Temporal Shift in Heart Failure Medications Prescribed to Hospitalized Patients According to Sex and Age: Results from Two Large US Integrated Health Systems

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BACKGROUND

- Prescription of guideline-directed medical therapy (GDMT) to patients with heart failure (HF) improves long-term outcomes.[1]
- Real-world data have highlighted the low adoption of GDMT, particularly for newer HF medications.[2]
- Health disparities may underlie lower use of cardiovascular risk-reducing medications such as a beta blocker, angiotensin converting enzyme inhibitor (ACEi)/angiotensin receptor blocker (ARB)/angiotensin receptor neprilysin inhibitor (ARNI), mineralocorticoid receptor antagonist (MRA), and sodium-glucose cotransporter-2 inhibitor (SGLT2i).

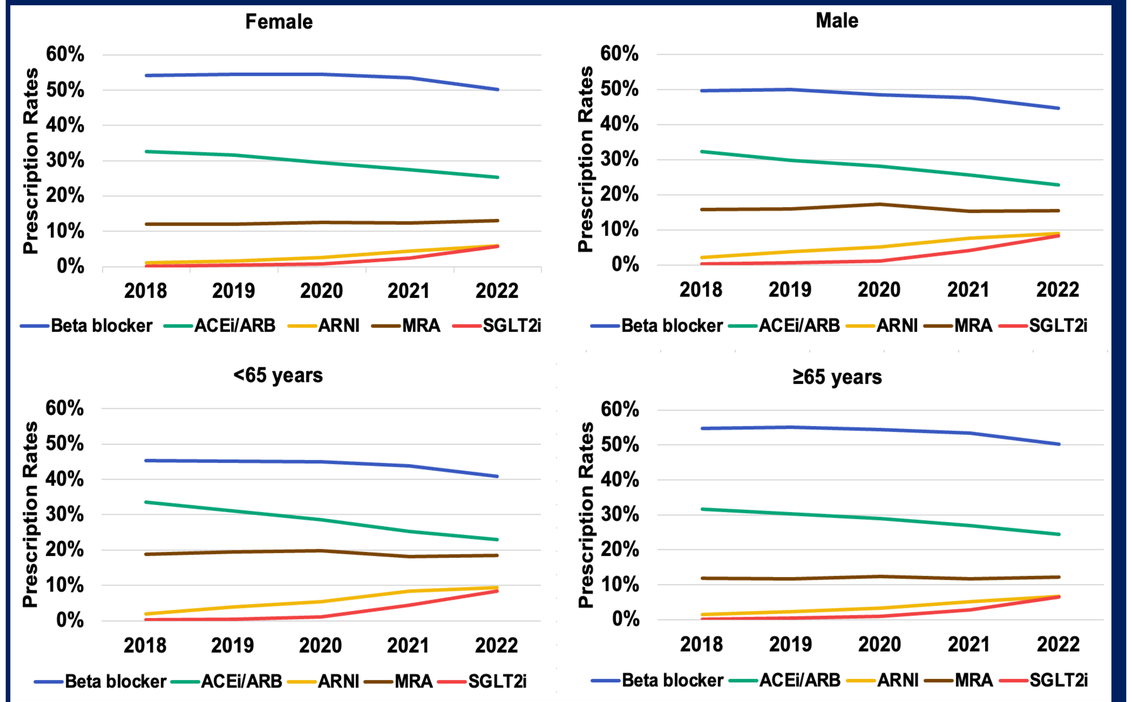
METHODS

- We performed a retrospective analysis of patients admitted with HF to either the Providence or University of Colorado Health system between 2018 and 2022.
- Prescription rates for GDMT (evidence-based beta blocker, ACEi/ARB/ARNI, MRA, and SGLT2i) were assessed at discharge, stratified by sex (male vs female) and age (<65 vs ≥65 years).
- The HF cohort was defined by primary discharge diagnosis ICD-10 codes:
  - I50.2 - Systolic heart failure
  - I50.3 - Diastolic heart failure
  - I50.4 - Combined systolic and diastolic heart failure
  - I11.0 - Hypertensive heart disease with heart failure
  - I13.0 + I13.2 - Hypertensive heart disease with heart failure and chronic kidney disease
- Each hospitalization was considered as an independent event.

The adoption of GDMT in HF is suboptimal regardless of sex and age

Despite a temporal increase in SGLT2i prescribing, rates remain very low

Figure



5-year prescription trend (2018 to 2022) of GDMT in HF, stratified by sex and age.
ACEi/ARB: angiotensin converting enzyme inhibitor/angiotensin receptor blocker; ARNI: angiotensin receptor/neprilysin inhibitor; MRA: mineralocorticoid receptor antagonist; SGLT2i sodium-glucose cotransporter-2 inhibitor.

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RESULTS

- A total of 68,442 hospitalizations were evaluated between the two Institutions.
- Over the 5-year timeframe, 46% of encounters were with women while 72% were with patients aged ≥ 65 years (Table).

Table

Encounters	2018	2019	2020	2021	2022	Total
Female	4,708	5,449	5,303	6,519	6,265	28,244
Male	5,510	6,220	6,191	7,576	7,495	32,992
<65 years	2,798	3,106	3,296	4,043	4,114	17,357
≥65 years	7,420	8,564	8,199	10,052	9,646	43,881

- An evidence-based beta blocker was prescribed more often in females and those ≥65 years.
- A decrease in ACEi/ARB prescriptions (from 31-33% in 2018 to 22-25% in 2022) was counterbalanced by an increase in ARNI prescriptions regardless of sex and age (up 9% in 2022 - Figure).
- MRA prescriptions remained largely unchanged over time, with higher rates among males and those <65 years.
- An increase in SGLT2i prescriptions was observed between 2018 and 2022, with higher rates in males and those <65 years.

DISCUSSION

- This analysis from 2 large health systems highlights suboptimal use of GDMT at discharge for patients hospitalized with HF.
- Prescription rates for an ARNI and SGLT2i were particularly low (<10%), and even lower in females and those ≥65 years.
- While the reasons for this are likely multifactorial, stratification of performance by age, sex, race, and ethnicity allows for increased recognition of health disparities and the opportunity for targeted quality improvement.

LIMITATION

Limitations include the retrospective design and lack of patient level analyses.

CONCLUSION

- Prescription rates of GDMT among hospitalized HF patients remains suboptimal.
- Differences in utilization of GDMT at discharge by sex and age highlight the need for targeted strategies to address these care gaps.

REFERENCES

1) Heidenreich PA, et al. Circulation. 2022 May 3;145(18):e895-e1032.
2) Canonico ME, et al. JACC Heart Fail. 2022 Dec;10(12):989-991.

DISCLOSURE

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An Affiliate of: CPC Clinical Research · CARDS Cardiovascular Analytics, Research + Data Science · PROVIDENCE Heart Institute