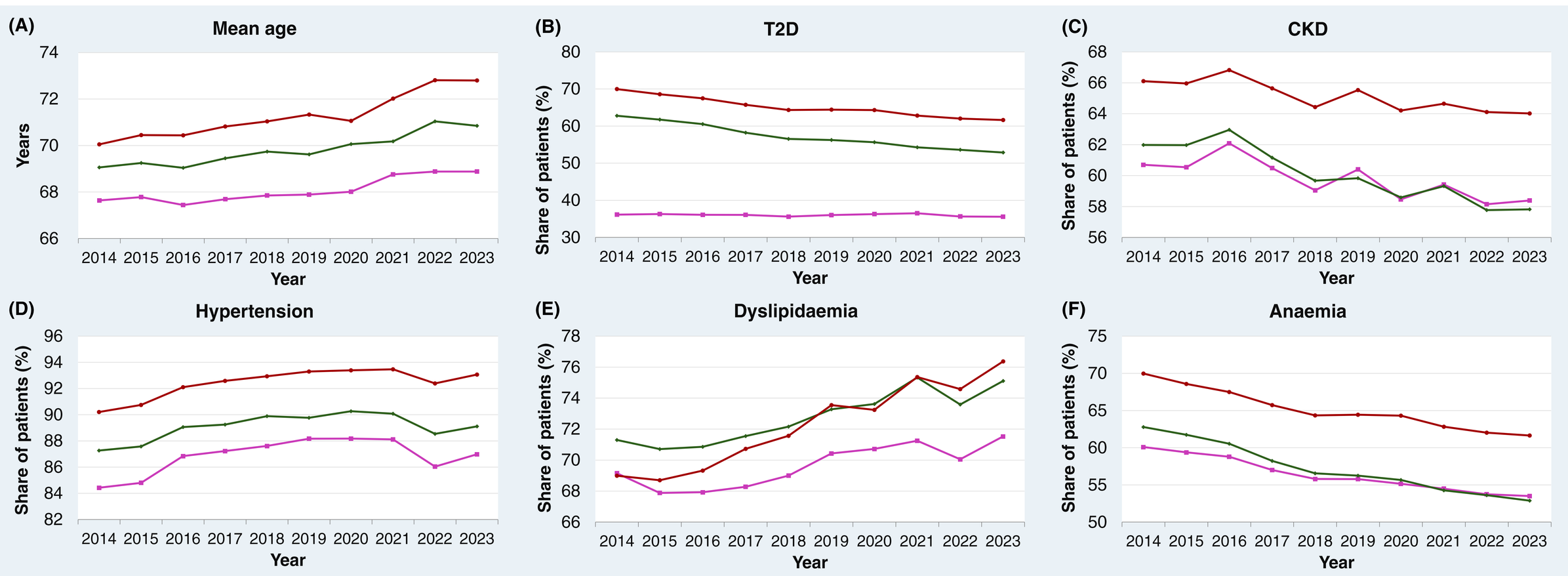

Fig 2. Characteristics of prevalent HF cohorts by cross-sectional years from 2014–2023.

References: **1.** Desai N *et al. Heart Fail Rev.* 2024;29:631–62. **2.** Heidenreich PA *et al. J Am Coll Cardiol.* 2022;79(17):e263–e421.

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CONCLUSION

- Our data suggest an increasing burden of the HFpEF subtype among prevalent HF patients over time from 2014–2023 in line with an ageing population.
- Prevalent HF patients are highly comorbid, especially those with HFpEF, and might benefit from treatments that target multiple related indications.
- Despite increases in the number of available therapies for treatment of HF across the entire LVEF spectrum, over the past years, prescription rates for novel treatments remain low in the real world.

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